ISSN 2761-0373

第2号

城西ビジネスレビュー

JOSAI Business Review

Vol. 2

城西国際大学
JOSAI INTERNATIONAL UNIVERSITY

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論　　文

製造業向け生成AI導入における暗黙知の共創的表出化モデルの構築
―導入支援者の実践知にみる動機的・制度的条件の理論化―

Constructing a Co-Creative Externalization Model of Tacit Knowledge in Generative AI Implementation for Manufacturing:
Theorizing Motivational and Institutional Conditions from the Practical Wisdom of Implementation Practitioners

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【要旨】

生成AIの自然言語インターフェースは暗黙知の言語化という技術的障壁を低減したが、知識提供者（ベテラン社員）が暗黙知を自発的に共有する社会的プロセスは未解明である。本研究は、製造業クライアントへの生成AI導入を支援する中国の大手ITソリューション企業・神州数碼（Shénzhōu Shùmǎ, Digital China Group Co., Ltd.）の会長および企業向けエージェント基盤「神州問学」責任者への半構造化インタビューを修正版グラウンデッド・セオリー・アプローチ（m-GTA）で分析し、17概念・６カテゴリーから探索的モデル「生成AI媒介共創的表出化モデル（Generative AI-Mediated Co-Creative Externalization Model）」を構築する。知識表出化は「知識抽出フレームによる提供拒否」「外発的動機の限界」「データガバナンスの壁」という３層の社会的阻害に直面する。これを克服する核心概念が「プロダクト駆動型知識表出化」であり、その持続的循環はHuman-in-the-loop設計と知識ライフサイクル管理という制度的装置に支えられる。本モデルはSECIモデルの表出化モードに動機的次元と制度的次元を加え、技術的条件に加えて社会的条件を理論化する。さらに経営層の「科学的還元アプローチ」と実装責任者の「社会的共創アプローチ」は、暗黙知の性質に応じて補完的である。実務的には「知識抽出フレームの解除」から「制度的持続設計」に至る組織的ロードマップを提示する。ただし本稿が記述するのは導入支援者の視点から見た表出化プロセスであり、製造業企業側の語りによる検証は今後の課題として残る。

キーワード：暗黙知、形式知化、実践知、生成AI導入支援、SECIモデル、共同化、修正版グラウンデッド・セオリー、製造業、信頼形成、Human-in-the-loop

1　序論

1．1　研究の背景

朱（2026）は、生成AIが製造業の暗黙知の形式知化に及ぼすメカニズムを、神州数碼の生成AIプラットフォーム「神州問学」、養父織物のNotebookLM活用、黒野金属の不良率予測AIの３事例を中心に公開資料・技術白書から分析した。その成果として「AI拡張型SECIモデル」を提案し、①AI媒介型共同化（共同化の時空間拡張）、②自然言語インターフェース駆動型表出化（言語化障壁の低減）、③知識グラフ駆動型連結化（領域横断的知識統合）、④Copilot支援型内面化（実践的支援の高度化）という４変換モードの質的変容を明らかにした。

しかし朱（2026）は方法論的限界として「一次データ（インタビュー、参与観察）収集の欠如」を挙げ、(a) 組織的前提条件に関する比較研究、(b)「属AI的な暗黙知」の再生産回避に向けた理論的深化、(c) 形式知化と技能習熟の乖離という３課題を今後の研究課題として示した。

本稿はこれらの課題への応答を目的とし、朱（2026）の技術的解明を踏まえ「なぜ・いかなる社会的プロセスを経て、知識提供者（ベテラン社員）は暗黙知を自発的に共有するのか」という社会的プロセスの解明に焦点を移す。

1．2　技術的障壁の低減と社会的障壁の存在

朱（2026）の「自然言語インターフェース駆動型表出化」は、生成AIの自然言語インターフェースが暗黙知の言語化という技術的障壁を低減することを論じた。しかし本調査が示すように、技術的障壁の低減は社会的障壁の解消を自動的にはもたらさない。

生成AI導入を担う実践者の経験によれば、製造業のベテラン社員は、自分の暗黙知を「搾り取られたら自分の価値がなくなる」ものと捉え、組織への知識提供を意識的に避ける。金銭的インセンティブ、プロンプト誘導、ヒアリング形式といった外発的アプローチは機能しなかった。さらに、組織内のセクショナリズムや企業間の競争的データ囲い込みは、デジタル化された知識の流通を構造的に阻害する。

生成AIが技術的に進化しても知識表出化の試みが繰り返し失敗する背後には、技術的障壁とは異なる社会的阻害のメカニズムがある。その解明が本稿の中心的な問題意識である。

1．3　研究の目的

本研究の目的は次の３点である。第一に、製造業向け生成AI導入を担う実践者の視点から、生成AIを媒介とした暗黙知の表出化プロセスを、訪問インタビューに基づくm-GTAによって質的に解明する。第二に、生成AI導入支援者がもつ、まだ定式化されていない実践知を概念とカテゴリーに分解・統合し「生成AI媒介共創的表出化モデル」として定式化する。第三に、このモデルによって朱（2026）のAI拡張型SECIモデルの表出化モードに「動機的次元」と「制度的次元」を追加し、共同化と表出化の順序関係についての命題を導く。

2　先行研究の検討

2．1　朱（2026）の成果と残された課題

朱（2026）が提示したAI拡張型SECIモデルは、生成AIがSECIの各変換モードに及ぼす質的変容を体系的に示した。とくに「自然言語インターフェース駆動型表出化」は「保持者自身が意識せずとも表出化が達成される」質的転換を論じた。

しかし朱（2026）の分析には、知識を「提供する側」の動態が欠落している。SECIモデル（Nonaka, 1994; Nonaka & Takeuchi, 1995）は、組織的知識創造を4変換モードの螺旋として記述するが、各モードへの参加が「なぜ・いかに動機づけられるのか」は明示的に論じられない。「場（Ba）」概念についても、Nonaka & Konno（1998）が物理的・仮想的・精神的な場を区別し、von Krogh（1998）が配慮（care）と信頼を条件として論じるが、いずれも場に備わるべき性質を示すにとどまり、知識提供者が参加を避ける条件と、それを解除する方法は論じていない。

なお本稿では、互いに近接する三つの語を次のように区別して用いる。「共同化（socialization）」は、身体的・経験的な共在を通じて暗黙知が暗黙知のまま共有される過程を指すSECIモデルの変換モードであり、既存概念である。「共創的伴走」は、その下位形態として本稿が名づけた概念であり、導入支援者という第三者が暗黙知の表出化を目的として意図的に設計し維持する共在をいう。共同化一般との違いは、共在が自然に生じるのでなく設計されること、目的が経験の共有それ自体でなく後続の表出化にあること、その成果が信頼という動機的条件として現れることの3点である。これに対し「共創」は、知識提供者と導入支援者が共同の成果物（AIエージェント）の実現を共通の目標として共に取り組む関係のあり方を指す包括的な語であり、変換モードの名称ではない。本稿のモデル名「共創的表出化」も、この関係のもとで生じる表出化を意味する。

2.2　知識表出化における社会的障壁の先行研究

知識の共有・移転を妨げる社会的要因は、組織学習・組織行動論の観点から蓄積がある。Blackler（1995）は知識を社会的実践に埋め込まれた関係的資源と捉え、知識の「権力的側面」（知識保有が組織内の地位・権威と結びついている構造）が知識共有を阻害することを論じた。Levin & Cross（2004）は、能力への信頼（competence-based trust）と善意への信頼（benevolence-based trust）の双方が知識移転の質を規定することを実証した。

知識を意図的に提供しない行動を扱う研究群もある。Connelly et al.（2012）は、知識要求への意図的な非開示を「知識隠匿（knowledge hiding）」として概念化し、回避的隠匿・ごまかし・合理的隠匿の類型を示した。またBrown et al.（2005）の縄張り行動（territoriality）論とPierce et al.（2001）の心理的所有感（psychological ownership）論は、知識を占有・防衛する心理的機制を説明する。本研究の「知識抽出フレームによる提供拒否」は、これら個人レベルの防衛的行動が生成AI導入という文脈で前面化する局面として位置づけられる。

心理的安全性（Edmondson, 1999）の観点からは、「発言・質問・失敗が罰せられない」環境が知識共有を促進するとされるが、「知識の搾り出し」という文脈では「提供後に自分の価値がなくなる」という不安が心理的安全性を超える阻害要因として働く可能性がある。

生成AI文脈でのこの問題を論じた研究は少ない。He & Yang（2025）は生成AIによる知識管理の五段階フレームワークを提示し、「智能知識採集」段階でのデータ収集の重要性を述べるが、収集の前提となる知識提供者の動機的条件を分析していない。

2.3　製造業における現場知識表出化の課題

製造業の暗黙知は「身体知」「感覚知」「文脈知」の複合であり（Polanyi, 1966; Nonaka, 1994）、その表出化には固有の困難が伴う。中山（2026）は、暗黙知をAIに学習させるだけでは「属人的な暗黙知が属AI的な暗黙知になる」にすぎないと指摘している。入出力間の論理的関係が明示されない限り、真の形式知化とは言えない。

さらに朱（2026）が論じた「形式知化と技能習熟の乖離」（知識としての理解と身体的技能としての習

得が別プロセスであること）は、生成AIの内面化支援が直面する本質的困難として残される。これらの先行研究を踏まえれば、製造業の生成AI導入で未解明なのは技術的な「何を」ではなく、社会的な「なぜ・いかに」の部分である。

この「なぜ・いかに」に答えているのは学術的理論ではなく、導入を担う実践者が試行と失敗を通して蓄積してきた知である。Nonaka & Takeuchi（2019）は、文脈に即して善い判断を下す能力を実践知（practical wisdom, phronesis）として知識創造論の中心に置いたが、その内容はリーダーの資質として記述され、組織的な設計知として定式化されていない。本稿は、実践知を「導入支援者が保持する、文脈依存的で未定式な設計知」と定義し、生成AIを用いた暗黙知の表出化をいかに設計するかについてモデルとして定式化することを課題とする。したがって本稿の「実践知」は、Nonaka & Takeuchi（2019）のいうphronesis全体でなく、そのうち知識創造の仕組みを設計する側面に限って用いる。

２．４　AIガバナンス研究における人間関与の三水準

生成AIの利用における人間の関与水準については、AIガバナンス研究に一定の蓄積がある。High-Level Expert Group on AI（2019）は、信頼できるAIの要件として人間の作為性と監督を提示し、その実現機構としてhuman-in-the-loop（HITL）・human-on-the-loop（HOTL）・human-in-command（HIC）の三つを区別した。HITLはシステムの各意思決定サイクルへ人間が介入しうる状態、HOTLは設計サイクルへの関与と稼動中の監視、HICはAIシステムをいつ・いかに使うかを決定する権限を指す。他方Mosqueira-Rey et al.（2023）は、機械学習における人間の関与をactive learning・interactive machine learning・machine teachingとして類型化し、学習プロセスの制御主体という技術的観点から整理している。ただしこれらの議論はいずれも、関与する人間の動機を所与としており、なぜ人間が関与し続けるのかという条件は問われていない。

この点で例外的なのがZanzotto（2019）である。同稿は、学習型AIが無自覚な熟練・非熟練の労働者の相互作用から知識を抽出している状況を不当な取得と捉え、AIの決定が生む収益を知識の正統な所有者へ還元する枠組みを提案した。知識提供者の側から人間関与を問う点で、本稿の問題意識に最も近い。ただしその処方は所有権と金銭的補償に基づくものであり、組織内における権威や職務上の存在価値といった非金銭的な条件は扱われていない。

なお第三水準の名称は文献間で一致していない。High-Level Expert Group on AI（2019）はhuman-in-commandを用いる一方、human-out-of-the-loopなど複数の語が併存している。本稿では、AIの存在目的そのものを人間が設計する水準を指す語としてHuman-over-the-loop（HOOTL）を用い、HICに対応する水準として扱う。

２．５　リサーチ・クエスチョン（RQ）の設定と本論文の構成

以上の研究ギャップを踏まえ、本研究は次のRQを設定する。

RQ1：製造業クライアントへの生成AI導入を担う実践者の経験と視点において、知識提供者（ベテラン社員）はいかなる社会的阻害に直面すると認識されており、導入実践はいかなるプロセスを経て暗黙知の自発的表出化に至るとされるか。

RQ2：導入支援者の実践において、知識表出化の社会的阻害を克服するいかなる組織的設計が有効とされ、その設計が持続的に機能するにはいかなる条件が必要と認識されているか。

RQ3：製造業クライアントへの生成AI導入を支援する企業において、全社戦略を担う経営層とプロダクト実装を担う責任者の語りを対置することから、いかなる理論的示唆が得られるか。

RQ4：以上の知見を統合すると、導入支援者が保持する実践知はいかなるモデルとして定式化でき、そ

のモデルは既存のSECIモデルに対して何を追加するか。

本論文の構成は次のとおりである。第２節で先行研究（知識表出化の社会的障壁、およびAIガバナンスにおける人間関与の三水準）を検討してRQを設定し、第３節で研究方法を述べる。第４節の分析結果がRQ1・RQ2に、第５節１項がRQ4（モデルの定式化）、第５節２項がSECIモデルへの理論的追加、第５節３項がRQ3に対応する。第５節４項では実務的ロードマップを導く。第６節は、分析結果を超えた理論的展望として、RQ2が問う制度的持続条件を人間関与の三水準による三層構造へ拡張する方向を示す。第７節で研究の限界と今後の課題、第８節で結論を述べる。

３　研究方法

３．１　研究デザイン：修正版グラウンデッド・セオリー・アプローチ（m-GTA）

本研究は木下康仁（2003，2020）が提唱する修正版グラウンデッド・セオリー・アプローチ（m-GTA）を採用する。m-GTAはGlaser & Strauss（1967）のグラウンデッド・セオリーの基本的枠組みを継承しつつ、分析プロセスの厳格化と実用性の向上を図った質的研究方法論である。

本研究がm-GTAを選択した理由は次の３点である。第一に、「暗黙知の表出化という社会的プロセスがいかに展開するか」という動態的現象の解明にグラウンデッド・セオリーの「プロセス理論」構築が適合する（木下，2003）。第二に、「理論的サンプリング（theoretical sampling）」という分析戦略が本研究の目的に合う。これは既存理論（SECIモデル）を前提に一次データから理論を精緻化する戦略であり、朱（2026）との連続性を保ちながら理論を拡張するという本研究の目的にかなう。第三に、概念の適用条件・境界条件・対極例の明示を求めるm-GTAの手続きが、少数の語りからの過剰な一般化を抑える。

分析テーマは「生成AIの活用が製造業におけるプロセス改造に及ぼす影響」とし、分析対象者は「製造業クライアントへの生成AI導入を担い、ベテラン社員の暗黙知の表出化を設計する実践者」と設定した。本稿がモデル化するのはこの対象者の実践知であり、分析単位は製造業の現場でなく導入支援者の実践である。ベテラン社員の動機や認知についての記述は、すべて本人から直接聞いたものでなく、導入支援者が現場で観察し解釈した内容である。

３．２　インフォーマントの選定と調査の概要

インフォーマントは２名で、いずれも中国の大手ITソリューション企業・神州数碼（Shénzhōu Shùmǎ, Digital China Group Co., Ltd.）において製造業向け生成AI事業の中核を担う実践者である。選定の包含基準は次の３点である。(a) 生成AI（LLMを含む）を用いた製造業の暗黙知の形式知化に実践的に関与していること、(b) 知識表出化の成功事例・失敗事例の両方について具体的経験を有すること、(c) 組織的な意思決定レベルにあり、プロセス設計の全体像について語りうる立場にあること。

インフォーマント１：神州数碼の会長

神州数碼は2025年時点で「AI for Process（企業級プロセスの数智化変革）」戦略を掲げ、生成AIを企業の業務プロセス全体に組み込む取り組みを推進している。同社の生成AIプラットフォーム「神州問学」は朱（2026）の分析対象でもあり、公開資料に基づく分析を一次データで補完できる。インタビューは2025年に中国・北京市の同社オフィスにて半構造化形式で実施した（収録時間：約90分）。同氏は、全社的なAI戦略の策定と製造業クライアントへの導入方針の決定を統括する立場にある。

インフォーマント２：神州数碼の企業向けエージェント基盤「神州問学」責任者

「神州問学」は、ベテラン技術者の暗黙知の抽出・形式知化・継承を主要機能とする。同氏は同基盤のプロダクト責任者として、現場密着型のデリバリーで製造業クライアントとの共同実装を担ってきた。インタビューは2025年に中国・深圳市の同社オフィスにて実施した（収録時間：約120分）。

２名は同一企業に属しながら、異なる職位（全社戦略を担う経営層と、プロダクト実装を担う責任者）から同一の現象（製造業における生成AIを媒介とした知識表出化）を語る。単一企業内で戦略層と実装層の語りを対置できる点が本事例の利点であり、企業間の対比は本研究の範囲外である。

３．３　データ収集と分析手順

インタビューは逐語録に文字起こしし、日本語に翻訳して分析に供した。m-GTAの手続きに従い、①分析テーマに合致する発言切片を逐語録から抽出し、②各切片について概念名・定義・事例記述・対極例・背景・発生条件・結果・影響・関連概念の９項目からなる分析ワークシートを作成して概念を生成し、③生成された概念の継続的比較（constant comparison）を通じてカテゴリーを形成し、④カテゴリー間の関係図（Mermaid記法）を作成してストーリーラインを記述する、という４ステップで分析を実施した。

分析の信頼性確保のため、(1) すべての概念について逐語録との対応関係を記録した監査証跡（Audit Trail）を整備し、(2) 類似例のみならず対極例・否定的事例の積極的探索を実施し、(3) AIによる自動的な概念確定を避け研究者の承認を要する判断事項を明示した。

４　分析結果

４．１　会長インタビューの分析（７概念・３カテゴリー）

会長インタビューから、下記のように７概念を抽出し、３カテゴリーに統合した。なお本節において、引用した発話は逐語録に基づく一次データであり、概念名・カテゴリー名およびそれらの関係についての説明は筆者による解釈である。語りの範囲を超える推論を含む箇所には、以下、【解釈】と付記する。また概念番号は、戦略層（会長）の語りから生成した概念を概念S1～S7、実装層（「神州問学」責任者）の語りから生成した概念を概念T1～T10と表記して区別する（表１・表２）。

カテゴリーAは「科学的還元アプローチ」に関する上位概念である。

- 概念S1「暗黙知のデジタルツイン化」は「熟練の職人の経験をモデルとして学習させ、あなたの助手（アシスタント）にできる」という発話の通り、徒弟的伝承をデジタルシミュレーションで代替する試みである。
- 概念S2「データの四化（規模化・標準化・特徴化・関連化）」は、「生データの山をそのまま与えても対応できない。このようなデータであって初めて大規模モデルに吸収され、学習される」という語りの通り、AIが処理可能な形式へのデータ構造化にあたる。朱（2026）の「連結化」フェーズにおけるデータ前処理の重要性を裏付ける。
- 概念S3「科学的方法による経験の還元」である。「単に『音を聴いたから』ではなく、なぜその音が発生するのかを研究し、シミュレーションによって機械内部で何が起きているのかを解明する必要がある」という会長の語りは、表層的なデータ収集ではなく「物理的メカニズムの科学的解明」による客観的再現を志向しており、朱（2026）が論じた「属AI的な暗黙知」問題への回答であり、ブラックボックス化を防ぐ設計思想と理解できる。

カテゴリーBは「人間とAIの協働と人材の新陳代謝」に関する上位概念である。

- 概念S4「人機協調の分業設計」は、「人間とAI・デジタルをいかに結合するかという問題であり、AIは単なる助手ではなく一種の『分業』の相手になる。かつては５人で分担していた業務が、現在は２人の人間と、３～５人分の業務量を担うAI・デジタルという構成に変わる。これが第二段階、すなわち『人機協調』である」という会長の語りに基づき、人間とAIそれぞれの強みに応じて従来の人間主導の業務プロセスを再編成し、両者が補完・協働する体制へ移行する動きを示す。この再編成は、従業員の役割を「定型的な実務の実行」から「AIを管理・設計する役割」へと転換させる（リスキリング）。
- 概念S5「体験的な感覚の非代替性」は、「企業が直面するのは多くの場合『不確実性下における意思決定』であり、そこで重要なのは『価値観』や『文化的な判断』である。これについて大規模モデルが正確な判断を下すことは非常に難しい。なぜなら、それは『体験的なもの』だからである」という語りに基づく。人間の価値判断や文化的判断をAIが代替できないという制約を示す。
- 概念S6「知識コモディティ化による人材新陳代謝の加速」は、「ベテラン従業員の死活問題は『学習能力（リスキリング能力）があるかどうか』であり、それがなければ淘汰（新陳代謝）されるしかない」という語りの通り、技術的還元アプローチがベテランの「コモディティ化」という帰結を伴うことを示す。この帰結は後述の「知識抽出フレームによる提供拒否」と表裏をなす。

カテゴリーCは、「データ資産の市場価値化サイクル」に関する概念である。

- 概念S7「データ資産の市場価値化サイクル」は、「暗黙知を形式知化し、形式知を価値化（マネタイズ）する。これは非常に良いサイクルである」という語りに基づき、形式知化された経験がトークン経済を通じ企業間で流通・収益化されるビジョンを示し、朱（2026）の「連結化」の業界横断的拡張をエコシステム設計者の語りから裏付ける。

表１　会長インタビューの概念・カテゴリー一覧

カテゴリー	構成概念	機能
A：暗黙知の科学的デジタルツイン化	概念S1（デジタルツイン化） 概念S2（データ四化） 概念S3（科学的還元）	属人的暗黙知を科学的・客観的なデジタルモデルへ変換
B：人間とAIの協働と人材の新陳代謝	概念S4（人間とAIの分業設計） 概念S5（体験的な感覚の非代替性） 概念S6（知識コモディティ化と新陳代謝）	人間とAIの役割再編と組織的適応のダイナミクス
C：データ資産の市場価値化	概念S7（データ資産の市場価値化サイクル）	形式知化された経験をエコシステムで流通・収益化

出典：筆者作成

４．２　AIエージェント基盤「神州問学」責任者インタビューの分析（10概念・３カテゴリー）

「神州問学」責任者インタビューから10概念を抽出、３カテゴリーに統合した（表２参照）。

カテゴリーX：知識表出化の構造的阻害

- 概念T1「知識抽出フレームによる提供拒否」は「神州問学」責任者の核心的な語りから生成された。「私たちは彼らに『あなたの経験やスキルを搾り出して会社の資産にしましょう』と直接言いたくはなかった。搾り取られたら価値がなくなると思われるため、従業員側は非常に警戒し排斥しようとする」。この認識に基づき、複数の外発的アプローチが試みられたが、いずれも失敗した。

- 概念T2「外発的動機による知識表出化の限界」は、方法論レベルの阻害要因を指す。外発的な誘因に頼る設計そのものが知識提供を「取引」として枠づけ、概念T1の防衛機制をむしろ強めてしまう。以下の語りはその失敗の記録である。「役割設定（ペルソナ）による誘導も従来のヒアリング形式も、いずれも良い結果は得られなかった」。金銭的インセンティブ（「１日300元の手当を出して協力してもらったが、アノテーションの品質は高くなく」）も、作業の定着と品質の確保には至らなかった。３種類のアプローチがいずれも失敗した事実は、社会的阻害が方法論的工夫では解決できないことを示唆する。
- 概念T6「データガバナンスの壁による知識流通の分断」は、組織・産業レベルの阻害を示す。「製造業では部門間でさえセクショナリズムによりデータが分断されており、まず企業内のデータ連携とガバナンスの解決が先決である」。同責任者によれば、最大の障壁は技術でなく企業内のデータの不備と部門間の縦割り構造にある。この指摘は、知識表出化の阻害が個人レベル（概念T1）・方法論レベル（概念T2）に加え、組織・産業レベルの権力構造的問題（概念T6）という３層構造をなすことを示している。

カテゴリーY：共創的場の意図的設計

カテゴリーXの３層の阻害を克服する転換が、カテゴリーYに示される。なおカテゴリー名の「共創的場」は、Nonaka & Konno（1998）の「場（Ba）」を、自然に生成されるものでなく導入支援者が意図的に設計する対象として捉え直した表現である。その起点は「プロダクト駆動」という着想である。

- 概念T3「AI Readyインフラの前提条件」と概念T8「組織・プロセス改革の優先性」は、上記の実践を支える技術的・組織的基盤を示す。「最大の障壁は『技術』そのものよりも、企業の『組織・プロセス・管理体制（ガバナンス）』にある。技術と組織改革をセットで進めることが成功の鍵となる」。なお、ここでいう「AI Readyインフラ」は大規模言語モデル（LLM）の導入を意味しない。音声や画像といった感覚的データの処理には、LLM単体ではなく「大規模モデル＋小規模モデル＋画像認識・音声処理プラグイン」というハイブリッド構成が採用されている。身体知・感覚知の表出化には汎用モデルの言語能力だけでは足りず、モダリティ別の専用モデルを組み合わせる必要がある。これは朱（2026）の「自然言語インターフェース駆動型表出化」の技術構成上の限界を示す。
- 概念T4「シナリオを媒介とした内発的知識開示の誘発」は、プロダクト駆動型アプローチの具体的方法論である。「AIがなかった頃にはできなかったが、AIがある今なら突破できる特定のシナリオを見つけ出す」。ベテランの現場課題を共同目標に設定することで、知識共有は「義務の遂行」から「共同成果への貢献」へと意味を転換する。
- 概念T7「共創的伴走による信頼形成」は、この場の社会的基盤を形成する。本稿はこれをSECIの共同化に代わる新概念として提示するのでなく、共同化の下位形態（導入支援者が表出化を目的として設計し維持する共在）として位置づける（本稿2.1参照）。「私たちは従来のシステムとは異なり、クライアントと一緒に、毎日同じ場所でオフィスを共にし、作業している」。「単にプレゼン資料を見せて知識を請うのではなく、一緒に時間を過ごし、現場の問題をAIで解決する姿勢を示すことが、暗黙知を引き出す上で最も重要な鍵となる」。
- 概念T5「プロダクト駆動型知識表出化」は、同責任者自身の語彙で転換点として語られている。「暗黙知の形式知化というプロセスは、従来の直接的なアプローチではなく、『プロダクト駆動』であるべきだということである。対応するAIエージェントを一緒に解決していく必要があり、その発起人はクライアントや専門家（現場のプロ）であるべきである」。本稿では概念T5を「知識提供の意味を再フレーム化する設計の論理」と定義し、概念T4（シナリオの選定）と概念T7（物理的共在に

よる伴走）をその実装手段として区別する。このアプローチの核心は、暗黙知の表出化を「目的」でなく「手段」として再定義する点にある。「『あなたの知識を出してください』ではなく『あなたの知識とAIを使って組織レベルでより多くを達成する』という視点に立てば、専門家も進んで知識を提供するようになります」。知識提供が「犠牲」ではなく「専門性の拡張」として再フレーム化されることで、防衛機制が解除される。定量的効果は2例語られた。中航光電では、AIによる生成とベテランの確認を組み合わせた工程設計により、研究開発報告書の作成時間が7日から半日に短縮された。半導体製造企業では、熟練工がストップウォッチで手動計測・監視していた生産ラインのタクトタイムと動作品質の判定工程をマルチモーダルAIの自動判定に置き換え、判定精度97%以上に達したとされる。後者は、熟練工の目と計測に依存していた感覚的判断が判定基準として形式知化された例である。これらが示しうるのは、外発的アプローチが繰り返し失敗した後、同じ実践者と組織のもとでプロダクト駆動型の実践が成果を生んだという時系列的事実である。

カテゴリーYには限界も語られた。プロダクト駆動型の実践は個別プロジェクト単位にとどまり「大規模な水平展開はしていない」という留保が付され、共創的伴走は物理的共在と時間の投入を前提とするため案件数の拡大に対しコストが線形的に増大する。この否定的事例は、カテゴリーYが「少数の重点案件における深い関与」という条件下で成立する実践であることを示す。

カテゴリーZ：知識継承の制度化と持続

カテゴリーYの実践を一回限りの成功にとどめず持続的サイクルとして制度化するのが、カテゴリーZである。

- 概念T9「Human-in-the-loopによるベテラン権威の制度的保護」は、この制度設計の核心を示す。なお本稿ではHuman-in-the-loopという語を二つの水準で用いる。ここでの概念T9は、ベテランの権威を保全する具体的な制度的装置を指し、第6節で述べるHuman-in-the-loopは人間関与のガバナンス水準を指す。「あえて『ベテランの知識を奪う』ような見せ方はせず、高価値な業務シナリオで最終的な意思決定や承認を行う重要な役割（Human-in-the-loop）としてベテラン社員を位置づけている。AIの提案を人間のベテランが確認して初めてアクションに変換される仕組みにすることで、彼らの存在価値と権限を保つように設計している」。Human-in-the-loop設計は、マルチモーダル判定を含むAI出力の誤判定を防ぐ品質保証と、ベテランの職務上の存在価値・権限の維持という二重の役割をもつ。これは技術設計であると同時に「ナラティブ管理（見せ方）」でもある。表出化の後もベテランが権威者の立場を保てるという制度的保証が、継続的参加の動機となる。
- 概念T10「知識のライフサイクル管理と形式知の廃棄・更新」は、形式知化された知識が技術変化によって陳腐化するリスクへの対処を示す。「知識の破棄・消去（Knowledge Invalidation / Destruction）はナレッジマネジメントのライフサイクルの重要なステップであり、神州問学にもそのメカニズムが組み込まれている」。朱（2026）が論じた五段階フレームワークの「智能知識優化（第5段階）」（He & Yang, 2025）を、一次データが裏付ける知見として位置づけられる。
- 以上10概念のうち、概念T5をCore Categoryとして確定したのは、同概念が概念T1・T2が示す阻害の解除、概念T4・T7という実装手段、概念T9・T10による制度化のいずれにも接続し、他概念との関係が最も密であったためである。

表２　AIエージェント基盤「神州問学」責任者インタビューの概念・カテゴリー一覧

カテゴリー	構成概念	機能
X：知識表出化の構造的阻害	概念T1（知識抽出フレームによる提供拒否） 概念T2（外発的動機の限界） 概念T6（データガバナンスの壁）	知識表出化を個人・方法論・組織の３層で阻害するメカニズム
Y：共創的場の意図的設計	概念T3（AI Readyインフラ） 概念T4（シナリオ媒介） 概念T5（プロダクト駆動型知識表出化） 概念T7（共創的伴走＝設計的共同化） 概念T8（組織プロセス改革の優先性）	阻害を克服する共創的実践プロセス群
Z：知識継承の制度化と持続	概念T9（Human-in-the-loopによるベテラン権威の制度的保護） 概念T10（知識のライフサイクル管理）	共創的実践を持続的サイクルとして制度化する装置

出典：筆者作成
（注）概念T5「プロダクト駆動型知識表出化」= Core Category

４.３　２つの職位の語りの比較

以上の分析は、RQ1についてはカテゴリーXが示す３層の社会的阻害と、それを転換するカテゴリーYのプロセスとして、RQ2についてはカテゴリーYの設計群とカテゴリーZの制度的装置として、それぞれ回答を与える。以下ではRQ3に向けて両者の語りを対置する。

両インフォーマントの語りを比較すると、同一企業内に暗黙知の表出化に関する二つの異なる論理が併存することがわかる（表３参照）。【解釈】表３に用いた「技術的還元」「社会的共創」という対比軸は、両者の語りを整理するために筆者が付した名称であり、インフォーマント自身の語彙ではない。

表３　２つの職位の語りの比較

比較次元	会長（全社戦略）	「神州問学」責任者（プロダクト実装）
組織立場	全社戦略・エコシステム設計	プロダクト実装・現場デリバリー
知識表出化の主要論理	技術的還元 （センサー・科学的モデル化）	社会的共創 （信頼・プロダクト駆動）
阻害要因への認識	技術的阻害 （データの非構造化・ブラックボックス）	社会的阻害 （知識抽出フレーム・外発的動機の限界）
ベテランの位置づけ	コモディティ化対象→新陳代謝の促進	権威者としての制度的保護 （Human-in-the-loop）
対応するSECIの変容	表出化（科学的モデル化） 連結化（データ四化）	共同化（共創的場） 表出化（プロダクト駆動）
知識流通のモデル	開放型マネタイズ （トークン経済・市場化）	信頼基盤型限定開放 （共同研究所モデル）
主要な先行条件	AI Readyなデータ基盤・インフラ整備	AI Readyな人間関係・信頼形成

出典：筆者作成

【解釈】表３の「対応するSECIの変容」は、各職位が前提とする変換モードの違いによる筆者の整理である。経営層はセンサーとシミュレーションで暗黙知をデータ化し（表出化）、データの四化を経て大規模モデルに統合する（連結化）経路を前提とし、人の介在を必須としない。他方、実装責任者の語りは、物理的共在を伴う伴走でまず経験を共有し（共同化）、その上でプロダクト開発の副産物として言語化が生じる（表出化）経路を前提とする。両者はいずれも表出化を含むが、その手前のモードが異なる。

この対比は優劣の問題でない。会長の科学的還元アプローチは、技術的に客観化可能な暗黙知（設備の物理的挙動・製造プロセスの定量的条件）の表出化に強みを持つ。これに対し責任者の社会的共創ア

プローチは、価値観的・文脈依存的な暗黙知（クオリア・対人関係的判断）の表出化に有効である。適用条件は5.3で整理する。

５　考察

５．１　「共創的表出化モデル（Co-Creative Externalization Model）」の提案

第５節の記述は、第４節の分析結果に基づく筆者の理論的解釈である。以上の分析から、本研究は「生成AI媒介共創的表出化モデル（Generative AI-Mediated Co-Creative Externalization Model）」を提案する（図１参照）。以下では煩雑を避け、「共創的表出化モデル」と略記する。ここでの「共創的」は、知識提供者と導入支援者が共同の成果物を目標として関わる関係のあり方を指し、SECIの変換モードの名称ではない（本稿2.1参照）。

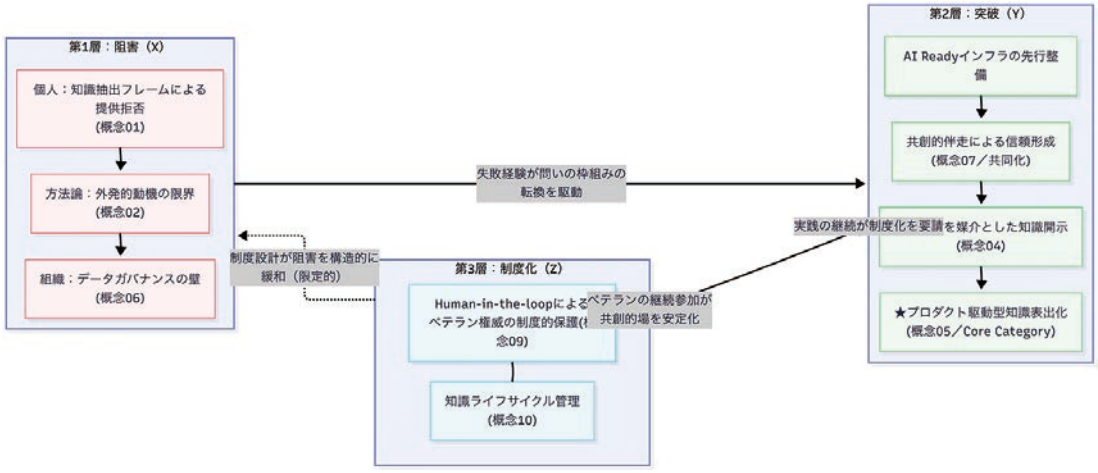

図１　共創的表出化モデルの構造

出典：筆者作成

このモデルは、阻害（X）を突破（Y）し、それを制度化（Z）へとつなげ、再びYとXへ立ち戻るという、螺旋を描くプロセスをたどる。各矢印は時系列的な前後関係でなく、カテゴリー間の条件･促進･フィードバックという動態的関係を示す。

第一の特徴は「失敗経験による問いの枠組みの転換（X→Y）」である。外発的アプローチの繰り返しの失敗（カテゴリーX）は、単なる「目標到達の失敗」にとどまらず、「知識を搾り出す」という問いの枠組みそのものの問い直しを伴い、プロダクト駆動型アプローチへとつながった。この転換は、ダブルループ学習（Argyris & Schön, 1978）として解釈できる。

第二の特徴は「制度化の要請（Y→Z）」である。プロダクト駆動型の共創的実践は当初、個別プロジェクトレベルの実験的取り組みとして始まった（「大規模な水平展開はしていない」）。しかし実践の継続は「ベテランの継続参加をいかに保証するか」という問いを生み、Human-in-the-loop設計という制度的装置を必要とする。これは実践が組織ルーティンとして定着する過程だといえる。

第三の特徴は「正のフィードバックループ（Z→Y）」である。Human-in-the-loop設計はベテランの継続参加を動機づけ、共創的場の安定的維持を通じてより豊かな暗黙知の表出化サイクルを生むと考えられる。ただし、この循環が実際に作動したかは単一時点のデータからは確認できていない。このループは、Teece et al.（1997）の動的能力論における「能力の強化（Enhancing Capabilities）」メカニズムに相当する。

第四の特徴は「構造的緩和（Z→X）」の限界を点線で明示している点である。Human-in-the-loop設計

はX内の概念T1（知識抽出フレームによる提供拒否）への制度的対処にあたるが、概念T6（データガバナンスの壁）は組織・産業レベルの権力構造的問題であり、制度設計によっては解消されない問題として残る。

第五の特徴は、会長インタビューから得られたカテゴリーA〜Cが本モデルの３層を外側から規定する点である。カテゴリーA「暗黙知の科学的デジタルツイン化」は、第２層「AI Readyインフラ先行整備」の技術的内実（データの四化と科学的還元）を与える先行条件にあたる。カテゴリーB「人間とAIの協働と人材の新陳代謝」は第３層の制度化が要請される理由を説明する。知識のコモディティ化がベテランの淘汰圧として作用する限り（概念S6）、権威の制度的保護（概念T9）なしには第１層の提供拒否が再生産されるからである。他方でカテゴリーC「データ資産の市場価値化」は本モデルの適用範囲の外側を示す。企業間・エコシステム規模での知識流通は概念T6と同様、技術的準備不足ではなく企業間の信頼の欠如に規定され、実務上は完全な情報開放（共同研究体制）か非開放（製品購入のみ）の二択にとどまり、中間的な移行状態を欠く。この水準は企業内の共創的実践の設計では到達できない。

なお図１に描画したのは、実装責任者の語りから得られたカテゴリーX・Y・Zの３層とその関係のみである。カテゴリーA〜Cを含めなかったのは、X・Y・Zが表出化に至るプロセスの進行を記述するのに対し、A〜Cはそのプロセスが作動する条件と限界を外側から規定するためである。本稿がモデルとして定式化したのは６カテゴリー全体であり、図１はそのうちプロセスを図示したものである。

５．２　AI拡張型SECIモデルへの理論的追加：動機的次元・制度的次元と共同化の先行性

共創的表出化モデルは、朱（2026）のAI拡張型SECIモデルに対して二つの次元の追加と、変換モードの順序に関する一つの含意を示す。ただし、この追加が及ぶ範囲をあらかじめ限定しておく。本稿が分析したのは４変換モードのうち主として表出化（およびその前提となる共同化）であり、連結化・内面化については十分なデータを得ていない。したがって以下の２次元は、SECIモデル全体の修正ではなく表出化モードへの参加条件に関する限定的な追加として提示する。また本モデルの３層（阻害→突破→制度化）はSECIの４モードと同じ軸上にはない。変換モードの進行とは別に「参加の社会的条件」を扱う軸であり、各モードが作動する前提を記述する補完的な枠組みである。命題１は第２層（突破）の成立条件、命題２は第３層（制度化）の持続条件、命題３は第３層に含まれる知識の更新機構に、それぞれ対応する。命題４はいずれの層にも対応せず、第２層の内部における共同化と表出化の順序関係を扱う。なお第１層（阻害）の３層構造は本研究の記述的発見であり、既存理論との差異を主張する命題としては提示しない。以下では各命題を導出した項の末尾に独立して掲げ、表４に一覧としてまとめる。

（１）動機的次元（Motivational Dimension）の追加：「なぜ提供するか」

野中・竹内（1995）のSECIモデルは表出化プロセスを記述するが、「なぜ知識保持者が表出化に参加するか」という動機的条件は明示されない。朱（2026）の「自然言語インターフェース駆動型表出化」は技術的障壁の低減を論じたが、社会的障壁（知識抽出フレームによる提供拒否）は自然言語インターフェースによる技術的改善では解決されない。本研究の知見では、言語・技術面の障壁低減よりも、知識提供者の心理的所有権への配慮のほうが表出化の成否を左右する。

本研究のCore Category「プロダクト駆動型知識表出化」は、表出化への動機的参加に「共有された課題目標の存在」が不可欠であることを示す。これはSECIモデルの「場（Ba）」概念の動機的次元への拡張として理論化できる。野中・竹内（1995）の「場」は物理的・精神的共在に焦点を当てるが、本研究は「AIによって初めて突破可能となった現場課題の共有」という認知的・動機的次元が場の活性化の条件となることを一次データから示す。

命題１：客観化が困難な暗黙知を対象とする場合、表出化への参加は「共有された課題目標」という動機的条件を必要とすると考えられる。

（２）制度的次元（Institutional Dimension）の追加：「いかに持続させるか」

SECIモデルは知識創造の「生成・共有」プロセスを記述するが、知識共有が「一回限りのイベント」から「持続的なサイクル」へと転換するための制度的条件は論じられない。本研究の概念T9「Human-in-the-loopによるベテラン権威の制度的保護」は、AIシステムへの参加がベテランの職業的権威を損なわないという制度的保証が、知識共有サイクルへの継続的参加の動機となることを示す。

命題２：AI時代の知識共有の持続的循環は、「Human-in-the-loopによるベテランの権威保護」という制度的設計を必要とする。ただし本研究のデータは単一時点のものであり、循環が実際に持続したかは検証できていない（第７節参照）。

また概念T10は、SECIモデルが知識の生成・共有を論じる一方で廃棄・更新を扱わないことへの批判的指摘となる。

命題３：知識管理の完全なサイクルには、「知識の廃棄・更新」メカニズムの制度化が含まれる。

ただし概念T10は単一の発言切片から生成されており、命題３は他の２命題に比して根拠が限られた暫定的提起にとどまる。

（３）変換モードの順序への含意：「共同化の先行性」

概念T7「共創的伴走による信頼形成」は、毎日同じ場所で作業するという物理的共在を内実とする点で、SECIの共同化（Socialization）の一形態である。共同化一般との区別は本稿2.1で示した３点にある。本稿が独自に主張するのはこの設計性であり、共同化概念そのものの置き換えではない。本稿の分析が示すのは、技術的障壁が低減しても、共同化を省略して表出化から着手する試み（ヒアリング・プロンプト誘導・金銭的報酬）は実らなかったという事実である。

命題４：生成AIによって表出化の技術的障壁が低減しても、共同化、とくに表出化を目的として設計された共在（共創的伴走）は、表出化の前提条件として残る。

朱（2026）の「自然言語インターフェース駆動型表出化」は技術による表出化の容易化を論じたが、本稿の知見はその前提として共同化の意図的設計が必要となることを示す。

以上の４命題をまとめると表４の通りである。

表４　共創的表出化モデルから導出される４命題

命題	内容	既存SECIモデルとの差異
命題１	客観化が困難な暗黙知を対象とする場合、表出化への参加は「共有された課題目標」という動機的条件を必要とすると考えられる	SECIモデルの「Ba」は共在の条件を論じるが、参加の動機を設計変数として扱わない
命題２	AI時代の知識共有の持続的循環は「Human-in-the-loopによるベテランの権威保護」という制度的設計を必要とする（循環の持続の検証は今後の課題）	SECIの「表出化」は知識の生成・共有プロセスとして記述され、制度的設計条件を論じない
命題３	知識管理の完全なサイクルには「知識の廃棄・更新」メカニズムの制度化が含まれる	SECIモデルに「知識の廃棄」フェーズは不在
命題４	生成AIによって表出化の技術的障壁が低減しても、共同化、とくに表出化を目的として設計された共在（共創的伴走）は、表出化の前提条件として残る	SECIは４モードの螺旋を示すが、技術的環境の変化によってモードの順序が省略可能となるか否かを論じない

出典：筆者作成

５．３　２つのアプローチの補完的関係と適用条件

【解釈】神州数碼に見いだされた「科学的還元アプローチ」と「社会的共創アプローチ」（いずれも筆者が付した名称）は相互排他的ではなく、製造業における暗黙知の種類・規模・組織文脈に応じて補完的な関係にある（表５参照）。科学的還元アプローチは、技術的に測定･シミュレーション可能な暗黙知（設備の物理的挙動・プロセスの定量的条件）の表出化に強みを持つ。センサー・デジタルツイン・データの四化というインフラが整った大規模製造業でとくに有効であり、この条件が整うなら、知識提供者の動機的参加を前提としなくても、物理メカニズムの科学的解明によって暗黙知を客観的モデルとして再現できる。

社会的共創アプローチは、価値観・判断・文脈依存性の高い暗黙知（会長が「クオリア」と呼ぶ体験的要素）の表出化に固有の有効性を持つ。現場密着型の信頼関係が成立している小～中規模の実装環境では、プロダクト駆動型の共同課題解決の副産物として表出化が生じる。

表５　２アプローチの適用条件の比較

適用次元	科学的還元アプローチ（会長の語り）	社会的共創アプローチ （「神州問学」責任者の語り）
適合する暗黙知の種類	技術的・物理的・定量化可能な暗黙知	価値観的・文脈依存的・身体的な暗黙知
有効な組織規模	大規模製造業・エコシステム横断	現場密着型の中小～中規模プロジェクト
前提条件	AI Readyなデータ基盤・センサー環境	AI Readyな人間関係・信頼基盤・物理的共在
時間的特性	インフラ整備に時間を要するが汎用展開が速い	信頼形成に時間を要するが 知識の質が高い
ベテランの心理的負担	コモディティ化リスクがあり、設計上の配慮が必要	Human-in-the-loopにより権威保護され、負担が低い

出典：筆者作成

実践的には、両アプローチの段階的な組み合わせが有効である。社会的共創アプローチで信頼を形成し、プロダクト駆動型の表出化でデータを蓄積し、科学的還元アプローチでエコシステムへ展開する「小→大」の拡張が現実的な経路となる。

以上の比較から、RQ3への回答として次の２点の理論的示唆が得られる。第一に、表出化において動機的条件が制約となるか否かは、知識保持者の態度ではなく対象となる暗黙知の性質と技術的環境によって規定される。暗黙知が測定・シミュレーションできる場合、動機的条件は迂回できる変数として現れる（経営層の視点）。価値観的･文脈依存的である場合には、回避できない制約として現れる（実装責任者の視点）。この対置は認識の差異ではなく、扱う暗黙知の性質の差異に由来する。第二に、この違いは本モデルの適用境界を規定する。科学的還元が成立する領域では第１層の社会的阻害自体が前面化しないため、本モデルは暗黙知一般の理論ではなく「客観化が困難な暗黙知に固有の表出化理論」として境界づけられる。この境界は、AIが技術知（Techne）を担いうる一方、目的や価値の判断（Phronesis）は人間が保持し続けるべきだとする実践知論（Nonaka & Takeuchi, 2019）の区分と符合する。

５．４　実践的示唆：知識表出化のロードマップ

本研究の分析からは、知識表出化の組織的ロードマップとして次の３段階が示唆される。

第１段階（基盤整備）では、AI Readyインフラ整備（概念T3）と組織プロセス改革（概念T8）を先行させる。最大の障壁が技術でなく組織・プロセス・ガバナンスにある以上、AI導入に先立ってデータ管理体制と部門横断的な協力関係を整える必要がある。これには複数の経営幹部の関与が求められる。

第２段階（共創的実践）では、「搾り出す」という枠組みを廃棄し、「AIで解決したい現場課題のシナリオ設定（概念T4)」→「物理的共在を伴う共創的伴走（概念T7)」→「プロダクト駆動型知識表出化（概念T5)」の連鎖を設計する。暗黙知の表出化をプロダクト開発の副産物として生じさせるという発想の逆転である。

第３段階（制度的持続）では、Human-in-the-loop設計（概念T9）によってベテランの継続参加を保証し、知識ライフサイクル管理（概念T10）によって形式知の有効性を維持する。この段階が欠ければ、一回限りの成功は組織的ルーティンに転化されず、共創的実践は持続しない。

６　理論的展望：三層的知識ガバナンスモデルへの統合―Human-in-the-loop／Human-on-the-loop／Human-over-the-loop

本節の議論は、第４節の分析結果から直接導かれたものではない。第５節までの知見を、生成AIエージェント研究に由来するHuman-in-the-loop（HITL）・Human-on-the-loop（HOTL）・Human-over-the-loop（HOOTL）という人間関与の三水準と接合し、共創的表出化モデルの制度的次元（命題２）を拡張する方向を示す理論的展望である。三概念は元来、AIエージェントに対する人間の制御水準（出力確認がHITL、挙動監視がHOTL、設計と目的決定がHOOTL）を指すが、知識創造への関与水準として読み替えると、「AIをどう制御するか」ではなく「知識創造をいかにガバナンスするか」という問いへ拡張される。

本節の接続の独自性は２点にある。第一に、監督対象の転換である。High-Level Expert Group on AI（2019）やMosqueira-Rey et al.（2023）の三水準は、AIの出力・挙動・使用可否への監督枠組みである。本節はその対象を「AIの挙動」から「知識の帰属と表出化への動機」へ移す。問いは、AIが正しく作動しているかでなく、誰の知識がいかに扱われるがゆえに提供が続くのかである。

具体的には、三概念を次のように読み替える。HITLは原義では各意思決定サイクルへの介入可能性を指すが、本稿ではベテランの承認権を制度的に保全する装置として読み替える。HOTLは原義では設計への関与と稼動中の監視を指すが、本稿ではAIが誰の経験を学習し引用したかという知識帰属の監督として読む。HIC（本稿ではHOOTLと表記）は原義ではAIを使うか否かの決定権限を指すが、本稿では導入目的そのもの（代替か専門性向上か）を定義する権限として読む。

第二に、処方の組み換えである。Zanzotto（2019）は知識提供者の位置を収益還元という金銭的手段で回復しようとした。しかし本稿の概念T2は、金銭的インセンティブ（１日300元の手当）が知識提供の定着に至らなかった事例であり、収益還元型の処方が単独では機能しない可能性を示す。本稿の概念T9（権威の制度的保護）と後述の作業仮説A（知識帰属の可視化）は、報酬でなく権威と可視性を通じて提供者の位置を保全する設計であり、Zanzotto（2019）の問題設定を引き受けながら処方を組み換える。なお、三水準はモデル構築に用いた枠組みではない。モデルは第４節の概念群から帰納的に構築されており、三水準はその後で第３層「制度化（Z)」を分解し、命題２を拡張するために援用される。援用の範囲は第３層に限られ、第１層（阻害）と第２層（突破）には及ばない。以下、二つの転換を三水準に即して具体化する。

第一層　Human-in-the-loop（運用的ガバナンス）

以下の三層におけるHuman-in-the-loop等の語は、制度的装置でなく人間関与のガバナンス水準を指す。第一層には概念T9「Human-in-the-loopによるベテラン権威の制度的保護」が対応する。AIの提案をベテランが確認・承認する仕組みは、品質保証と権威維持の二重の機能を担う（本稿4.2参照)。ただ

しこの層だけでは知識の出所が不問のままであり、表出化そのものへの動機は強化されない。

第二層　Human-on-the-loop（知識ガバナンス）

第一層の限界を補うのが第二層である。関与の対象はAIの挙動でなく、AIが何を学習し誰の経験を引用したかという知識の帰属（Knowledge Attribution）である。本研究の概念T1「知識抽出フレームによる提供拒否」が示すように、知識提供者の警戒は「提供した知識の出所が不可視化され、提供者自身の存在価値が消去される」という懸念に根ざす。AIの提案に提供者の寄与を可視化する仕組みを制度化すれば、提供者は組織内で「消えない」存在として自らを認識できる。この層は概念T10（知識のライフサイクル管理）とも接続し、「誰の知識が、いつ、どのように使われたか」の透明性を管理する。

第三層　Human-over-the-loop（戦略的ガバナンス）

第三層は、AIそのものの存在目的を人間が設計する水準である。本研究の概念T8（組織プロセス改革の優先性）と概念T3（AI Readyインフラの前提条件）は、この第三層の技術的・組織的先行条件にあたる。中心的な問いは、生成AI導入の目的を「コスト削減」と「専門性向上」のいずれと定義するかという組織的意思決定である。前者を選択すれば、暗黙知の表出化は必然的に「代替のための抽出」として経験され、概念T1の防衛機制を強化する。後者を選択し、AI戦略・評価制度、そして概念T6が指摘するデータガバナンスの壁への対処を人間が設計する場合にのみ、表出化は「抽出」から「循環」へと意味を転換しうる。この分岐は、会長インタビューの概念S6「知識コモディティ化による人材新陳代謝の加速」が示した、ベテランを淘汰対象のコモディティとして扱うかリスキリング支援の対象として扱うかという分岐と同型をなす。

三層構造と共創的表出化モデルの対応

図２における三層は、第一層（Human-in-the-loop）が概念T9に、第二層（Human-on-the-loop）は概念T10・概念T1への応答に、第三層（Human-over-the-loop）は概念T8・概念T3、そして概念T6が示す組織・産業レベルの阻害への対処に、それぞれ対応する。この三層構造は、5.1で点線として示した「Z→X（構造的緩和）」を強化しうる制度設計の候補として筆者が構想したもので、効果は本研究のデータから確認されていない。ただし、Human-on-the-loopとHuman-over-the-loopの制度化を伴わない限り概念T6（データガバナンスの壁）は解消されないと考えられる。

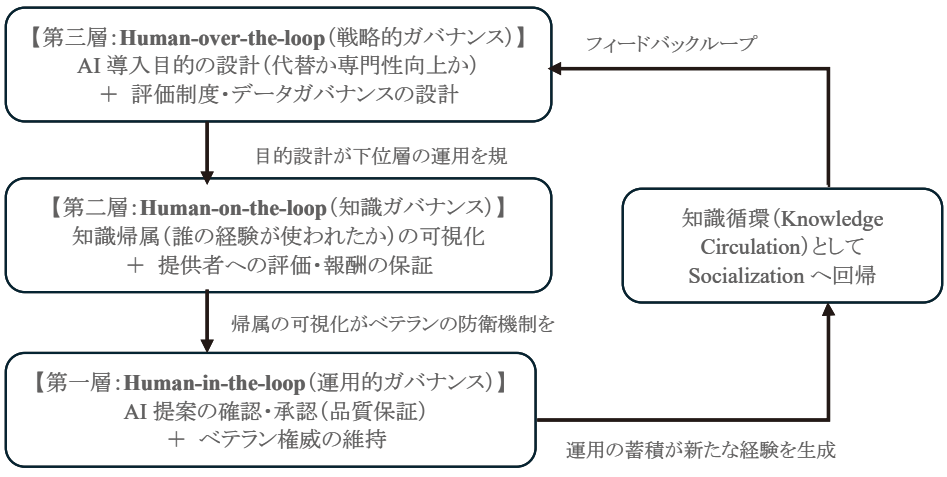

図２　Human-in／on／over-the-loopによる知識ガバナンス三層モデル

出典：筆者作成

作業仮説A・Bの提起（今後の検証課題）

以上の整理から、命題２・命題３を発展させる方向として次の２点を提起する。これらは本研究のデータによって支持された命題ではなく、今後の実証研究において検証されるべき作業仮説である。

作業仮説A：知識表出化への持続的参加は、AI出力への権威保護（Human-in-the-loop）だけでなく、知識提供者の寄与を可視化する知識帰属の監督（Human-on-the-loop）の制度化によって強化される。

作業仮説B：知識抽出のパラドックス「知識提供が進むほど提供者自身の代替可能性が高まるという逆説」は、AI導入目的を「代替」ではなく「専門性向上」として再定義する戦略的ガバナンス（Human-over-the-loop）なしには解消されない。

ただし、この三層モデルは本研究のインタビューデータの分析結果から導かれたものではない。生成AIエージェント研究に由来するHuman-in-the-loop（HITL）・Human-on-the-loop（HOTL）・Human-over-the-loop（HOOTL）という人間関与の三水準と接合し、共創的表出化モデルの制度的次元（命題２）を拡張する方向を示す理論的展望であり、作業仮説A・Bの妥当性検証とともに今後の実証研究に委ねられる（第７節を参照）。

７　研究の限界と今後の課題

本研究には以下の限界が存在する。

第一に、インフォーマント数の制約である。本研究は２名のインタビューに基づくため、m-GTAの理論的飽和化を宣言できない。とくに概念T10「知識のライフサイクル管理」は単一の発言切片から生成されており、バリエーションの確認が不十分である。理論的サンプリングによる追加インタビュー（日本・欧米の製造業企業等）が必要である。

第二に、単一企業への集中と空間的文脈の限界である。両インフォーマントはいずれも同一企業（神州数碼）に属しており、得られた知見には同社の事業モデルと組織文化、および中国の市場・規制環境に固有の要因が反映している可能性がある。朱（2026）の日本の製造業事例（養父織物・黒野金属）との体系的な比較研究が今後の課題として残る。

第三に、分析できた変換モードの限定である。本稿は表出化とその前提となる共同化を中心に分析しており、連結化は限定的な語りにとどまり、内面化（形式知から身体的技能への習熟）は分析できていない。朱（2026）が提示した「形式知化と技能習熟の乖離」への完全な応答には、現場の学習プロセスを対象とする別途の調査を要する。

第四に、縦断的検証の欠如である。本研究はインタビュー時点のスナップショットであり、螺旋的プロセスの長期的推移は検証していない。

第五に、インフォーマントの語りの偏りである。インフォーマントは自社の成功経験を語る立場にあり、失敗事例の開示は選択的にとどまる可能性がある。クライアント（製造業企業）側への聞き取りを加えれば、より均衡のとれた分析ができる。

第六に、調査時点における実践の成熟度の限界である。両インフォーマントは、自社の生成AI活用がデジタルツイン構築段階にとどまり、人機協調やインテリジェントなプロセスといった後続段階には至っていないと自ら明言している。したがって本研究の概念・カテゴリーは実践の初期段階を反映しており、より成熟した段階で各層がどう変化するかは検証できていない。

今後の研究課題として、(1) 日本・欧米の製造業企業への理論的サンプリング拡張、(2) モデルが時間をかけて深まる過程の追跡、(3) クライアント側インタビューを加えた多元的分析、(4) 表出化への

参加を支える動機的条件を測定する尺度の開発と妥当性検証、(5) Human-on-the-loop・Human-over-the-loopに相当する実践を捕捉するインタビュー設計の拡張が挙げられる。

8　結論

本研究は、製造業向け生成AI導入における暗黙知の表出化プロセスを、導入を担う実践者２名への半構造化インタビューに基づくm-GTAで分析し、「共創的表出化モデル」を提案した。

分析の中核的発見は４点である。第一に、生成AIの技術的進化にもかかわらず、知識表出化の試みは「知識抽出フレームによる提供拒否」「外発的動機の限界」「データガバナンスの壁」という３層の社会的阻害要因に直面する（カテゴリーX)。第二に、この阻害を克服するのは外発的アプローチの改善ではなく、「暗黙知の表出化を目的から手段へ転換するプロダクト駆動型アプローチ（Core Category)」と「信頼形成を基盤とする共創的伴走」の組み合わせである（カテゴリーY)。第三に、この共創的実践の持続的循環は、ベテランの職業的権威を制度的に保護するHuman-in-the-loop設計と知識のライフサイクル管理によって支えられる（カテゴリーZ)。第四に、経営層と実装責任者の語りの対置は、動機的条件が制約となるか否かが対象となる暗黙知の性質に規定されることを示し、本モデルを「技術的な客観化が困難な暗黙知」の表出化に境界づけ、科学的還元アプローチとの補完関係を位置づける基礎となる（RQ3)。

理論的には、本モデルは朱（2026）のAI拡張型SECIモデルに、(1)「なぜ提供するか」という動機的次元（命題１：Ba概念の動機的拡張)、(2)「いかに持続させるか」という制度的次元（命題２：Human-in-the-loopの制度論)、(3)「廃棄・更新の循環」という知識ライフサイクル次元（命題３：SECIモデルへの廃棄フェーズの追加。ただし単一の発言切片に基づく暫定的な提起である)を加える。さらに(4)表出化の技術的障壁が低減しても共同化はその前提条件として残ることを示し、変換モードの順序に関する含意を加える（命題４)。

さらに理論的展望として、制度的次元（命題２）を、Human-in-the-loop・Human-on-the-loop・Human-over-the-loopという三水準の人間関与概念と接合し、運用的ガバナンス（品質保証)・知識ガバナンス（知識帰属の可視化)・戦略的ガバナンス（AI導入目的の再定義）という三層構造へ拡張する方向を示した（作業仮説A・B、第６節)。ただしこの三層構造は本研究のデータから独立に構想したものであり、その妥当性の検証は今後の実証研究の課題である。

実務的には、製造業企業の生成AI導入が「知識抽出フレームの解除→共創的実践の設計→制度的持続の保証」という３段階のロードマップとして設計されるべきことを示す。生成AIは「知識を搾り出すツール」ではなく「共に課題を解決する過程で暗黙知が表出化する媒介」として位置づけられて初めて、その可能性を発揮する。

朱 (2026) が論じた「暗黙知を消えゆく個人資産から進化し続ける組織資産へ転換する」というビジョンは、本研究の共創的表出化モデルが示す３段階「阻害の克服・共創的実践・制度的持続」を経てはじめて実現可能となる。実践者の、まだ定式化されていない実践知を概念・カテゴリーに分解し、探索的にモデル化したことが本稿の貢献である。

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 21–32

論　　文

無形文化遺産のデジタル化と文化産業の市場開拓
―中国切り紙産業18主体の比較事例研究―

Digitalization and Market Development in Intangible Cultural Heritage Industries:
A Comparative Case Study of 18 Chinese Paper-Cutting Organizations

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【要旨】

本研究は、無形文化遺産のデジタル化を個別技術の導入ではなく、文化資源を市場価値へ変換する組織能力の再編として捉え、中国切り紙産業18主体における市場開拓との関連経路と成立条件を探索的に検討する。市場開拓は、顧客層、購入時期・接触場面、用途・文化価値／価格、取引地域の拡張として操作化した。2025年10月から2026年４月に調査を行い、12主体で何らかのデジタル化手段、２主体（11.1％）で標準化されたデジタル台帳を確認した。13主体（72.2％）では伝統文様の反復または主体間類似がみられたが、法的な模倣判定ではない。重点３事例では、EC・ライブ配信、クラウド基盤、異業種IP連携、文化観光体験の組合せが、顧客接点、消費機会、用途・文化価値、取引地域の拡張と関連して観察された。ただし、共通尺度による販売増加幅は測定できず、因果効果は推定していない。以上から、デジタル化を資源・発信・取引・経営・生態系の５つの能力領域として整理し、顧客・取引データの還流を含む探索的モデルを提示した。

キーワード：無形文化遺産のデジタル化、中国切り紙、比較事例研究、市場開拓、組織能力

1　序論

1．1　研究背景と問題の所在

中国では、無形文化遺産の記録、保存、発信、教育および産業利用をデジタル技術によって支える政策が進められている[1][2][5]。切り紙は地域ごとに技法、色彩、文様、祭礼との結びつきが異なり、制作者の身体技法と地域社会の記憶に支えられる一方、材料が比較的入手しやすく、画像や動画で工程を提示しやすいため、SNS、EC、オンライン講座、AR、デジタルアーカイブなどとの親和性が高い。したがって切り紙産業は、文化的真正性を保持しながらデジタル化を市場開拓へ結びつける条件を検討するうえで、有効な研究対象である。

しかし、既存の議論には２つの空白がある。第一に、デジタル化が認知を受注、用途拡張、単価形成、地域外取引へ転換する条件は十分に検証されていない。第二に、切り紙単独の統計が乏しく、売上規模だけで因果推定することは困難である[3][4]。そのため、複数主体を比較し、発信、販売、商品開発、顧客対応、経営管理の機能接続を分析する必要がある。

本調査で特に注目されたのは、発信・販売のデジタル化と経営管理との乖離である。18主体中12主体ではSNS、EC、オンライン指導、ARまたはクラウド基盤を確認できた一方、作品情報、顧客、注文、権利、在庫を標準化して管理するデジタル台帳は２主体に限られた。発信の反応を商品開発、再購入、収益配分へ戻す仕組みがなければ、市場開拓は一時的な閲覧にとどまる。この断層を解明することが本稿の中心課題である。

1．2　研究目的と研究課題

本研究の目的は、中国切り紙産業18主体の調査を基礎に、無形文化遺産のデジタル化と市場開拓との関連経路、およびそれを左右すると考えられる組織的・文化的条件を明らかにすることである。研究課題は、第１にデジタル化手段と能力領域の分布、第２に重点３事例で顧客、時期・接触場面、用途・価値、地域の拡張と関連して観察される組合せ、第３に同質化、運営人材、真正性表示、運営体制による制約、の３点である。

分析では、全18主体の横断的な比較と、賀賀文化芸術有限公司、仏山市民間芸術研究社、蔚県切り紙の重点事例分析を組み合わせる。前者によって共通傾向と対照事例を把握し、後者によってデジタル化と市場開拓の過程を具体化する。これにより、成功事例の紹介に終始せず、どの能力領域の組合せで価値転換が観察され、どこで断絶するかを説明する探索的なメカニズム研究を目指す。

2　先行研究と分析枠組み

2．1　無形文化遺産のデジタル化と生産的保護

無形文化遺産のデジタル化には、技法、文様、語り、継承者情報の記録・保存、公開、教育資源化、商品・サービス開発への応用が含まれる。中国の研究はデジタルアーカイブと共有基盤を保護・伝承の基礎と指摘している[9]。保護は固定的保存に限らず、継承者の生活、地域産業、教育、文化観光と結びつく[3][10]。ただし、データ作成と経営利用は同一ではない。行政公開資料の展示・体験・商品化事例[6]は社会的文脈の補助資料とし、18主体の実証結果と区別した。

伝統工芸の生産過程は、材料調達、技能、家族・地域内の分業、展示販売の場所と不可分であり、デジタル化しても地域的条件は消失しない[7][8]。むしろ、制作地、制作者、技法、用途を正確に示すデータは、機械加工品や模倣品との差異を説明し、地域固有の価値を可視化する役割を持つ。この意味でデジ

タル化は、地域性を代替する技術ではなく、地域性を市場へ翻訳する媒介装置として捉えるべきである。

２．２　市場開拓の四つの経路

本稿では市場開拓を、売上高の増加だけでなく、顧客層、購入時期、用途・価値、取引地域の拡張として定義する。第１の経路は情報発信範囲の拡大であり、動画やSNSが地理的制約を超えて潜在顧客との接触を生む。第２は消費機会の再構成であり、祭礼や贈答に集中していた需要を、教育、体験、インテリア、観光、企業連携へ広げる。第３はIPによる付加価値化である。本稿でいうIP（知的財産）連携とは、著作権、商標、意匠、キャラクター、地域ブランド等を用いて、外部企業・ブランドと商品、展示またはサービスを共同開発することを指す[16]。第４は流通チャネルの短縮であり、ECや直接受注が小規模工房と地域外顧客を結ぶ。

近年の報道・公開資料では、AI支援、農村工房のオンライン販売、女性就業、国潮デザイン、ライブコマース等が紹介されている[11][12][13][14][15]。これらは背景資料とし、18主体のコード判定と市場開拓の根拠には、聞き取り、現地観察、提供資料、販売・研修記録を優先した。分析では、真正性表示、権利処理、品質管理、顧客・注文データの蓄積を媒介条件、同質化、運営人材不足、組織分散を制約要因とした。

２．３　組織能力・生態系の視点と分析命題

情報システム研究では、デジタル化を情報技術の採用ではなく、事業戦略と価値創出を組み替える過程として捉える（Bharadwaj et al., 2013）[17]。Vial（2019）は、デジタル技術が価値創出経路、構造、能力を変化させる過程をデジタルトランスフォーメーションと整理する[18]。Nambisan et al.（2017）は、デジタル革新における行為主体の分散を指摘する[19]。本稿では、デジタル化を記録・発信・取引・管理へのデジタル手段の利用、デジタルトランスフォーメーションを価値創出や組織構造の再編、デジタル化能力を複数手段を継続的に組み合わせる組織能力として区別する。本研究が直接観察するのは主にデジタル化手段と能力であり、変革の完了は仮定しない。

本稿では、デジタル化能力を、①作品・技法・継承者を記録する資源領域、②SNS・動画による発信領域、③EC・受注・講座を含む取引・サービス領域、④顧客・注文・権利・在庫を統合する経営領域、⑤主体間でデータと価値を共有する生態系領域という５つの機能に分ける。これは時間順の発展段階ではなく、組織基盤に応じて外部主体が補完し得る能力領域である。

以上から比較分析では、第１に４経路の組合せと顧客・時期・価値・地域の拡張との関連、第２に３類型の運営主体と補完関係、第３に同質化、運営人材不足、真正性表示、分散ガバナンスによる制約を検討する。因果効果を推定するモデルではなく、18主体から作用連鎖を抽出する探索的枠組みである。

３　調査設計と分析方法

３．１　調査対象と調査期間

調査は2025年10月から2026年４月に実施した。分析単位は「主体」とし、切り紙の制作･継承、展示･教育、商品・サービス開発または市場取引を継続的に担う工房・組織・機関と定義する。対象は８省級地域の18主体で、継承人工房、企業、公設研究機関、協同組合、文化観光施設、文創企業を含む。組織形態の差を考慮し、７つの共通機能を比較した。現地調査の様子を図１に示す。

対象選定は、①８省級地域と地域流派、②６組織形態、③実店舗中心・オンライン併用・遠隔販売／指導というデジタル化手段の差、④調査協力が得られた対面・現地訪問14主体と電話・WeChat中心の

遠隔４主体を組み合わせる手順で行った。継承者12名にも聞き取りを行った。アクセス可能性の影響を受ける目的抽出であり、比率は母集団推計ではなく本調査対象内の探索的指標である。

図１　切り紙主体に対する現地調査と交流活動

出所：著者及び関係者撮影（2025-2026年）。

３.２　データ収集とコーディング

データは、半構造化インタビュー、現地観察、制作・展示・販売写真、提供資料、ウェブサイト・SNS・EC画面、行政・報道資料から収集した。市場開拓の根拠を、①販売・顧客・チャネル・研修等の記録、②聞き取り・提供資料、③観察・公開資料に区分した。共通記録がない場合は拡張の方向のみを記述し、拡張幅や因果効果は推定しない。「調査時点で確認できず」は資料・聞き取り・観察から導入を確認できないことを指し、非導入と同義ではない。高付加価値製品と次世代人材は共通の判定基準、年齢、分母・分子が得られないため比率集計から除外した。

分析は２段階で行った。第１段階では、18主体を「情報発信」「販売・受発注」「教育・体験」「IP・商品開発」「データ管理」「運営人材」「真正性･規範」の７項目でコード化し、判定基準と根拠を表１に示した。不一致または資料不足は「確認できず」とした。第２段階では、組織内統合、資源保有、外部連携、地域内分担を比較軸とし、賀賀文化芸術、仏山市民間芸術研究社、蔚県切り紙を情報量と類型対照性の高い例示的事例として選んだ。統計的代表性は主張しない。

表１　７項目のコーディング基準と根拠

項目	「あり」とする判定基準	主な根拠
情報発信	主体が管理するSNS、ウェブサイト、動画・オンライン展示等の継続的な運用を確認	観察／公式画面／聞き取り
販売・受発注	EC、オンライン直接受注･決済、またはデジタルによる注文管理の実運用を確認	販売画面／注文資料／聞き取り
教育・体験	オンライン講座、デジタル予約、またはオンラインと現地体験を連動した実施を確認	講座記録／観察／提供資料
IP・商品開発	外部ブランド、ゲーム、キャラクター、地域ブランド等の著作権・商標・意匠を用いた共同商品・展示・サービスを確認	契約・商品・展示資料／聞き取り
データ管理	作品・制作者、顧客、注文・販売、権利・許諾、在庫・流通の５領域中４領域以上を共通項目で継続記録し、作品情報と取引または権利情報をひも付け。該当は賀賀文化、仏山市民間芸術研究社	台帳画面・提供資料／聞き取り

項目	「あり」とする判定基準	主な根拠
運営人材	制作担当とは別に、撮影・編集、EC登録、顧客対応、データ管理等のうち２機能以上を継続担当する者を確認	組織分担資料／聞き取り／観察
真正性・規範	文様の由来、作者、地域、技法、制作方法、権利・利用条件のうち主要項目が追跡可能で、表示と聞き取り・観察資料が整合	商品表示／記録／聞き取り／観察

出所：著者作成。複数資料を突合し、資料不足または不一致の場合は「確認できず」とした。

３．３　18主体の概要

表２は18主体の組織形態、調査方法、調査時点で確認できたデジタル化手段を整理する。広東の企業・機関では複数手段、地方の個人工房では発信のみまたは調査時点で手段を確認できない主体がみられた。地域差を単純な先進・後進とはみなさず、地域拠点、協同組合、行政・観光施設による補完も考慮した。

表２　18主体の組織形態・調査方法・デジタル化手段

No.	主体・地域	組織形態／主な調査方法	調査時点の主なデジタル化手段
1	袁氏切り紙（深圳）	継承人工房／対面	オンライン講座、国際発信、ミニプログラム
2	劉氏剪影（深圳）	継承人工房／対面	Douyin、ショート動画
3	賀賀文化（深圳）	企業／対面	EC、ライブ配信、オンライン講座
4	仏山市民間芸術研究社	公設機関／対面	クラウド基盤、EC、異業種IP
5	魏恵君スタジオ（汕頭）	継承人工房／対面	ショート動画、オンライン展示
6	広州切り紙文化伝播	企業／対面	AR、淘宝、ショート動画
7	仏山龍獅文創館（HEA）	文創企業／対面	SNS、異業種IP、ショート動画
8	呉海鳳切り紙（深圳）	継承人工房／対面	Douyin、Vlogによる指導
9	蔚県切り紙	工房・企業／対面	EC、ショート動画、オンライン普及
10	広霊切り紙	研究所・企業／対面＋オンライン	オンライン教材、EC、海外販売
11	安塞切り紙	協同組合・工房／電話	ライブ販売、EC、ショート動画
12	延川切り紙	工房・美術館／電話	調査時点で確認できず
13	南京切り紙	工房・機関／対面	調査時点で確認できず
14	和林格爾切り紙	継承人工房／WeChat	調査時点で確認できず
15	漳浦切り紙	工房・ネット店／対面＋オンライン	EC、ネット店、文化観光土産
16	高密切り紙	継承人工房／対面	調査時点で確認できず
17	旬邑彩貼切り紙	工房・伝習所／電話	調査時点で確認できず
18	豊寧満族切り紙	工房・機関／対面＋オンライン	調査時点で確認できず

出所：著者調査に基づき作成。

４　調査結果

４．１　全18主体にみるデジタル化の到達点

全体集計から、デジタル化は二分法ではなく、機能ごとに到達状況が異なることが分かった。SNS・動画・オンライン展示、EC・直接受注・オンライン講座、顧客・作品・権利・注文・在庫を結ぶ経営データに差がみられた。18主体中12主体（66.7%）で手段を確認したが、表２の条件を満たす標準化されたデジタル台帳は賀賀文化と仏山市民間芸術研究社の２主体（11.1%）に限られた。発信・取引に比べ、反応を学習・再投資へ接続する経営機能が限定的である。

商品構成にも類似傾向がみられた。継承者12名中８名（66.7%）は既存文様を長期に踏襲し、18主体中13主体（72.2%）で伝統文様の反復または主体間類似を確認した。「伝統文様の反復」は同一主体が明

確な変更なしに既存文様を継続使用すること、「主体間類似」は複数主体の商品で主題・構図・商品形態が重なり、由来、流派、作者、技法の差異表示がないこととした。写真、販売画面、聞き取りを突合した記述的判定であり、継承を模倣とみなすものでも、著作権侵害の法的判定でもない。付加価値の比率は共通基準がないため集計しない。

次世代人材については、全主体で年齢基準、対象人数、分母を統一できなかったため比率集計から除外した。観察では、高齢の継承者が制作から発送まで担う主体で更新が難しく、撮影、EC、顧客対応を分担する企業・機関で複数手段が確認された。ただし、これは年齢の効果ではなく、継承者と運営者の分業に関する質的観察である。主要指標を表３に示す。

表３　18主体調査から得られた主要指標

指標	分母・分子	結果	解釈
何らかのデジタル化手段を確認	12／18主体	66.7%	発信・販売の可視化は一定程度進展
標準化されたデジタル台帳を確認	２／18主体	11.1%	資源記録と経営管理の接続が弱い
既存文様を長期に踏襲	８／継承者12名	66.7%	商品革新を担う人材・機能が不足
文様の反復・商品構成の主体間類似	13／18主体	72.2%	オンライン上で同質化と価格競争が生じやすい

出所：著者調査に基づき集計。比率は本調査対象内の参考値であり、「確認できず」は非導入を意味しない。

４．２　重点３事例の分析

４．２．１　広東省深圳市賀賀文化芸術有限公司―企業統合型の産業化とライブコマース

賀賀文化芸術有限公司は、賀氏切り紙の継承者･賀虹が2005年に深圳で創業し、研究開発、デザイン、生産、販売を一体化した。聞き取り・提供資料によれば、EC普及以前からウォルマート、カルフール等約3,600の大型小売チャネルへ供給し、婚礼装飾、額装、インテリア、贈答品へ用途を広げ、特許13件、商標23件を保有する。ただし、これらは導入前からの事業基盤を含み、デジタル化の成果とはみなさず、既存能力がデジタル化と市場開拓を支えた先行条件として扱う。

デジタル化では、ライブ配信による講義、無形遺産の配信ルーム、EC、オンライン教育を組み合わせ、「非遺大学堂」11拠点で講座と産業受注を接続した。聞き取り、提供資料、現地観察から、動画、講座、商品提案、注文を連続させる運営が確認され、教育サービスと生活用品を通じた市場開拓との関連が示唆される。一方、導入前後を比較できる共通の売上・顧客記録はなく、増加幅を効果として測定できない。同社の切り紙講座とライブコマースの様子を図２に示す。

一方、同社の経験は大規模化の限界も示す。固定資産と生産規模の拡張は、市場需要の変化や機械加工品との競争に対する負担となり、その後は教育、IP、海外展開を重視する軽資産型へ転換した。したがって、企業統合型の強みは多機能を内部化できる点にあるが、文化継承と資本効率の均衡、需要変動に対応した事業ポートフォリオの再編が課題となる。

図２　広東省深圳市賀賀文化芸術有限公司における切り紙講座とライブコマース

出所：著者撮影（2025～2026年）。

４．２．２　広東省仏山市民間芸術研究社―公共基盤と異業種IPの接続

広東省仏山市民間芸術研究社は1956年設立の公設専門機関で、仏山切り紙等五つの国家級無形文化遺産を保護する。継承者を中核に研究、展示販売、研修、文化観光を担い、資料整備、専門家ネットワーク、対外連携を組織化している。制作現場を図３に示す。

同研究社は仏山職業技術学院と共同でクラウド・サービス・プラットフォームを開発し、情報検索と専門家マッチングを提供した。銅鑿切り紙をHEAの醒獅IP、ゲーム、飲料ブランドと協業し、展示、都市IP、EC、ショート動画へ展開した。ここでのIP連携は、外部ブランド等の著作権・商標・意匠を図案、商品、展示に共同利用する取組である。

この事例では、公共的な資料・信用基盤が異業種企業との協業形成を支える条件となった。祭祀・贈答用途をファッション、都市文化、観光体験へ展開する企画は確認できたが、取引費用、販売額、顧客年齢、協業後の収益配分の共通データは得られていない。したがって、単一商品の大量販売ではなく、切り紙を他産業の企画へ組み込むプラットフォーム機能として解釈する。

図３　仏山市民間芸術研究社における切り紙の制作現場

出所：著者撮影（2025年11月）。

４．２．３　河北省張家口市蔚県切り紙―地域生態系型の発信・観光・研学

河北省張家口市蔚県切り紙は、陰刻を主とし、刻んだ後に彩色する点彩刻紙であり、2006年に第一陣の国家級無形文化遺産へ登録された。「三分の刀工、七分の染め」と表現されるように、技法は地域の工房と家系に蓄積されている。南張荘切り紙街、単堠切り紙工場、馬氏切り紙工場、障害者研修基地など、制作、展示、教育を担う複数拠点が地域内に存在する。制作風景を図４に示す。

図４　河北省張家口市蔚県における切り紙工房の制作風景

出所：著者撮影（2026年３月）。

調査では、図解・短文、ショート動画、EC宣伝、展示販売、体験工房、研学旅行を組み合わせたオンライン・オフライン連動を確認した。蔚州古城や蔚県博物館の体験機能は観光来訪者を購入者・学習者へ接続し、民間スタジオはWeChat注文に対応した。年間1,200人以上は研修参加記録であり、購入者数や売上増加ではない。

蔚県モデルは、産地、行政、博物館、工房、観光地が役割を分担する点にある。デジタル発信は入口を広げるが、注文、顧客、権利、在庫のデータは分散しやすい。共同台帳と共通表示は今後の課題であり、主体横断的な注文・再購入・収益配分データがないため、地域外顧客や再購入の増加幅は評価できない。重点３事例の比較を表４に示す。

表４　重点３事例の比較

重点事例	組織基盤	デジタル化の組合せ	市場開拓の方向	主要な制約
広東省深圳市賀賀文化芸術	企業統合型	EC、ライブ配信、オンライン講座、無形遺産アカデミー	全国・海外顧客、婚礼・インテリア等への用途拡張	固定資産型拡大の負担、市場変動への対応
広東省仏山市民間芸術研究社	公共･市場ハイブリッド型	クラウド基盤、EC、ショート動画、潮流ブランド･ゲーム等とのIP連携	専門家マッチング、若年層･都市文化市場への接続	デザイン人材の不足、継続的な商品革新
河北省張家口市蔚県切り紙	地域生態系型	短文・動画、EC宣伝、景勝地展示、研学・体験	観光来訪者、地域外顧客、教育市場への接続	小規模工房の分散、ブランド･経営データの弱さ

出所：著者調査に基づき作成。

４．３　重点事例の比較と作用メカニズム

重点３事例は､同じデジタル技術でも組織基盤により市場開拓との関連経路が異なることを示唆する。賀賀文化は内部統合、仏山は公共的な信用・資料基盤と外部IP協業、蔚県は複数主体と観光空間を組み合わせる。したがって、技術の導入だけでなく、運営者、データ共有、取引調整が重要な条件となる。ただし、主体間の利益配分データはなく、利益への効果は結論づけない。

横断的にみると、情報発信範囲の拡大、消費機会の再構成、IPによる付加価値化、流通チャネルの短縮は相互補完的である。用途、価格、注文方法、制作者情報が示されなければ、動画やECは取引へ移行しにくい。講座・体験の反応を商品開発へ戻すには、受講履歴、権利、対価の記録が必要である。四経路を接続する基盤はデジタル台帳と運営人材である。

４．４　市場開拓を制約する要因についての分析

第一の制約はコンテンツの同質化である。13主体で文様の反復または主体間類似が確認され、継承者12名中８名は既存文様を踏襲していた。継承自体は必要だが、由来、流派、作家、制作工程が示されなければ、文化的文脈の異なる作品が同一商品として比較される。オンライン画面は補助資料にとどめ、価格水準や市場シェアの推計には用いない。

第二はデジタル人材と運営分業の不足である。継承者が制作技術を持っていても、撮影、編集、商品登録、顧客対応、広告、物流、データ分析、権利表示を同時に担うことは難しい。反対に、若い運営者が閲覧数を重視し、技法や文様の意味を理解しない場合、短期的な話題性と文化的説明が分断される。必要なのは継承者個人の「デジタル技能化」だけではなく、継承者、デザイナー、運営者、地域支援組織の役割分担である。

第三の制約は文化的真正性と表示である。本稿では真正性を、文様の由来、作者・継承者、地域、技法、制作方法（手仕事・機械加工・AI支援の別）、権利・利用条件が追跡可能で、表示と聞き取り・観察資料が整合する状態とする。第１次的な保証主体は制作者・継承組織、第三者的確認は公設保護機関等が補完する。

第四は運営体制の分散である。６主体では調査時点で明確なデジタル手段を確認できず、導入主体でもデータの保存形式、作者名、制作地、技法、利用許諾、顧客情報が統一されていなかった。個別工房が同じプラットフォームで競争するだけでは、到達範囲の拡大が収益向上へ結びつかない。共同ブランド、品質表示、権利処理、苦情対応、地域内の収益還元を支える中間組織が必要である。

５　考察

５．１　デジタル化を５つの能力領域として捉える

本研究の第１の理論的含意は、無形文化遺産のデジタル化を、文化資源を市場へつなぎ反応を組織へ戻す５つの能力領域として捉えた点にある。①資源、②発信、③取引・サービス、④経営、⑤生態系の各領域は､時間的な成熟段階ではなく､主体ごとに異なる順序と組合せで構成される。本調査では発信･取引手段が比較的多く、標準化された経営台帳は２主体に限られたため、領域間接続が主要課題として観察された。

図５は、５つの能力領域、４つの変換メカニズム、市場開拓の方向、フィードバックを示す。能力領域はBharadwaj et al.（2013）、Nambisan et al.（2017）、Vial（2019）を参照し、変換メカニズム等は本調査から整理した。情報発信の拡大は12／18主体のSNS・動画・EC、消費機会の再構成は賀賀文化の講座・生活用品と蔚県の観光体験、IPによる付加価値化は仏山のブランド・ゲーム協業、流通短縮は表１

のEC・オンライン受注主体に対応する。台帳２／18とデータ分散は還流の不足を示す。これらは作用経路の探索的モデルであり、因果効果や時間的発展順序を示さない。

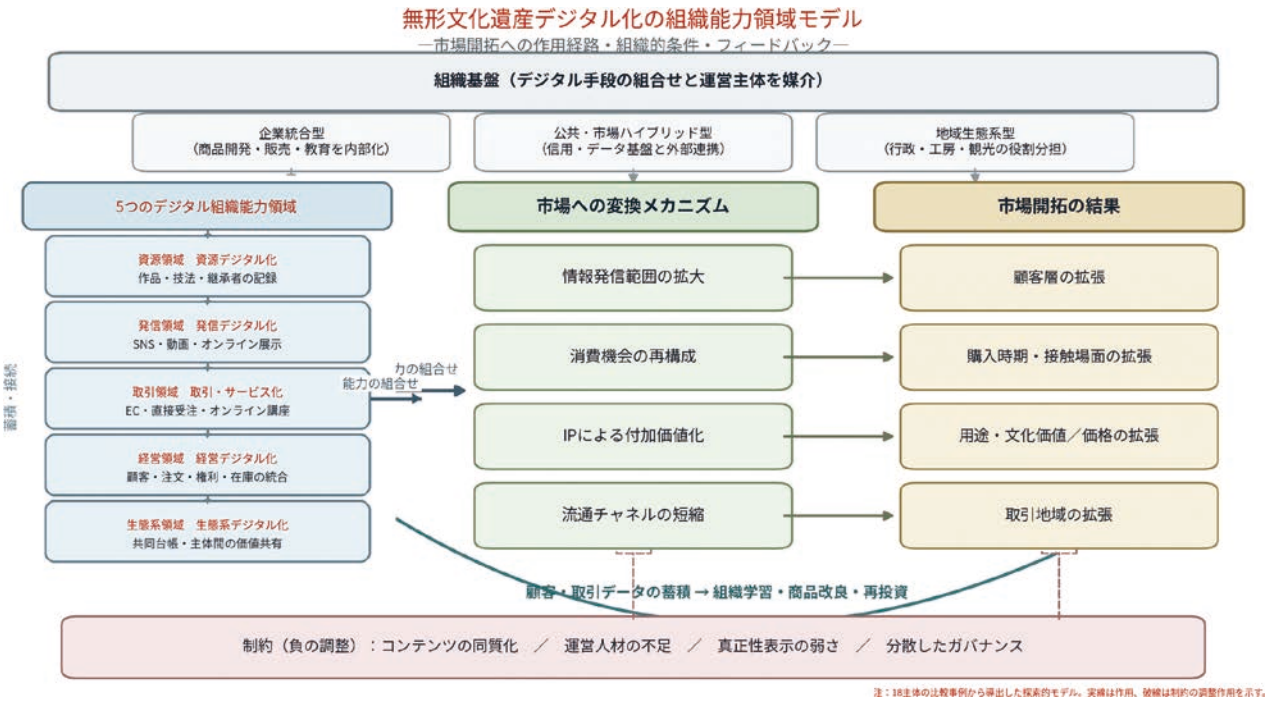

図５　無形文化遺産デジタル化の組織能力領域モデル―市場開拓への作用経路・組織的条件・フィードバック―

出所：能力領域はBharadwaj et al.（2013）、Nambisan et al.（2017）、Vial（2019）を参照し、変換メカニズム、組織類型、制約およびフィードバック命題は著者調査に基づき作成。

５．２　組織形態が媒介する市場開拓

第２の含意は、デジタル化と市場開拓との関連が組織形態によって媒介される可能性である。企業統合型は投資を集中できるが固定費リスク、公共・市場ハイブリッド型は信用・資料・専門家を集約できるがデザイン速度、地域生態系型は観光資源を活用できるがデータ分散が課題となる。本研究は利益配分を調査しておらず、収益効果ではなく補完機能の違いを示す。

また、市場開拓は「より多く売る」ことだけではない。賀賀文化は教育と生活用品、仏山は都市IPと異業種連携、蔚県は観光体験と研学を通じて、顧客が切り紙と接触する時間と場面を再設計していた。市場は既存需要の外側に自動的に存在するのではなく、文化的説明、体験、用途、取引制度を組み合わせて形成される。デジタル化はその組合せを試行し、反応を蓄積する手段になり得る。

５．３　実践的示唆

第１に、本研究だけから共同台帳が設備投資より常に優先されるとはいえない。ただし、台帳が２主体に限られデータ形式が分散していたため、記録・連携が弱い主体や地域では、設備投資と並行して小規模に試行する選択肢となる。作品名、流派、作者、制作地、技法、権利、画像、価格、販売先を記録し、可能な範囲で問い合わせ、購入、講座参加と接続する。

第２に、「継承者＋運営パートナー」の配置が必要である。大学、職業学院、文化施設、デザイン会社が、撮影、EC登録、翻訳、顧客対応、権利表示、データ分析を継続支援すれば、小規模工房の負担を軽減できる。短期研修の受講者数ではなく、運営人材の定着、更新継続率、応答時間、商品改良数を評価指標にする必要がある。

第３に、IP運営を商標取得だけに限定せず、由来、作家、技法、利用条件、手仕事･機械加工の区分、およびAIを利用する場合のAI支援範囲を共通表示する。第４に、短期指標として台帳登録率、権利表示、問い合わせ対応、体験実施数、中期指標として祭礼期外受注、地域外顧客の再購入、新用途商品比率、共同企画数、長期指標として継承者への還元、若年参加、保存状態、地域ブランドへの信頼を用いる。これらを地域単位で確認することで、文化保護と市場開拓の偏りを修正できる。

５.４　研究の限界と今後の課題

本研究には５つの限界がある。第１に、18主体はアクセス可能性の影響を受ける目的抽出である。第２に、売上、顧客属性、購入時期、商品構成、取引地域を同一尺度で取得できず、拡張幅と因果効果を推定していない。第３に、高付加価値製品と次世代人材は定量結果から除外した。第４に、文様の類似と真正性表示は著者の資料突合で、評価者間一致度を検証していない。第５に、導入前後、データ還流、利益配分を追跡していない。

今後は、同一主体を複数年追跡し、導入時期、費用、問い合わせ、購入、再購入、講座参加、新商品、権利処理を顧客側調査と接続する必要がある。また、３類型で共通台帳を試行し、市場成果と真正性への影響を比較する。

６　結論

本研究は、2025年10月から2026年４月に調査した中国切り紙産業18主体を基礎に、デジタル化と市場開拓との関連を比較事例分析した。手段は12主体、標準化台帳は賀賀文化と仏山市民間芸術研究社の２主体で確認された。本調査対象では、発信・取引に比べ経営機能の整備が限定的である。

重点３事例では、情報発信範囲の拡大、消費機会の再構成、IPによる用途・文化価値の付加、流通チャネルの短縮が、顧客接点、時期・場面、用途・価値、地域の拡張と関連して観察された。ただし、共通記録と導入前後データがないため因果関係は結論づけない。企業、公共機関、地域組織の統合・調整、継承者と運営者の分業、真正性表示、データ共有が関連を支える条件となる可能性を示す。

【注】

［1］ 文化・観光部「『第14次五カ年計画』無形文化遺産保護計画の公布に関する通知」文旅非遺発〔2021〕61号、2021年５月25日。

［2］ 高書生「国家文化デジタル化戦略：背景と構想」『河北師範大学学報（哲学社会科学版)』第45巻第５号、2022年、11-18頁。

［3］ 宋俊華編『中国無形文化遺産保護発展報告（2024)』社会科学文献出版社、2025年。

［4］ 朱茜「預見2024：『2024年中国工芸美術産業全景図譜』」前瞻産業研究院、2024年12月14日。

［5］ 文化・観光部弁公庁「2025年『文化と自然の遺産の日』無形文化遺産宣伝展示活動の実施に関する通知」弁非遺函〔2025〕283号、2025年５月22日。

［6］ 福建省人民政府「紙上に花を咲かせ、千年の風華を切り出す」2025年10月１日。

［7］ 北村嘉行『日本工業の地域構造』大明堂、1980年。

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 33–47

論　　文

日中における企業主導型農村振興の価値連鎖の編成とガバナンス
―浙江天順控股グループと伊賀の里モクモク手づくりファームの比較事例研究―

Value-Chain Organization and Governance in Enterprise-Led Rural Revitalization in China and Japan:
A Comparative Case Study of Zhejiang Tianshun Holding Group and Iga no Sato Mokumoku Handmade Farm

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【要旨】

本稿は、中国の「消費支援」と日本の「６次産業化」という異なる制度環境の下で、企業が農産物の価値連鎖をどのように編成し、そこにどのようなガバナンス上の課題が生じるかを比較する。中国側は稲城県等での現地観察、企業資料、政府統計、報道資料を、日本側は伊賀の里モクモク手づくりファームの公式情報と公的調査を相互照合した。ただし、二社の現在成果を同時点で比較するのではなく、形成過程と確認可能な事業機能を比較した。分析の結果、浙江天順控股グループは政策需要、標準化、コールドチェーン、デジタル販路を束ねる「市場拡張型」、モクモクは生産、加工、体験、継続的顧客関係、資源循環を統合する「地域価値内在化型」と整理された。命題１は部分的に支持され、命題２は一定の整合性が示唆された。一方、農業者の参加権、価格・契約、利益配分、データアクセスに関する資料が限られるため、命題３は理論的に整合するものの実証的には確認できなかった。企業成果と地域成果を区別し、機能単位で相互学習する必要性を示す。

キーワード：農村振興、消費支援、６次産業化、価値連鎖ガバナンス、制度的補完性

1　はじめに

1．1　研究背景と問題設定

農村振興政策の焦点は、補助金や公共投資の投入量から、地域が継続的に所得と雇用を生み出す仕組みへと移りつつある。中国では、「脱貧困攻堅期」（貧困からの脱出）の「消費扶貧」が、脱貧困後の「消費幇扶（以下、消費支援）」へ継承され、行政機関、企業、都市消費者と農村生産者を結ぶ販路形成が政策手段となった。日本では、農林漁業者が加工・販売・観光等へ事業領域を拡張する「６次産業化」が、地域内での付加価値保持をめざして制度化されてきた。両者は、農業の一次生産だけでは吸収できない所得形成を、価値連鎖の再編によって実現しようとする点で共通する。

もっとも、制度の名称や事業主体は同一ではない。中国の消費支援では、政府調達、国有・民間企業の購買、電子商取引、物流支援が複合し、企業は広域の需給を調整するプラットフォームとして機能しうる。他方、日本の６次産業化では、農業者または農業者を核とする法人が生産、加工、直売、飲食、体験を内部化し、地域固有の物語と顧客関係を形成する場合が多い。この差異を無視して売上規模や事業範囲のみを比較すると、制度条件を企業能力と取り違え、「どちらの国のモデルが優れているか」という単純な序列化に陥る。両者は同一の政策カテゴリーではないため、本稿では、異なる制度下における集荷、加工、物流、販売、顧客関係の実装を機能単位で比較する。

さらに、流通経路の短縮や企業参入は、農業者所得の増加を自動的に保証しない。契約条件、価格決定権、品質リスクの負担、利益配分、情報開示の仕組みによっては、取引量が増えても生産者の取り分が改善しない可能性がある。逆に、加工や観光を内部化しても、固定投資、人材確保、需要変動の負担が経営を圧迫しうる。したがって、企業主導型農村振興を評価するには、「何を販売したか」だけでなく、「誰が価値連鎖を調整し、誰が意思決定に参加し、創出された価値がどのように配分されたか」を検討する必要がある。

1．2　研究目的と研究課題

本稿の目的は、制度的に異なる二つの企業事例を、組織形態の同一性ではなく機能の等価性に基づいて比較し、企業が農村の価値連鎖を再編するメカニズムと限界を明らかにすることである。対象は、中国で農産物の集荷、ブランド化、流通、消費支援を展開する浙江天順控股グループ（以下、天順）と、日本で農業、加工、直売、飲食、体験学習を統合する伊賀の里モクモク手づくりファーム（以下、モクモク）である。

本稿でいう「企業主導型農村振興」とは、企業または企業的事業体が、産地組織、行政、流通主体、顧客の間で、集荷、加工、物流、販売、情報を中核的に調整する形態を指す。モクモクも法人群が価値連鎖編成を担うため、機能面から比較対象に含める。

研究課題は三点である。第一に、各国の制度環境は、企業の市場形成と価値連鎖編成をどのように補完しているか。第二に、二社は、集荷、加工、ブランド、物流、顧客関係をどのように組み合わせ、どの段階で価値を獲得・保持しているか。第三に、農業者参加、価格・契約、利益配分、データアクセスについて何が観察でき、何が確認できないかを区別したうえで、移転可能な機能と制度依存的な実装は何か、である。本稿は包摂性の水準や分配効果そのものを推定せず、その実証に必要な証拠の有無を分析対象とする。

２　先行研究と分析枠組み

２．１　中国の消費支援と利益連結

中国の消費扶貧は、貧困地域の産品やサービスを購入することで所得機会を創出する政策として展開された。全世文は、消費扶貧の実効性が販路という「チャネル」の構築に依存する一方、貧困属性を付した「ラベル」に依存すれば、品質向上と反復購買を弱める危険を指摘する（全世文, 2021）。葉胥・蔡睿堃も、脱貧困後の消費支援には、短期的な行政動員から、市場化、標準化、ブランド化を伴う長期的な需要形成への転換が必要だと論じる（葉胥・蔡睿堃, 2022）。すなわち、政策が初期需要と取引接続を生み、企業が品質保証、商品開発、物流、顧客維持を担う補完関係が成立する場合に、支援は恒常的な市場へ移行しうる。

しかし、市場への接続と生産者の受益は同義ではない。張国鵬・李乾・王玉斌は、農民専業合作社の利益連結について、契約、株式参加、産業連盟、一体化といった形態が、価値分配と契約不履行コストを異ならせることを示す（張国鵬・李乾・王玉斌, 2019）。企業が最低価格、買戻し、配当、雇用等を組み合わせる場合でも、農業者の交渉力と情報アクセスが弱ければ、リスクの偏在が残る。消費支援の研究には、販路量や販売額だけでなく、生産者価格、支払期間、返品・規格外品の負担、協議参加、地域内再投資を測る視点が必要である。

２．２　日本の６次産業化と地域内価値保持

日本の６次産業化は、農林漁業者等が生産に加えて加工・販売を一体的に行い、付加価値を農山漁村に保持する構想として制度化された。2010年公布の「六次産業化・地産地消法」は、総合化事業計画の認定等を通じ、農林漁業と関連事業の統合を支援してきた（農林水産省, 年不明a）。農林水産政策研究所は、６次産業化を単なる業種追加ではなく、バリューチェーン構築と主体間のイノベーションとして把握している（農林水産政策研究所, 2015）。赤壁は、加工･販売への多角化が超過利潤の獲得だけでなく、需要・価格変動に対するヘッジ効果を持ちうることを理論的に示した（赤壁, 2018）。

他方、内部化には資金、人材、品質管理、販売能力が必要であり、規模拡大がそのまま経営の安定を意味しない。佛田は、農業における企業経営の課題を、経営管理、組織、人材、実務能力の観点から検討している（佛田, 2011）。また、短い食料供給網は、生産者と消費者の距離を縮め、品質情報や地域性を価値に転換しうるが、その効果は、信頼を維持する制度と反復的な相互作用に依存する（Renting et al., 2003）。このため、６次産業化を評価する際には、加工率や売上だけでなく、顧客関係、地域雇用、学習、投資負担、事業承継を含める必要がある。

２．３　制度的補完性―価値連鎖ガバナンス枠組み

制度は企業行動の外生的な制約であるだけでなく、需要、情報、資金、正当性を供給し、特定の組織能力の収益性を高める。ノースが示すように､制度は交換の誘因と不確実性を構造化する（North, 1990）。一方、価値連鎖ガバナンス論は、取引の複雑性、情報のコード化可能性、供給者能力によって、企業間調整の形態が異なることを示す（Gereffi et al., 2005）。本稿は両者を接続し、①制度条件、②企業の編成能力、③価値創出・配分結果、という三層で比較する。

制度条件には、政策が形成する需要、農地・組織制度、デジタル・物流基盤、人口・労働制約を含む。企業の編成能力は、（a）小規模生産の集約と標準化、（b）加工･ブランドによる差別化、（c）物流･データによる需給調整、（d）体験・会員制度による顧客関係形成、の四機能から成る。結果は、市場到達範囲、地域内付加価値、農業者の参加と分配、需要・供給ショックへの耐性によって評価する。分析上、

企業売上と地域厚生を区別し、企業の成果を農業者の成果へ直接読み替えない（図１）。

制度条件は政策需要、資金・物流・デジタル基盤から、企業の編成能力は集荷、加工、物流、顧客接点の存在と担当主体から観察する。参加権、価格・契約、利益配分、リスク負担、データアクセスはガバナンス項目とするが、資料のない項目は「未確認」とし、因果判定に用いない。

本稿の貢献は、新たな一般理論の提示ではなく、制度条件―企業編成能力―ガバナンス―成果を接続し、観察結果と理論的推論を分けて日中比較に適用する点にある。

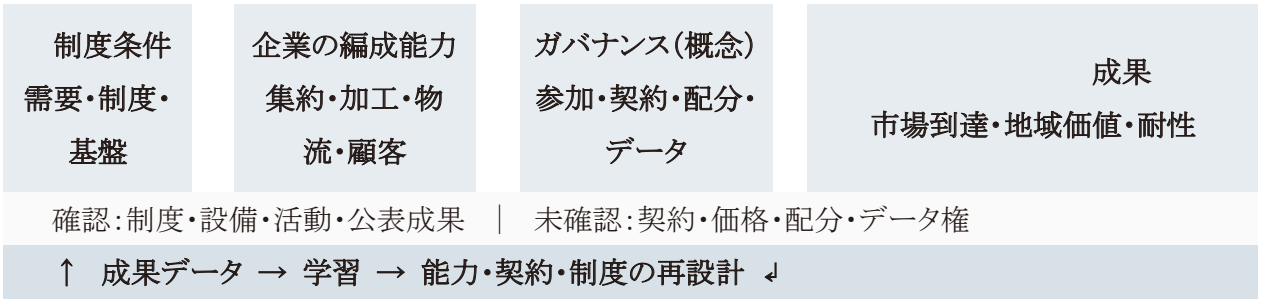

図１　制度的補完性―価値連鎖ガバナンスの循環モデル

出所：先行研究と比較事例分析に基づき筆者作成。
注：ガバナンス媒介は分析上の概念であり、本稿で実証的に確認できない項目は因果推論に用いない。

以上から、比較で検討する三つの命題を設定する。

命題１（市場移行）：政策が生む初期需要は市場到達範囲を広げるが、自発的再購買は持続的市場形成の条件として示唆される。

命題２（地域価値保持）：加工・体験・販売の垂直統合は、地域内付加価値と継続的顧客関係の形成に寄与し得るが、場所依存性と労働集約性が複製を制約する。

命題３（分配ガバナンス）：農業者の参加権と利益配分の透明性は、企業の市場成果が地域成果へつながるための媒介条件となり得る。本稿では、その理論的整合性と実証上の未確認事項を検討する。

３　研究方法

３．１　比較研究設計

本稿は、各事例に同じ質問を適用する構造化・焦点化比較を主とし、「最異システム比較」の発想を探索的に用いる。共通条件は、両社が複数の価値連鎖段階を調整し、農産物を顧客へ接続する点である。主要な差異は、国・制度、需要の起点、法的形態、事業歴、地域規模である。比較単位は、集荷・標準化、加工・ブランド、物流・データ、顧客関係、参加・分配という機能とし、異なる条件下で共通して確認される機能と制度依存的な実装を区別する。差異を統計的に統制するのではなく、比較可能な機能に限定して分析的推論を行う。事例研究は「どのように」「なぜ」という問いに適し（Yin, 2018）、比較事例から理論命題を精緻化する方法として有効である（Eisenhardt, 1989）。

理論的な事例選定理由は二つある。第一に、いずれも一次生産にとどまらず、複数の価値連鎖段階を調整している。第二に、天順は広域流通と政策接続、モクモクは生産者起点の垂直統合という対照的な編成原理を持つ。これとは別に、企業・公的機関・報道による複数資料が利用でき、事業構造と公表成果を照合できることを資料アクセス上の選定条件とした。組織形態の同一性ではなく、各機能の担当主体、活動、入出力、顧客接点という共通の観察項目に基づいて比較する（表１）。

表１　比較対象二社の組織・事業プロフィール

比較項目	天順	モクモク	比較上の位置づけ
成立・主体	浙江省を拠点とする流通・地域運営企業。消費支援事業を広域調整	伊賀地域の養豚農家16戸と元農協職員の取組が起点	企業調整型／生産者起点型
価値連鎖範囲	商品育成、規格・包装、ブランド、集荷、コールドチェーン、店舗・EC	生産、加工、直売、飲食、体験、宿泊、会員通販、資源循環	活動の存在・担当主体・入出力・顧客接点を共通観察単位とする
地域・市場接続	合作社・村集団と都市の政策・企業・一般需要を接続	契約農家と来園者・会員を反復取引で接続	広域需給調整／関係深化
公開規模	９省・20超都市・50超県等を掲げるが、企業自己申告値（浙江天順控股集団有限公司，年不明）	2012年調査で売上約47億円、会員約4.2万世帯、雇用計約700人（戸田・村田，2012）	数値の直接比較不可（時点・定義・対象範囲が非対称）
顧客接点	消費支援店、企業・団体購買、都市市場、EC	農業公園、店舗、飲食、体験、宿泊、会員通販	多チャネル／多接点
情報上の限界	農家別契約、部門別採算、再購買率は非公表	直近連結財務、農家別仕入価格、賃金は非公表	包摂性は追加調査が必要

出所：天順・モクモク公式資料、農畜産業振興機構調査および公的資料（浙江天順控股集団有限公司，年不明；伊賀の里モクモク手づくりファーム，年不明a，年不明b；戸田・村田，2012）に基づき筆者作成。

３．２　資料と分析手順

資料は、2026年７月31日までに確認した現地観察、企業公式資料、政府・公的資料、報道資料、先行研究である。現地観察は2025年に実施した。稲城県は天順が関与する「余稲香」事業の中心事例として、冷蔵輸送車、搬出、集出荷、主体配置を観察した。昭化区と阿克蘇地区は天順の直接的活動ではなく、物流、デジタル販売、産地組織化を確認する補助観察である[1]。したがって、後二地点を天順の企業成果や所得効果の証拠には用いない。

分析は、各事例について、制度入力、市場形成、価値連鎖統合、農業者参加、顧客関係、成果とリスクを共通コードで整理した。数値は、①年度、②対象範囲、③企業単独値か地域事業値か、④自己報告か独立資料かを併記し、定義が一致しない値は合算・順位化しない。現地写真は、物流設備や活動の存在と配置を確認する一次記録として用いる一方、所得効果や企業寄与率の証明には用いない。そのうえで、命題ごとに証拠の一致・不一致を検討し、移転可能な「機能」と制度固有の「実装」を区別した。比較設計と証拠範囲を表２に示す。

表２　比較研究設計と証拠範囲

証拠区分	資料・対象	確認する内容	解釈上の限界
現地 一次記録	稲城の冷鏈、昭化区の助農ライブ、阿克蘇の産業園（2025年、写真・観察）	設備・活動・主体配置の実在性	所得効果、契約条件、企業寄与率は判定不可
企業 公式資料	天順・モクモクの公式サイト	沿革、事業範囲、現行の顧客接点	自己記述であり、財務・分配を独立検証しない
公的・ 独立資料	政府統計、政策文書、ALIC、PRIMAFF、『杭州日報』	制度条件、歴史的規模、地域事業成果	年度・定義・対象範囲の差に注意
学術文献	価値連鎖、制度、短い供給網、6次産業化研究	概念、命題、比較軸	事例の個別成果を直接証明しない

出所：現地調査資料、企業公式資料、公的資料に基づき筆者作成。

主要主張の根拠は、制度・統計および地域事業成果には政府・公的機関・独立資料を、現行事業構造には企業公式資料を、設備・活動の存在には現地観察を一次的に用いる。その他の資料は補助的確認とし、企業自己申告値または報道による再引用値だけから因果効果を主張しない。

３．３　証拠の三角測量と判定規則

事実性を担保するため、同一主張について異なる証拠類型の一致を確認した。たとえば、稲城の冷鏈は、現地写真の車両・搬出場面、企業の事業説明、『杭州日報』の30時間直送・専用倉庫の記述を照合した。数値は出所が一つの場合、そのまま『公表値』と表示し、企業成果、地域事業成果、農家成果を区別した。証拠が不足する事項は推測で補わず、『確認できない』ことを分析結果として残した。この判定規則により、現地性の強調と因果主張の過大化を同時に避ける。

３．４　研究上の限界

本稿の限界は三点である。第一に、契約書、農家別取引台帳、部門別原価資料を利用できない。第二に、日本側の詳細数値は主として2010～2012年前後であり、両社の現在規模を直接比較できない。第三に、稲城の所得増加等は複数主体による地域事業の成果で、天順単独の因果効果とはいえない。したがって、公表値は機能と事業プロセスの証拠に限定し、効果推定や分配ガバナンスの成立確認には用いない。

４　天順の市場拡張型モデル

４．１　「６＋１」事業体系と広域調整

天順は浙江省を拠点とし、農産物の生産・包装・販売、農村運営と商品育成、シンクタンク、ブランド設計、高品質農産物流通、市場運営、消費支援を「６＋１」体系として組み合わせる。公式資料によれば、事業は９省、20超の都市、50超の県に及び、顧客１万超、従業員200超、倉庫面積１万平方メートル超、店舗30超を掲げる（浙江天順控股集団有限公司，年不明）。これらは監査済み連結指標ではなく企業公表値であるが、同社が単一産品の生産者ではなく、多産地と都市需要を接続する中間組織を志向していることを示す。

同社の編成能力は三段階に整理できる。産地側では、地域資源の診断、商品規格、包装、ブランドを整え、小規模な供給を商品単位に集約する。中間段階では、倉庫、冷蔵・冷凍、受発注データを用いて需給を束ねる。需要側では、消費支援店舗、企業・団体購買、都市市場、電子商取引を組み合わせる。この構造では、政策は初期需要と正当性を供給し、企業は取引コストを引き下げる機能を担う「オーケストレーター」として補完する。中国の農村ネット小売額が2025年に３兆元、農産物ネット小売額が7,833.1億元へ達したことは、デジタル販路が例外的手段ではなく、農村市場の基盤になったことを示す（中華人民共和国商務部，2026）。

４．２　稲城「余稲香」事業

四川省稲城県の事例では、地域ブランド「余稲香」を核に、飼料供給、養豚、屠畜･加工、冷鏈物流、都市販売を結ぶ「前端―中端―後端」の連鎖が形成された。2025年５月28日付『杭州日報』によれば、2024年に純種子豚500頭超を投入し、二つの合作社と一つの村集団に500万元超の増収をもたらし、全県の藏香豚動態飼養頭数は２万1,000頭に達した。天順は稲城から杭州への直送冷鏈を組み、屠畜後30時間以内の到着と、杭州側専用倉庫からの通年配送を支えた。2025年春節期には500頭超を輸送し、2024年の全県出荷は１万8,600頭、販売額は3,700万元超、農村住民一人当たり増収は約1,470元と報告されている（姜万博，2025）。

この成果は、①地理的表示産品と地域名を結ぶブランド化、②小規模生産者を合作社・村集団単位で束ねる供給組織、③直送冷鏈と都市専用倉庫、④オンライン・実店舗・飲食を組み合わせる販路、の結合として理解できる。現地写真でも「余稲香」専用冷蔵車と産地側の搬出場面を確認でき、報道資料に

記された直送冷鏈の物的基盤と整合する。企業の役割は単なる買付ではなく、産地の供給条件を都市市場の品質・納期・商品仕様へ組合せることにある。

ただし、500万元超は二つの合作社と一つの村集団の増収、1,470元は稲城農村住民全体の一人当たり増収として報告された地域事業値である。これらを天順単独の利益還元や農家別受益に読み替えることはできない。公表資料からは、農家別出荷量、契約価格、最低価格保証、支払期間、返品・損失負担、企業利益、一般顧客の再購買率を確認できない。したがって、当該事例は市場接続と物流改善の実現可能性を支持するが、分配の包摂性を確証するものではない（表３）。

表３　稲城「余稲香」事業の主要公表値と証拠範囲

指標	公表値	時点・出所	解釈可能な範囲
純種子豚投入	500頭超	2024年・『杭州日報』	生産基盤への投入
合作社・ 村集団増収	500万元超	2024年・同上	２合作社＋１村集団の増収。 農家別配分は不明
動態飼養頭数	２万1,000頭	2024年・同上	全県の供給規模
冷鏈所要時間	屠畜後30時間以内	2025年報道・現地調査	物流経路の改善。 通常時平均は不明
春節期輸送	500頭超	2025年春節・『杭州日報』	繁忙期の輸送実績
出荷・販売	１万8,600頭／3,700万元超	2024年・同上	全県事業値。天順単独値ではない
農村住民増収	１人当たり約1,470元	2024年・同上	地域平均。個別因果・分配は判定不可

出所：『杭州日報』掲載資料（姜万博，2025）および筆者現地調査資料に基づき筆者作成。

４．３　複数地域の現地観察によるプロセス確認

図２は、中国側現地調査の記録である。A・Bは稲城で確認した「余稲香」藏香豚の冷蔵輸送車と搬出関係者、Cは昭化区の2025年キウイフルーツ助農ライブ配信の集出荷現場、D・Eは阿克蘇紅旗坡集団産

図２　中国側現地調査の記録―冷鏈・助農ライブ・産業園

注：A・B＝稲城「余稲香」藏香豚、C＝昭化区キウイフルーツ助農ライブ、D・E＝阿克蘇紅旗坡集団産業園。
　　C ～ Eは天順の直接的活動ではなく補助観察である。
出所：筆者撮影（2025年）。

業園と浙江―新疆間の産品輸送現場である。稲城を中心事例、昭化区・阿克蘇地区を補助観察として区別したうえで、三地点に共通するのは、産地単独の生産ではなく、集荷拠点、可視的ブランド、物流車両、イベント型販売を組み合わせて市場接続を実装している点である。

ただし、補助観察を天順の企業成果へ一括帰属させることはできない。図２は、企業主導型農村振興が『物流』『配信』『産業園』という観察可能な装置を通じて実装されることを示すプロセス証拠であり、売上増や所得増の効果量を示すデータではない。

４．４　成果メカニズムと潜在的脆弱性

天順モデルの強みは、広域の供給分散と需要集約を同時に扱える点にある。政策調達や企業購買は新商品の市場参入障壁を下げ、店舗・電子商取引は需要の裾野を広げる。物流と受発注情報の統合は、品質・納期のばらつきを縮小し、産地単独では負担しにくい販促費を共同化する。金融面でも、中国の農業関連融資残高は2025年末に53.57兆元に達しており、事業拡張を支える制度的な資金基盤は大きい（中国人民銀行，2026）。

公開資料から天順の政策注文比率は確認できないため、以下は天順モデルに内在し得る潜在的脆弱性として論じる。政策需要への依存が高い場合、購買動員が弱まると販売が急減する可能性がある。支援ラベルが品質評価を代替すれば、顧客が「支援のための一回購入」にとどまり、通常市場での価格競争力が育たないおそれがある。さらに、プラットフォーム企業に顧客データと価格決定情報が集中する場合、生産者の交渉力が弱まる可能性がある。命題１と命題３に関して、再購買率、苦情率、農家手取価格、契約遵守、地域還元を今後測定する必要がある。

５　モクモクの地域価値内在化型モデル

５．１　生産者起点の事業展開

モクモクは、三重県伊賀地域の養豚農家が、豚肉の価格と販売を他者に委ねる構造から脱し、自ら加工・販売する取組を起点として発展した。農畜産業振興機構の2012年調査によれば、元農協職員と地域の養豚農家16戸が前身組織を設立し、伊賀豚の銘柄化からハム加工へ進んだ。公式沿革では、1983年の伊賀豚事業、1987年のハム工房設立、1989年の手づくりウインナー教室、1995年の農業公園、1996年の会員向け通信販売へと段階的に事業領域を拡張している（伊賀の里モクモク手づくりファーム，年不明a；戸田・村田，2012）。これは、完成形を一度に設計したのではなく、加工、体験、会員関係を顧客反

表４　モクモクの事業構造を示す歴史的・現行証拠

時点・資料	主な確認値	価値連鎖上の意味	留意点
2010年度・PRIMAFF	売上約45億円、正職員・パート各約130人、来園約50万人、会員約４万世帯	農業公園・外販通販・飲食の三本柱と部門間補完	歴史的スナップショット。具体的な利益配分の仕組みは未確認
2012年・ALIC	売上約47億円、正社員150人、地元パート150人、臨時400人、会員約4.2万世帯	地域雇用、会員組織、複数法人の連携	調査時点・対象範囲に依存
2010～2012年公的調査	野菜農家約100、米農家80～110との契約調達	自社生産を地域ネットワークで補完	米農家数は資料間で相違
2026年７月・公式サイト	工房、体験、牧場、温泉、宿泊、飲食、物販、ウェブ予約、直販	複数の顧客接点の併存を現行資料で確認	現行財務・部門別採算は非公表

出所：農林水産政策研究所資料、農畜産業振興機構調査、モクモク公式サイト（農林水産政策研究所，2015；戸田・村田，2012；伊賀の里モクモク手づくりファーム，年不明a，年不明b）に基づき筆者作成。

応に応じて積み上げた経路依存的な能力形成である（表４）。

以下では、1983～2012年を形成過程・歴史的成果、2026年７月時点の公式サイトを現行事業構造の確認資料として分ける。2010年度・2012年調査の数値は最新値として扱わず、農業公園、加工、外販・通信販売、飲食等が接続していた歴史的構造を示す資料とする。現行サイトでは複数の加工・体験・飲食・宿泊・販売施設を確認できるが、過去の売上・雇用・会員数を現在成果へ読み替えない（伊賀の里モクモク手づくりファーム，年不明b）。

５．２　体験・学習・会員関係による顧客共創

モクモクの価値連鎖は、「生産物を加工して高く売る」という線形モデルを超える。来園者は、農作業、食品づくり、食事、買物、宿泊を通じて、品質の背景、作り手、地域の自然を経験する。体験はサービス売上を生むだけでなく、検索財になりにくい安全性・製法・地域性を説明する情報装置である。公的調査は、消費者アンケートを商品構成に反映し、野菜の生産履歴やレシピをウェブで提供していたことを報告している（戸田・村田，2012）。顧客の声を商品開発へ戻す仕組みから、体験―購買―学習―再購買の循環を志向する事業構造が確認できる。ただし、実際の再購買率は公開資料から確認できない。

会員制度は、この循環を単発来園から継続的関係へ接続する仕組みである。2012年調査では会員約４万2,000世帯、現在の公式案内では、会員本人と同伴者の入園、温泉、宿泊、買物、イベント等を横断する特典が確認できる（戸田・村田，2012；伊賀の里モクモク手づくりファーム，年不明b）。本稿では、これを社会学的な「共同体」ではなく、食・農への関心を媒介とする継続的顧客関係と位置づける。この制度は現地体験と通信販売・直販を結ぶ可能性を持つが、再購買や季節性緩和の効果量は測定されていない。

日本全体では、2024年度の農業生産関連事業の年間総販売金額は２兆2,244億円であり、農産物直売所１兆1,344億円と農産加工１兆61億円が全体の96.2％を占める。観光農園391億円、農家レストラン399億円、農家民宿49億円は金額規模が小さいが、顧客接点、滞在、学習を形成する補完部門である（農林水産省，2026）。モクモクは、直売・加工という収益中核に体験・飲食・宿泊を結合することで、統計上は分離される業態を一つの顧客経路として運営している（図３）。

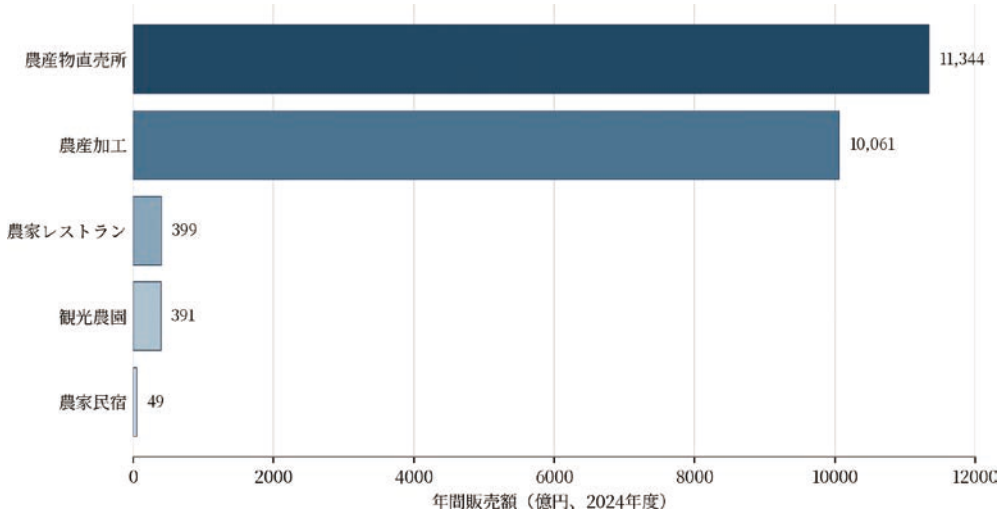

図３　日本の農業生産関連事業における業態別年間販売額（2024年度）

出所：農林水産省「令和６年度６次産業化総合調査結果」（農林水産省，2026）に基づき筆者作成。

５．３　地域調達・部門間補完・資源循環

公的調査では、契約農家数が資料により異なるため数値を一本化しないが、地域調達ネットワークの存在は確認できる（農林水産政策研究所，2015；戸田・村田，2012）。ただし、地域価値保持への因果効果は測定されていない。また、二・三次部門の収益が一次部門を支えるとの整理はあるが、出資関係、部門間取引、利益配分式は確認できないため、具体的な利益移転ではなく部門間補完の歴史的証拠として扱う（農林水産政策研究所，2015）。資源循環については、おから等の再利用が報告されている（農林水産省，年不明b）。

５．４　成果メカニズムと脆弱性

モクモクモデルの強みは、地域に根差した物語、対面経験、反復購買、地域調達、資源循環を連結し、価格以外の評価軸を形成する点にある。しかし、加工、食品衛生、接客、教育、景観管理、データ運用を同時に担うため、固定投資と労務負担が大きい。日本の基幹的農業従事者は2025年に103万6,000人、平均年齢67.7歳であり、人材確保と承継は強い制約である（農林水産省，2025a）。来園需要は感染症、災害、天候、交通条件に左右され、地域固有の信頼を他地域へ複製することも容易ではない。

さらに、垂直統合によって企業内に価値が保持されても、雇用者、契約農家、地域組織への分配が自動的に公平になるわけではない。直近の連結財務、部門別採算、農家別仕入価格、賃金、地域内調達率は公開資料から確認できない。したがって、モクモクは地域価値内在化の有力なメカニズム事例ではあるが、分配の水準と現在の成果規模は確認できない。

６　比較分析

６．１　市場形成の異なる経路

二社の違いは、需要形成の起点にある。天順は、行政・企業購買等の集約需要を入口とし、物流、ブランド、店舗、電子商取引によって遠隔地産品の到達範囲を広げる。モクモクは、商品・体験・学習の一体化を入口とし、来園時の信頼を会員・通信販売へ転換する。前者は「既存需要への接続と拡張」、後者は「関係を通じた需要形成」に相対的な強みを持つ。

この差は、政策と企業能力の補完形態を表す。天順では、政策が初回取引の形成と規模確保を助け、企業の物流・デジタル能力の限界費用を下げる。モクモクでは、６次産業化制度が事業統合を正当化・支援する一方、需要そのものは企業が長期的な顧客関係を通じて形成する。両者とも公的制度に支えられるが、政策が取引需要に直接入る程度は異なる（表５）。

表５　二社の価値連鎖ガバナンスの比較

分析次元	天順： 市場拡張型	モクモク： 地域価値内在化型	理論的含意 （実証結果とは区別）
需要の起点	政策・企業購買を入口に都市需要へ接続	体験・学習を入口に需要形成を志向	規模の形成／関係の深化
編成能力	集荷、標準化、ブランド、冷鏈、広域データ	生産、加工、直売、飲食、体験、宿泊	所有範囲より調整能力が重要
顧客・データ	店舗・オンライン・政企調達の多チャネル	来園、会員、通信販売、ウェブ予約	到達範囲と反復関係は補完的
価値保持	取引量と市場アクセスを拡大	加工・サービスを統合し地域内価値保持を志向（具体的配分は不明）	売上と地域厚生を区別

分析次元	天順： 市場拡張型	モクモク： 地域価値内在化型	理論的含意 （実証結果とは区別）
生産者参加	合作社・村集団を介するが農家別契約は不明	契約農家ネットワークは確認、価格・分配は不明	参加権と透明性は理論的媒介条件。両事例とも実証未確認
主要リスク	政策需要･支援ラベル･プラットフォーム集中の潜在的リスク	固定投資・労働力・来園ショック・承継	制度ショック／場所・人材制約
学習回路	購買・物流データを品質・再購買へ転換する必要	顧客反応を商品・体験へ還流	成果データの再組織化能力

出所：企業公式資料、公的統計、現地調査資料に基づき筆者作成。

６.２　価値獲得と分配のガバナンス

「中間流通を減らせば農業者の取り分が増える」という説明は不十分である。天順では、集荷、包装、認証、物流、販促を企業が担うことで新たな価値と費用が同時に生じる。モクモクでも、加工、店舗、体験施設の収益は投資・労務・品質管理の負担と対応する。重要なのは中間段階の数ではなく、各段階が生む価値、負担するリスク、価格決定権の配分である。

包摂性の検証には、生産者手取価格、契約遵守、支払日数、規格外品の負担、地域還元、意思決定参加等の資料が必要である。命題３は理論的には整合するが、公開資料から実証的成立を確認できなかった。したがって、図４は今後検証すべき分析仮説であり、二事例から導出した因果モデルではない。

天順：市場拡張型	**共通の価値創出**	**モクモク：地域価値内在化型**
政策需要・広域集荷 ブランド・コールドチェーン デジタル販路	**市場到達の拡大** ＋ **付加価値の創出**	生産・加工・直売 体験・会員関係 地域調達・資源循環
↓　命題３で検証すべき媒介条件（本稿では測定不十分）：参加権／価格・契約／リスク負担／データアクセス／地域還元　↓		
仮説上の透明・参加型	**分配ガバナンス（分析仮説）**	**仮説上の不透明・集中型**
農家手取・地域雇用・交渉力・反復購買の改善が期待される → 包摂的・持続的となり得る	同じ販売額でも 成果が分岐	**価値獲得の集中・リスク転嫁・一回購入依存が生じ得る → 脆弱・非包摂的となり得る**
成果データ → 商品・契約・人材・制度の改善 → 次期設計（組織学習のフィードバック）		

図４　企業主導型農村振興における包摂性と持続性に関する分析仮説

出所：命題３および比較事例の証拠上の欠落に基づき筆者作成。

６.３　デジタル能力と関係形成力

天順の強みであるデジタル受発注・広域物流は、遠隔地の供給を都市需要へ迅速に接続する。一方、モクモクの強みである対面体験・会員関係は、価格比較だけでは失われやすい品質情報と信頼を蓄積する。両能力は代替関係ではなく補完関係にある。デジタル化のみでは商品が同質化し、体験のみでは到達範囲が限定される。

中国側では、購入履歴、顧客評価、産地追跡を、行政への販売実績報告だけでなく、商品改善と自発的再購買へ用いる必要がある。日本側では、来園前後の顧客接点、予約、会員、通信販売、地域間共同配送を統合し、現地体験の価値を遠隔顧客へ継続的に届ける余地がある。

６．４　マクロ条件と一般化の範囲

表６は企業成果の優劣を示すものではなく、中国の広域市場・農村ECと、日本の人口縮小・担い手高齢化を解釈する補足的な境界条件である。これらの指標から二社の成果を直接説明せず、定義の異なる統計の合成や通貨換算による順位づけも行わない。

表６　日中事例を取り巻く主要な境界条件

指標	中国	日本	比較上の含意
人口・地域構造	2025年末人口14億489万人、農村常住人口４億5,109万人、都市化率67.89％	2026年７月概算人口１億2,293万人。農村人口の公的定義は中国と非同一	中国は広域集荷、日本は人口縮小下の地域密着が重要
デジタル・関連市場	2025年農村ネット小売３兆元、農産物ネット小売7,833.1億元	2024年度農業生産関連事業２兆2,244億円	同一市場ではないため比率・通貨換算で優劣を示さない
担い手・労働	合作社・村集団・企業による小規模供給の集約が重要	2025年基幹的農業従事者103.6万人、平均67.7歳	日本では承継・省力化、中国では組織化・標準化が強い制約
主な制度補完	消費支援、農村EC、農業関連融資、対口支援	６次産業化、地産地消、農山漁村発イノベーション	制度の一括移植ではなく機能を選択的に移転

出所：中国国家統計局、商務部、中国人民銀行、総務省統計局、農林水産省の公表資料（中華人民共和国国家統計局，2026；中華人民共和国商務部，2026；中国人民銀行，2026；総務省統計局，2026；農林水産省，2025a，2026）に基づき筆者作成。

比較から得られる理論的含意は三点である。第一に、制度的補完性は固定的な適合ではなく、事業段階によって変化する。政策需要は立上げ期には物流・ブランド投資を可能にするが、成熟期には自発的需要への転換を促す評価制度が必要である。第二に、企業のオーケストレーション能力は、所有範囲の広さではなく、異なる主体間で規格、情報、リスク、利益を調整する能力として評価すべきである。第三に、地域価値保持には、「地域内で売上が発生したか」だけでなく、意思決定権、所得、知識、顧客データが地域に残るかという複数の次元がある。 以上は、所有範囲ではなく主体間の調整能力を中心に企業主導型農村振興を捉え直すという、本稿の比較分析上の貢献である。

以上の比較分析を踏まえ、各命題について、確認できた証拠と未確認事項を整理したものが表７である。

表７　命題と証拠の対応

命題	主な観察証拠	確認できない事項	判定
命題１	政策需要、ブランド、冷鏈・広域物流、都市販路の併存（浙江天順控股集団有限公司，年不明；中華人民共和国商務部，2026；姜万博，2025）	再購買率、政策需要の追加性、反実仮想	部分的支持
命題２	加工・体験・販売・会員関係、地域調達の歴史的併存（農林水産政策研究所，2015；戸田・村田，2012）	顧客忠誠への因果効果、現在の部門別価値保持	一定の整合性を示唆
命題３	必要指標と情報開示上の欠落を確認	参加権、価格・契約、利益配分、リスク負担、データアクセス	実証的に未確認（理論的整合）

出所：比較事例分析および表１～表５に基づき筆者作成。

7　政策的・経営的含意（著者による規範的提案）

以下は、二事例で効果が実証された施策ではなく、比較分析と確認できなかったガバナンス項目を踏まえた著者の規範的提案である。

7．1　中国：政策需要から自律市場への移行

第一に、消費支援事業の評価を販売総額中心から、追加性と継続性中心へ転換すべきである。政策・企業購買による売上、一般顧客による売上、再購買を区分し、政策支援がなければ発生しなかった需要と、通常市場へ定着した需要を識別する。再購買率、顧客獲得費用、返品・苦情、品質改善の履歴を公開すれば、支援ラベル依存からブランド競争への移行を測定できる。

第二に、著者の政策提案として、農業者への利益連結を契約に埋め込む方策は検討に値する。最低買付価格または価格算定式、支払期限、規格変更時の協議、規格外品の負担、販売プレミアムの分配、村集団・合作社の監査権を明文化する。企業、合作社、村集団の各段階で控除される費用を示し、生産者手取率と地域再投資率を共通指標にする。農業者代表がブランド、規格、データ利用の協議に参加する仕組みは、単なる受益から共同統治への移行を促す。

第三に、広域プラットフォームと地域の事業能力を分業させる。天順型企業は、物流、デジタル販促、都市顧客開拓、共通認証を担えるが、産品開発と品質改善を外部化しすぎれば、地域側に知識が蓄積しない。期間限定で企業が伴走し、商品管理、顧客分析、会計、交渉を合作社・地域企業へ移転する「能力移転契約」を設けることが望ましい。

7．2　日本：地域価値を保ちながら接続範囲を拡張

第一に、６次産業化を一法人による全段階所有と同一視せず、地域連携型の価値連鎖として設計する必要がある。すべての農業者が加工場、店舗、観光施設を保有することは非効率である。共同加工、品質管理、予約・顧客管理、配送を地域プラットフォームで共有し、生産者は商品企画と顧客説明へ関与する。企業は農地を所有しなくても、一定の要件下で全国的に農地を借り受けて参入できるため（農林水産省，2025b）、課題を参入禁止と捉えるより、地域との責任ある契約、撤退時の原状回復、長期的な人材育成として設計すべきである。

第二に、体験価値をデジタル顧客関係へ接続する。来園時に得た同意に基づき、購入履歴、季節商品、体験学習、産地情報を統合し、来園できない期間も通信販売、オンライン講座、共同配送で関係を維持する。中国の電子商取引をそのまま模倣するのではなく、モクモク型の信頼と説明責任をデジタル上で再現することが重要である。

第三に、人材と承継を価値連鎖の中核指標に置く。食品加工、接客、教育、データ管理を横断する職能を育成し、地域内の複数事業者間で人材を共有する。若年者、女性、地域外人材が、単純労働だけでなく商品企画と意思決定へ参加できるキャリア経路を示す。来園者数や販売額と並んで、正規雇用転換、技能認証、後継者候補、労働時間を開示することが、持続可能な６次産業化の条件となる。

7．3　相互学習の条件

相互学習は、制度全体の輸入ではなく、機能の分解と再結合として行うべきである。中国がモクモクから学びうるのは、体験を通じた品質情報の伝達、会員関係、長期的な顧客関係である。日本が天順から学びうるのは、産地横断の共同ブランド、デジタル需給調整、冷鏈・共同配送、複数チャネル運営である。これらは、法制度、組織慣行、人口密度に合わせて実装を変える必要がある。

実装主体は、日本では地域商社、JA、物流事業者、農業法人等、中国では広域企業、合作社、村集団等を、機能別に対応させる必要がある。

導入手順としては、①地域の制約と既存能力の診断、②価値連鎖上のボトルネックの特定、③一機能の小規模実証、④生産者・従業者・顧客を含む評価、⑤分配規則を伴う拡張、が妥当である。実証時には、売上だけでなく、農家手取、地域内調達、再購買、物流損失、労働負担、データ利用を測定する。企業の社会的価値と経済価値を同時に追求する場合でも（Porter and Kramer, 2011）、成果指標と統治権限が曖昧であれば、「共有価値」は広報概念にとどまる。

8　結論

本稿は、中国側の現地観察と公開資料、日本側の企業・公的資料を組み合わせ、天順とモクモクを価値連鎖の調整機能に基づいて比較した。天順は、政策需要、広域調達、ブランド、コールドチェーン、デジタル販路を接続して遠隔農村を大市場へ結ぶ『市場拡張型』である。モクモクは、生産、加工、直売、飲食、体験、会員関係、資源循環を統合し、場所固有の品質情報を伝え、継続的顧客関係の形成を志向する『地域価値内在化型』である。

命題ごとの判定は異なる。命題１は、政策需要、ブランド、物流、販路の併存が市場到達の拡張と整合する点で部分的に支持されたが、自発的再購買への移行は未検証である。命題２は、モクモクにおける加工、体験、販売、継続的顧客関係、地域調達の歴史的併存と一定の整合性を持つが、顧客関係や地域内価値保持への因果効果は確認できない。命題３は、短い経路や企業統合だけでは農業者受益を判断できないという問題設定を支持する一方、参加権、価格・契約、利益配分、リスク負担、データアクセスの比較資料が不足するため、実証的には未確認であり、理論的示唆にとどまる。分配ガバナンスは、企業の市場成果を地域の所得、雇用、交渉力へ変換するための条件となり得るが、その因果過程は今後の検証課題である。

【注】

［1］ 資料区分は、企業公式資料、政府・公的機関資料、報道資料、筆者現地観察として表示した。企業公表値および報道による再引用値は、それぞれ「企業公表値」「報道資料」として扱い、単独では因果効果の根拠にしない。筆者（2025）の中国側現地調査写真記録（稲城、昭化区、阿克蘇地区）は、設備・活動・主体配置の存在確認に限定して使用した。

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 49–59

論　　文

デジタル資産配置型上場企業の資本政策
―投資家認知と市場センチメントからみた博雅互動の探索的事例研究―

Capital Policy of Listed Companies with Digital-Asset Treasuries:
An Exploratory Case Study of Boyaa Interactive through Investor Cognition and Market Sentiment

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【要旨】

本研究は、上場企業がビットコインを中核的な財務資産として保有したとき、投資家の認知枠組みと市場センチメントが株価評価と資本政策の循環にどのように関わるかを探索的に検討する。博雅互動（0434.HK）を中心事例（メインケース）とし、Strategy（MSTR）およびMetaplanet（3350.T）を副次事例（サブケース）とする探索的比較事例研究を行った。企業開示、財務資料、市場データおよび原稿付属集計表を用い、保有戦略の段階、日次収益率の相関、株価騰落率の増幅比、mNAVと資金調達行動を比較した。博雅互動では、ビットコインとの相関が配置前の0.08から強化期の0.74へ上昇する一方、恒生科技指数との相関は0.52から0.11へ低下した。上昇局面の株価増幅比は5.31、下落局面は2.26であり、株価変化はビットコイン価格の単純な複製ではなかった。比較結果は、①企業カテゴリーの転換、②注意の再配分、③投資家間の評価枠組みの異質性、④mNAVを媒介とする資金調達フィードバックが、基礎資産の価格ショックを株価へ増幅して伝えることを示唆する。ただし、mNAVの定義は企業・時点間で統一されておらず、相関も因果関係を意味しない。以上を踏まえ、デジタル資産保有企業に固有の「認知―センチメント―資本政策」循環モデルを提示する。

キーワード：デジタル資産配置型企業、投資家認知、市場センチメント、博雅互動、mNAV

1　はじめに

企業財務におけるビットコイン保有は、余剰資金の運用という周辺的な意思決定から、企業価値そのものを規定する戦略へと変化しつつある。とりわけ、保有額が総資産や時価総額に対して大きい企業では、投資家が企業を従来の産業カテゴリーではなく、ビットコイン価格へのエクスポージャーを提供する証券として評価する現象がみられる。この変化は単なる資産構成の変更ではない。企業が発信する情報の重要度、投資家が注目する指標、資金調達の可否、さらには経営者の戦略選択までを同時に変える。

本研究の中心事例（メインケース）である博雅互動は、オンラインゲームを主業とする香港上場企業である。同社は2023年に暗号資産取得方針を公表し、その後ビットコイン保有を段階的に拡大した（Boyaa Interactive International Limited, 2024）。2025年末時点では4,092 BTCを保有し、デジタル資産の公正価値は約29.2億香港ドルに達した。他方、オンラインゲーム事業は同年に約4.43億香港ドルの売上を計上し、事業収益を維持している（Boyaa Interactive International Limited, 2026a）。したがって同社は、主業を失った純粋な資産保有会社ではなく、営業キャッシュフローを有する事業会社と高変動資産保有企業という二重性を備える。

この二重性は重要な研究課題を提起する。第１に、投資家はどの時点で当該企業を「ゲーム企業」から「ビットコイン関連株」へ再分類するのか。第２に、その再分類は株価とビットコイン価格の連動性をどのように変えるのか。第３に、資産価値に対する株式評価のプレミアムまたはディスカウントは、資金調達と追加購入を通じてどのような自己強化・自己崩壊過程を形成するのか。本研究はこれらを、投資家の限定合理性、有限の注意、カテゴリー化および市場センチメントの観点から検討する。

本研究の貢献は三点にある。第１に、デジタル資産保有企業における株価評価と資本政策の関係を、単なるビットコイン・ベータではなく、企業カテゴリーの転換を伴う認知過程として捉える。第２に、博雅互動の段階別相関と騰落率比率を、StrategyおよびMetaplanetの資本政策と比較し、株価増幅の企業内・企業間メカニズムを整理する。第３に、mNAVを客観的な企業価値そのものではなく、投資家の期待、優先請求権、希薄化可能性および資金調達能力が集約された市場指標として位置づける。なお、本研究は因果効果の推定ではなく、公開資料と記述統計に基づく仮説構築を目的とする探索的ケーススタディである。

2　研究背景と分析枠組み

2．1　有限の注意と企業カテゴリーの転換

投資家は利用可能なすべての情報を同じ精度と速度で処理できるわけではない。Kahneman（Kahneman, 1973）が示したように、注意は希少な認知資源である。金融市場では、ニュース、極端な価格変動、取引量など顕著性の高い情報が投資家の探索と売買を誘発する（Barber & Odean, 2008）。ビットコイン価格は24時間更新され、価格変動が大きく、報道量も多い。これに対し、ゲーム事業の売上や利益は四半期または年次で開示される。この情報頻度と顕著性の差は、企業のデジタル資産保有が拡大するほど、投資家の注意を営業活動から資産価格へ移動させる。

カテゴリー化は複雑な対象を簡略化する認知装置でもある。Mullainathan et al.（2008）は、個人が細部を捨象する「粗い思考」によって判断することを示す。企業評価でも、投資家は「ゲーム」「ソフトウエア」「ホテル」などのカテゴリーに応じてカテゴリーごとに異なる比較対象企業と評価倍率を選択する。企業が多額のビットコインを保有すると、「ビットコイン財務戦略企業」という新たなカテゴリーが前景化し、売上成長率や営業利益率よりも、保有BTC、取得原価、完全希薄化後株式数、負債およびmNAV

が評価の中心となる。ここでいうカテゴリー転換とは、法的な業種変更ではなく、市場参加者が採用する参照枠の変更を意味する。

２．２　代表性、群集行動およびセンチメント

代表性ヒューリスティックは、対象が典型例に似ている程度を重視し、基礎率や相違点を過小評価する傾向である（Tversky & Kahneman, 1974）。博雅互動やMetaplanetを「次のStrategy」とみなす判断は、ビットコイン保有という共通点を強調する一方、営業事業、上場市場、流動性、負債構造、優先株、規制および資金調達手段の差を圧縮する。この単純化は上昇局面では取引参加を容易にするが、下落局面では同一カテゴリー内の一括売却を促しうる。

市場センチメントは、客観的なキャッシュフロー情報だけでは説明できない将来収益への楽観・悲観を表す（Baker & Wurgler, 2006）。不確実性が高く裁定が難しい銘柄では、センチメントの価格影響が強い。さらに、他者の行動を情報として用いる群集行動（Banerjee, 1992）と、含み損銘柄を保有し続けやすい処分効果（Shefrin & Statman, 1985）が組み合わされると、価格のオーバーシュートと調整の遅延が生じる。デジタル資産保有企業では、基礎資産自体の高い変動に、株式市場固有の流動性・信用・希薄化リスクが重なるため、現物ビットコインより大きな株価変動が生じやすい。

２．３　企業の暗号資産開示と株価反応

暗号資産研究は、ビットコインが交換媒体と投機資産の双方の性質を持つこと（Baur et al., 2018）、また暗号資産市場が高い変動性と制度的リスクを伴うことを示してきた（Corbet et al., 2019）。企業開示研究では、ブロックチェーン関連の投機的開示に対する短期の正の市場反応が、その後に反転する可能性が報告されている（Cheng et al., 2019）。近年は、企業がビットコイン情報を開示した後、その株式のビットコイン要因への感応度が上昇することも示されている（Johnson & Markelevich, 2026）。

しかし既存研究の多くは、開示前後の平均的反応または複数企業の横断面に焦点を当てる。企業がビットコイン取得を反復し、保有額が拡大し、株式発行や債務調達が保有戦略と結びつく過程では、投資家の認知枠と評価指標そのものが変化する。本研究は、博雅互動におけるビットコイン保有戦略の時間的展開を主軸に、先行するStrategyと日本市場のMetaplanetを比較することで、この動的過程を探索する。

この動的過程では、二つの価格伝達経路を区別する必要がある。第１は、保有ビットコインの公正価値変化が貸借対照表や損益を通じて株主価値へ反映される「資産価値経路」である。第２は、注目の集中、比較対象の変更、売買主体の交代および資金調達余力の変化を通じて、同じ資産価格ショックがより大きな株価変化を生む「認知・資本市場経路」である。前者のみなら、保有数量、税効果および株式数から価格感応度を概算できる。後者が働く場合、株価反応は時点、市場流動性、プレミアム、発行余力および投資家構成に依存する。本研究が説明対象とするのは、主として後者が前者をどのように増幅または抑制するかである。

３　研究方法

３．１　研究設計と事例選択

本研究は、博雅互動を中心事例（メインケース）、StrategyとMetaplanetを副次事例（サブケース）とする探索的比較事例研究である。単一事例を中心に置きつつ、理論的に関連する副次事例を用いてパターンの一致と相違を検討する設計は、境界が新しく、変数間関係が未確立な現象の仮説構築に適する（Eisenhardt, 1989; Yin, 2018）。したがって、本研究の目的は母集団平均の因果効果を推定することではな

く、価格連動と資本政策を結ぶメカニズムを特定し、検証可能な命題を導くことにある。

博雅互動を選んだ理由は、①デジタル資産が総資産に占める重要性が高い、②取得履歴と財務影響が継続的に開示される、③オンラインゲームという営業事業が存続し、資産保有効果と事業効果の競合を観察できる、④香港という米国・日本と異なる制度環境に位置する、という四点である。Strategyはビットコイン財務戦略と資本市場調達を最も大規模に実行した先行事例、Metaplanetは同戦略を短期間に拡張した日本の比較事例として選定した。

３．２　資料と分析期間

資料は四種類から構成される。第１は、香港取引所、米国証券取引委員会（SEC）および東京証券取引所の適時開示資料である。第２は、各社の年次・四半期報告書、投資家向け資料および公式指標説明である。第３は、WindおよびCoinMarketCapに基づく日次市場データ（Wind Information Co., Ltd., 2026; CoinMarketCap, 2026）である。第４は、原稿付属Excelに保存された相関係数と騰落率の集計値である。分析期間は博雅互動が暗号資産取得方針を公表する前の2023年１月から、主要三社の調整局面を含む2026年７月までとした。企業開示の事実確認日は2026年７月９日である。

博雅互動の段階は、配置前（2023年１～７月）、試行期（2023年８月～2024年３月）、確認期（2024年４～11月）、強化期（2025年１～９月）、変動期（2025年10月～2026年６月）に区分した。区分は取得承認、保有量の増加、株式調達による購入および市場調整という戦略上の転換点に基づく。

３．３　指標と分析手順

第１に、各社の開示を時系列に整理し、①資産取得、②資金調達、③営業事業、④リスク・流動性、⑤投資家向け評価指標の五つの観点で比較した。第２に、博雅互動の株価日次対数収益率とビットコインおよび恒生科技指数の日次対数収益率のPearson相関係数を段階別に確認した。相関係数は方向と連動の強さを示すが、因果方向、統計的有意性または経済的因果を単独では証明しない。

第３に、区間の株価変化率をビットコイン価格変化率で除した「増幅比」を用いた。増幅比Aは A＝|R_stock|/|R_BTC| と定義する。絶対値を用いるため、上昇・下落の方向は別途表示する。この指標は直感的である一方、始点・終点の選択に敏感で、途中経路や配当、為替を反映しない。第４に、mNAVを市場がビットコイン保有に付与するプレミアム・ディスカウントの方向を把握する補助指標として用いた。ただし、Strategyは2026年７月23日にmNAVの定義を変更しており、同日前後および他社との数値水準は厳密には比較できない（Strategy Inc., 2026b）。本研究では１倍を上回るか下回るかという資金調達上の含意を中心に解釈する。

mNAVの開示概念は企業ごとに異なる。Strategyは、株式価値と債務・優先株等を反映した企業価値を保有BTC価値と対比する指標として公表し、2026年７月23日に定義体系を変更した（Strategy Inc., 2026b）。Metaplanetは企業価値をBitcoin NAVで除した指標と、完全希薄化後１株当たりBTC指標を併記する（Metaplanet Inc., 2026）。博雅互動は標準化されたmNAVを公式開示していない。したがって本稿は、三社のmNAV水準を直接比較せず、各社内での資金調達上の含意に限定して解釈する。

なお、初稿には多言語テキスト感情分析、イベントスタディおよび市場指数を統制した回帰分析の記述があったが、標本抽出、辞書、イベント窓、推定式、係数および有意性を再現できる資料が付属していなかった。本稿では再現不能な分析結果を提示せず、公開資料と確認可能な集計値に限定した。これは結論の範囲を狭めるが、研究手続の透明性を高めるための措置である。

再現研究では、取引日の異なる市場をそろえる規則も事前に固定しなければならない。ビットコインは週末を含め連続取引される一方、香港株と指数には休場日があるためである。推奨手順は、香港市場

の終値時刻を基準にビットコイン価格を切り出し、株式取引日の共通標本だけで対数収益率を作成し、配当・株式分割・通貨換算を明記することである。さらに各段階について観測数、相関係数の信頼区間、外れ値処理、代替ベンチマークおよび境界日を前後させた感度分析を報告する必要がある。本稿の付属集計値はこの条件を検証できないため、数値は提示された定義に沿う記述統計として扱う。

4　分析結果

4.1　三社の戦略と資本構造

表1は三社の比較概要である。博雅互動は、2025年にオンラインゲーム売上約4.43億香港ドルを維持しつつ、4,092 BTCを保有した。2026年第1四半期には、ビットコイン価格下落により親会社株主帰属損失が拡大すると予告された一方、デジタル資産等の一時要因を除く利益は前年同期比85〜90%増が見込まれた（Boyaa Interactive International Limited, 2026b）。営業改善と会計損失が同時に生じたことは、投資家がどちらの情報を優先するかを観察する自然な対照を提供する。

Strategyは、2026年7月5日時点で843,775 BTCを保有し、取得総額は636.9億米ドル、平均取得単価は75,476米ドルであった。同年6月29日から7月5日までに3,588 BTCを売却し、その収入を優先株配当の支払と米ドル準備の補填に充てた。これは、ビットコインを中核準備資産とする方針が、優先請求権と流動性管理から独立ではないことを示す（Strategy Inc., 2026a）。

Metaplanetは2026年6月末までに43,000 BTCを保有し、取得総額は6,592.56億円、平均取得単価は1 BTC当たり1,533.15万円であった。同社は普通社債、外貨建て債務、転換優先株および完全希薄化後株式数を併せて開示している（Metaplanet Inc., 2026）。この事例では、保有量の増加だけでなく、1株当たりビットコインと優先請求権の変化を同時にみる必要がある。

表1　三社のデジタル資産戦略・資本構造の比較

項目	博雅互動	Strategy	Metaplanet
主な従来事業	オンラインゲーム	企業分析ソフトウエア	ホテル等からBTC財務・金融へ転換
BTC戦略の起点	2023年	2020年	2024年
確認時点の保有量	4,092 BTC（2025年末）	843,775 BTC（2026年7月5日）	43,000 BTC（2026年6月末）
取得原価等	平均68,211米ドル／BTC デジタル資産公正価値29.2億香港ドル	総額636.9億米ドル 平均75,476米ドル／BTC	総額6,592.56億円 平均1,533.15万円／BTC
資金調達・特徴	内部資金に加え株式発行（プレースメント）で購入資金を調達。営業事業を維持	普通株・転換社債・複数優先株を活用。米ドル準備を設定	株式・社債・外貨建て債務・転換優先株を活用。完全希薄化指標を開示
主要な観察リスク	BTC公正価値変動が営業改善を覆う認知上の競合	優先株配当・利息とBTC売却の連動	希薄化、優先請求権、目標保有量の実行可能性

注：各社の確認時点と指標定義は同一ではない。
出所：Boyaa Interactive International Limited（Boyaa Interactive International Limited, 2026a）、Strategy Inc.（2026a）、Metaplanet Inc.（Metaplanet Inc., 2026）に基づき筆者作成。

4.2　相関構造の変化とカテゴリー転換

図1によれば、博雅互動株の日次収益率とビットコイン収益率の相関は、配置前の0.08から試行期0.31、確認期0.58、強化期0.74へ上昇し、変動期にも0.69を維持した。これに対し、恒生科技指数との相関は0.52から0.44、0.29、0.11へ低下し、変動期も0.18にとどまった。二つの系列が逆方向に変化する記

述的な傾向がみられたことは、同社株の主要な参照先が香港テクノロジー株全体からビットコインへ移ったというカテゴリー転換仮説と整合的に解釈しうる。

この解釈を補強するのが2026年第１四半期の業績予告である。ゲーム事業の改善を反映する調整後利益の増加と、ビットコインの公正価値低下を反映する最終損失が同時に開示された（Boyaa Interactive International Limited, 2026b）。投資家が企業をゲーム会社として評価するなら前者の情報が重要となるが、ビットコイン関連株として評価するなら後者が優先される。もっとも、図１は段階別の集計値であり、標本数、信頼区間および構造変化検定が付属資料から確認できない。したがって、「相関上昇を確認した」という範囲を超えて因果を断定すべきではない。

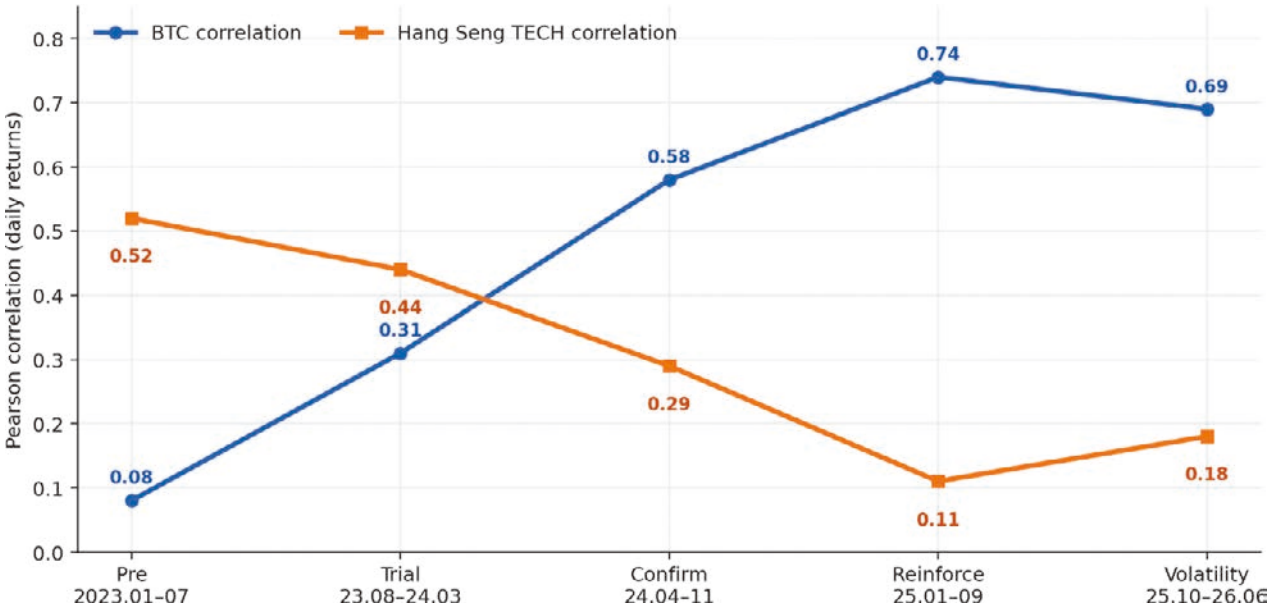

図１　博雅互動株とビットコイン・恒生科技指数の段階別相関

注：日次収益率の Pearson 相関。
出所：Wind（2026）、CoinMarketCap（CoinMarketCap, 2026）に基づく筆者集計。

４．３　局面別にみた株価増幅

図２は、博雅互動株とビットコインの区間騰落率および増幅比を示す。試行期のビットコイン上昇率87.2％に対し、株価上昇率は45.6％で、増幅比は0.52であった。確認期には48.5％対196.8％で4.06、強化期には68.3％対305.4％で4.47へ上昇した。2023年８月から2025年８月までの上昇局面全体では、320％対1,700％で5.31となった。これらは、取得戦略が市場に定着するにつれて株式がビットコイン価格の単純な複製ではなく、期待と資金調達能力を含むレバレッジ効果を伴う証券として取引された可能性を示す。

一方、2025年10月から2026年６月の下落局面では、ビットコインの下落率31％に対し、博雅互動株は70％下落し、増幅比は2.26であった。上昇局面の5.31より小さいが、１を大きく上回る。これは、株価増幅が上昇局面に限られない可能性を示す。ただし上昇局面と下落局面で期間の長さが異なり、増幅比は始点・終点に依存するため、5.31と2.26の差を統計的な非対称性の証拠とみなすには追加検定が必要である。本稿では、方向の異なる局面でいずれも株価変化の絶対値が基礎資産を上回ったという記述的証拠として用いる。

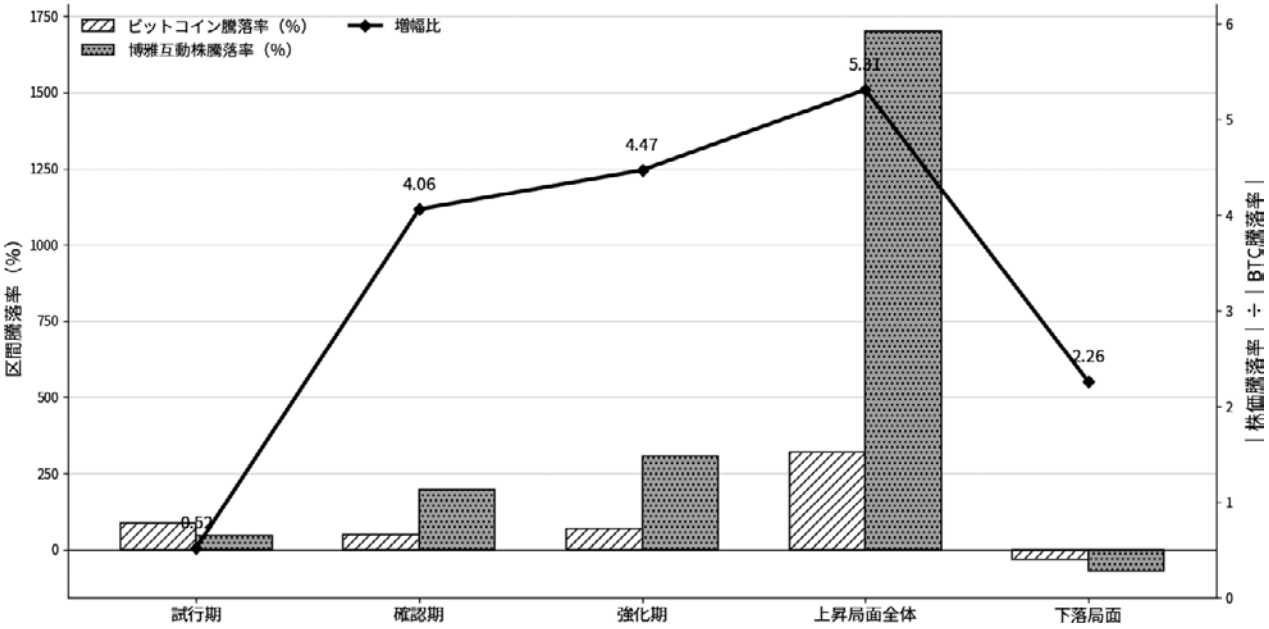

図２　博雅互動株の対ビットコイン増幅比（段階別）

注：増幅比＝株価変化率の絶対値÷ビットコイン価格変化率の絶対値。下落局面は負の騰落率で表示。
出所：筆者作成。

４．４　mNAVと資本フライホイール

ビットコイン財務戦略企業の特徴は、保有資産の価格変化が株価を動かすだけでなく、株価評価が次の資産取得能力を変える点にある。株式がビットコイン保有価値に対してプレミアムで取引される場合、企業は新株発行によって調達した資金でビットコインを取得し、希薄化を上回る速度で１株当たり保有量を増やせる可能性がある。追加取得は企業のビットコイン属性をさらに顕著にし、新規投資家の注意を引きつける。この「高い評価―調達―追加取得―属性強化」の循環が資本フライホイールである。

逆に、mNAVが１倍近辺または１倍未満になると、新株発行は１株当たりビットコインを減らす可能性が高まり、調達の合理性が低下する。債務や優先株を用いれば普通株の即時希薄化は避けられるが、利息、配当および償還請求が将来の現金需要を生む。Strategyの2026年の売却は、まさに保有資産、資本調達と優先請求権の接続を可視化した（Strategy Inc., 2026a）。したがって「売らない」という物語だけでは持続性を評価できず、米ドル準備、営業キャッシュフロー、負債満期、優先株配当および売却権限を同時に分析する必要がある。

Metaplanetは公式分析ページにおいて、mNAV、Bitcoin NAV、希薄化後１株当たり保有量などを継続的に開示している（Metaplanet Inc., 2026）。これは、mNAVが１倍を下回ることが直ちに破綻や清算を意味するのではなく、資本政策と普通株主に帰属する実質的エクスポージャーを併せて評価すべきことを示す。同時に、保有量のみを強調し、完全希薄化後株式数や優先請求権を無視すれば、普通株主に帰属する実質的なビットコイン・エクスポージャーを過大評価する。mNAVは有用な警報指標ではあるが、会計上の純資産価値でも企業の本源的価値でもない。

４．５　比較事例からみた共通性と差異

三社の共通点は、ビットコイン保有の拡大に伴い、投資家が営業事業よりも保有資産と資本政策を重視するようになった点である。いずれも株式市場を通じてビットコインへの間接的エクスポージャーを提供し、現物保有にはない流動性、税制、信用、経営者裁量および資金調達の要素を含む。このため株

価はビットコイン価格に連動しながらも、同じ幅では動かない。

相違点も大きい。博雅互動は営業利益を生むゲーム事業を維持し、デジタル資産をWeb3事業との関連で説明する。Strategyはビットコイン財務戦略を企業アイデンティティの中心に置き、普通株、転換社債および複数の優先株を組み合わせる。Metaplanetは短期間に保有量と株式数を拡大し、金融サービスへの展開も進める。したがって、三社を同じ「ビットコイン保有企業」として一括比較する場合でも、営業キャッシュフロー、資本構成、上場市場の流動性および指標定義を統制しなければならない。

三社比較からは、同じ保有数量の増加でも、その情報内容が一様でないことが分かる。内部資金による購入は流動性を減らす一方、普通株プレミアムを直接利用しない。プレミアムを利用した株式発行は、発行価格と取得価格の関係によって１株当たり保有量を増減させる。債務・優先株による購入は普通株の即時希薄化を抑えるが、将来の現金支払と優先請求を増やす。したがって市場が反応すべき対象は「何BTC増えたか」だけではなく、「誰の資金で、どの請求順位を伴い、完全希薄化後の普通株１株当たりで何が増えたか」である。この分解は、保有量の大型目標が発表された際の実行可能性を評価する基準にもなる。

５　考察：認知―センチメント―資本政策循環

以上の結果を図３の循環モデルに統合する。出発点は、ビットコイン価格の急変または企業の取得開示という顕著なシグナルである。保有額が企業規模に対して重要になると、投資家の注意が営業事業からビットコインへ移るにつれて、市場参加者が用いる企業カテゴリーも変化する。個人投資家は代表性や単純な価格代理として判断しやすいのに対し、機関投資家や裁定志向の投資家はmNAV、希薄化、負債および流動性を重視する。両者の見方が上昇相場で同方向に収束すれば、出来高と評価プレミアムが拡大する。下落相場で資金調達制約や売却懸念が生じれば、悲観が自己強化される。

この整理から三つの仮説命題を導く。命題１：デジタル資産の対総資産比率と情報顕著性が高いほど、企業の市場カテゴリーは従来事業からデジタル資産関連証券へ転換し、株価のビットコイン感応度は高まる。命題２：投資家の評価枠組みが異質で、対象株の流動性が低いほど、ビットコイン価格ショックに対する株価反応の絶対値は大きくなる。命題３：市場プレミアムに依存した資金調達比率が高いほど、mNAV上昇時には追加取得が自己強化される一方、１倍近辺では希薄化・流動性制約を通じて循環が反転しやすい。

命題１は博雅互動の段階別相関と整合する。命題２は、同社の増幅比が上下両局面で１を超える事実と整合する。命題３はStrategyの資本政策と売却、Metaplanetの希薄化後指標の重要性と整合する（Strategy Inc., 2026a; Metaplanet Inc., 2026）。ただし、これらは事例から生成された命題であり、統計的に検証済みの一般法則ではない。今後、複数企業の日次データ、保有比率、流動性、個人投資家比率、空売り残高および資金調達イベントを用いたパネル分析が必要である。

代替説明も検討しなければならない。相関上昇は投資家認知の変化ではなく、単に保有資産が総資産に占める比率の上昇によって生じた可能性がある。また株価増幅は、低い時価総額、薄い板、空売り制約、香港ドルと米ドルの時差、あるいは同時期のWeb3事業期待によって説明されうる。さらに戦略段階の区切り自体が、事後的に価格パターンへ適合している可能性も残る。本稿の認知仮説が支持されるためには、将来研究で保有比率と流動性を統制してもカテゴリー関連語への検索・報道・売買が増え、営業情報に対する反応が相対的に低下することを確認する必要がある。こうした反証可能条件を置くことで、循環モデルは事後的な物語ではなく、経験的に検査できる理論枠組みとなる。

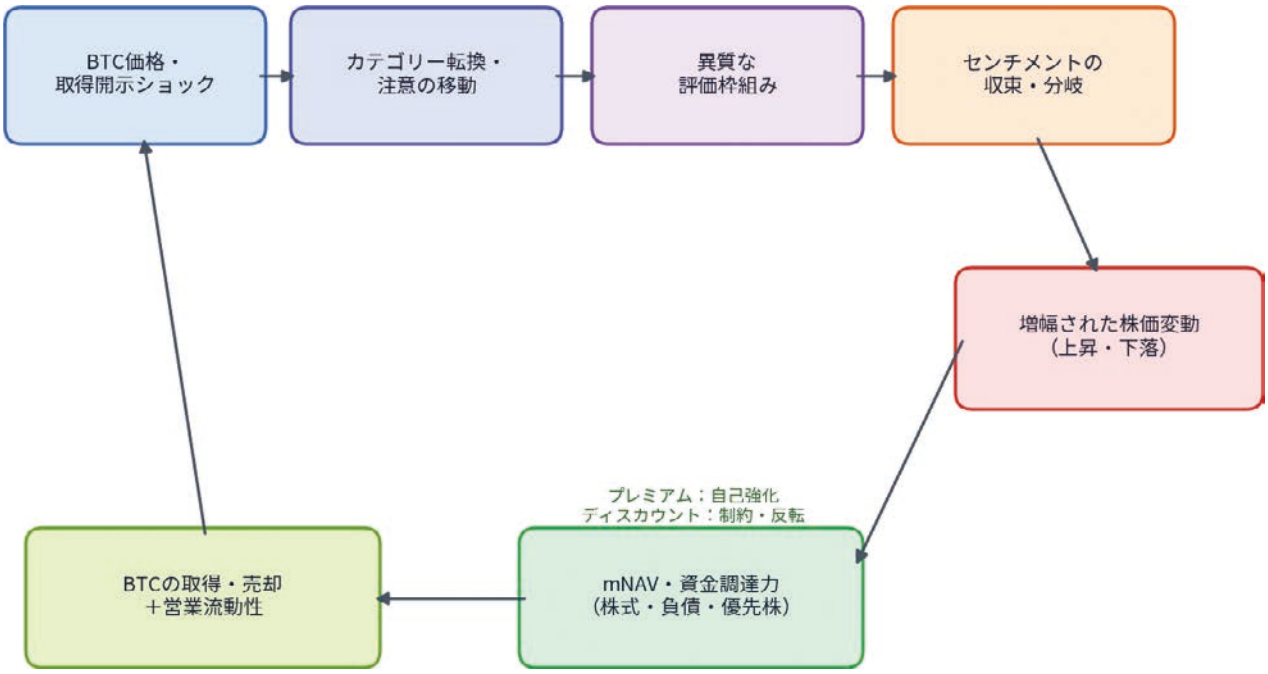

図３　デジタル資産保有企業の認知―センチメント―資本政策循環モデル

出所：筆者作成。

６　実務的示唆

６．１　企業経営と情報開示

経営者は、デジタル資産の取得が資産運用だけでなく企業の市場カテゴリーを変える可能性を認識すべきである。保有量と取得原価だけを強調すると、営業事業の情報が注意競争に負け、企業価値が外部資産価格に従属する。開示では、①営業事業のキャッシュフロー、②デジタル資産の数量・取得原価・公正価値、③保管と売却方針、④負債・優先株・配当等の優先請求、⑤基本株式数と完全希薄化後株式数、⑥指標の計算式を分離して示す必要がある。

また、プレミアム時の資金調達が１株当たり保有量を増やすかを、調達前後の完全希薄化ベースで説明することが望ましい。mNAVの名称が同じでも計算式が変われば時系列比較は損なわれるため、定義変更時には旧系列との橋渡し表を示すべきである。極端な価格下落を前提とする流動性ストレス、優先株配当と利息の支払余力、売却可能数量および取締役会の裁量も明示する必要がある。

６．２　投資家と規制当局

投資家は、デジタル資産保有企業の株式を現物ビットコインの代替とみなす前に、株式固有の追加リスクを確認する必要がある。株主は保有ビットコインに対する償還請求権を持たず、経営者は資産の売却、担保化、追加取得または資金調達方法を変更できる。さらに、株価は基礎資産価格だけでなく、希薄化、負債、優先請求、税効果、営業損益、上場市場の流動性および規制の影響を受ける。

規制当局・取引所には、保有数量だけでなく、普通株主に帰属する実質的エクスポージャーを比較可能にする開示様式が求められる。具体的には、完全希薄化後１株当たり保有量、優先請求控除後の保有価値、取得資金源、売却方針、計算式変更履歴を定期開示項目とすることが考えられる。ただし、単一指標の義務化はその数値への過度な注目を生む可能性があるため、複数指標とシナリオ分析を併用すべきである。

投資判断の実務では、少なくとも三層に分けた評価が有効である。第１層は営業事業の継続価値、第２層は税効果と優先請求を控除したデジタル資産価値、第３層は資金調達オプションと経営者裁量に対するプレミアムまたはディスカウントである。三層を分ければ、株価下落がビットコイン価格、営業悪化、希薄化懸念のいずれに由来するかを検討できる。逆にmNAVだけで売買を判断すると、営業事業をゼロまたは一定と暗黙に仮定し、将来の発行・償還・税負担を見落とす。比較可能な開示は投資家保護だけでなく、企業が自社の資本政策を規律する装置としても機能する。

７　結論

本研究は、博雅互動を中心事例（メインケース）、StrategyとMetaplanetを副次事例（サブケース）として､デジタル資産保有企業の株価形成を投資家認知と市場センチメントから検討した。博雅互動では、ビットコインとの相関上昇と恒生科技指数との相関低下が同時に観察され、評価参照枠が従来事業からビットコインへ移るカテゴリー転換と整合した。また、株価変化の絶対値は上昇・下落の双方でビットコインを上回り、価格連動が増幅的となる記述的傾向がみられた。

比較分析からは、価格ショックだけでなく、mNAV、資金調達、希薄化および優先請求権が循環を形成しうることが示唆された。市場プレミアムが存在する局面では、調達と追加取得が企業のビットコイン属性を強化する。プレミアムが縮小すると、同じ資本構造が希薄化懸念と流動性需要を生み、循環を反転させる。したがって、デジタル資産保有企業の価値を理解するには、ビットコイン価格と営業事業を足し合わせるだけでなく、投資家の認知枠と資本市場へのアクセスを内生的に扱う必要がある。

本研究には限界がある。第１に、中心事例を軸とする探索研究であり、外的妥当性は限定される。第２に、付属資料には相関の標本数、p値、回帰係数および元の日次系列がなく、集計値を独立に再計算できなかった。第３に、増幅比は期間設定に敏感である。第４に、mNAVの定義が企業間・時点間で異なり、厳密な水準比較ができない。第５に、投資家属性別の口座データや再現可能な多言語センチメント標本を用いていない。今後は、原データとコードを保存した上で、構造変化検定、ローカルプロジェクション、イベントスタディおよび投資家属性別売買分析を行い、本稿の三命題を検証する必要がある。

具体的には、企業開示日を事前登録し、取得、売却、株式発行、債務・優先株発行、指標定義変更を別イベントとして分類する。その上で、市場モデルとビットコイン要因モデルの双方から異常収益を推定し、保有比率、時価総額、売買回転率、個人投資家比率および完全希薄化率との交互作用を検証することが望ましい。検索量、ニュース見出し、掲示板投稿を用いる場合は、収集時刻、言語別辞書、重複除去、ボット判定および欠測処理を公開する必要がある。こうした設計により、資産価値経路と認知・資本市場経路を分離し、どの条件で循環が強まり、どの条件で営業事業が評価の錨として残るかを明らかにできる。

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 61–72

論　　文

反復的なデジタル政策参加と加盟店の経験学習
―中国チベット自治区の消費クーポンにおける閾値適応の動態―

Repeated Participation in Digital Policy and Merchant Learning:
Dynamics of Threshold Adaptation in Xizang's Consumption Coupon Program

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【要旨】

本稿は、反復的なデジタル消費クーポンへの参加が加盟店の経験学習と閾値適応にどのように関係するかを検討する。2024年中国チベット自治区の匿名化取引データを用い、加盟店ごとの参加順序を初回、第２～３回、第４回以降に区分し、閾値近傍への注文集中、補助金集中、反応速度を比較した。記述統計では、閾値近傍集中率は60.99％から85.19％、補助集中度は59.86％から85.47％へ上昇し、反応日数の中央値は11日から２日へ短縮した。加盟店クラスター・ブートストラップでは、第２～３回と初回の3.11ポイント差の95％信頼区間は［−5.29, 11.10］、第４回以降と初回の24.20ポイント差は［3.69, 34.29］であった。同一加盟店の対応比較では、第２～３回は5.17ポイント増［0.40, 9.94］、第４回以降は1.20ポイント増［−7.35, 9.74］であった。以上から、初期段階の加盟店内改善と高経験群全体の高い集中は確認されるが、後者には高能力加盟店の残存や活動選択も含まれる。したがって、本稿の結果は因果効果ではなく、経験学習仮説を条件付きで支持する証拠として解釈する。

キーワード：経験学習、デジタル消費クーポン、反復参加、閾値適応、販売ルーティン

1　はじめに

デジタル消費クーポンは、地方政府が財政資金をモバイル決済基盤に接続し、対象地域・業種・利用期間・最低購入額を細かく設定できる需要喚起策である。既存研究は、消費券による取引活性化や地域差を検討し（林毅夫・沈艷・孫昂，2020）、クーポン獲得が消費支出をどの程度押し上げるか、補助１単位が何単位の追加支出を誘発するかを主として検証してきた（Liu et al., 2021; Xing et al., 2023）。しかし、同一または類似の制度が繰り返されるとき、加盟店を常に受動的な政策対象として扱うことはできない。加盟店は利用処理、顧客の問い合わせ、取引レポート、在庫回転を反復的に経験し、次の発行時には過去の知識を用いて商品構成や販売方法を事前に調整できるからである。

本稿の問題関心は、クーポンが消費を増加させたかではなく、反復参加を通じて加盟店の制度対応がどのように変化したかにある。購入額条件付き割引は、「500元以上で100元割引」のような明示的閾値を持つ。この閾値は消費者の追加購入を促すだけでなく、加盟店にとっても、どの価格帯の商品を組み合わせれば成約しやすいかを示す学習可能な信号となる。経験が蓄積されれば、注文は閾値近傍へ一層集中し、その集中はキャンペーン開始後のより早い段階で現れると予想される。

反復参加を分析する意義は、政策効果の測定値そのものが、実施回数に応じて内生的に変化し得る点にある。初回発行で観察された取引増加や利用率を後続回へ機械的に外挿すると、加盟店が制度を学習した結果と、制度本来の追加的需要喚起を混同するおそれがある。したがって政策評価には、各回の成果量だけでなく、政策対象となる組織が過去の経験をどのように次回の行動へ反映したかという時間軸が必要である。本稿は、この政策実施に伴う行動変容をミクロ取引分布から捉える。

1．1　研究課題と問い

以上を踏まえ、本稿は三つの研究課題を設定する。第一に、加盟店の参加経験が増えるほど、注文金額は割引閾値の近傍へ強く集中するか。第二に、経験蓄積に伴い、閾値近傍注文が現れるまでの時間は短縮するか。第三に、この経験勾配は券種構成の変化を除くため同一閾値内で比較しても確認できるか、である。ここでの分析単位は都市や業種ではなく、「加盟店―参加順序―閾値」であり、静的な横断差よりも同一行動主体の時間的変化を重視する。

本稿は、学習の存在を単一指標から判断しない。閾値近傍に位置する注文の比率、そこを通過する補助金額の比率、キャンペーン開始から反応が生じるまでの日数という、強度・資源配分・速度の三側面を同時に検討する。単なる売上規模の違いであれば注文件数は増え得るが、比率の上昇と反応時間の短縮が同時に発生する必然性はない。この複合的な経験勾配を、加盟店の経験学習を示す複数指標による記述的証拠として用いる。

1．2　日本経営品質学会投稿中論文との差異

同じ2024年チベット自治区の取引データを用いた石暁冬・于航（2026）は、主要閾値におけるバンチングと、業種・都市・加盟店規模・市場集中度による異質性を分析し、補助の便益帰着を論じた。両論文の分析上の差異を表１に示す。同論文は『日本経営品質学会誌オンライン』へ投稿中であり、本稿と同一内容を重複投稿するものではない。表１のHHIはハーフィンダール・ハーシュマン指数（Herfindahl-Hirschman Index）を指し、都市・業種セル内の加盟店取引額シェアの二乗和として算出され、値が大きいほど取引が少数加盟店に集中することを示す（Rhoades, 1993）。これに対して本稿は、便益が需要側と供給側のいずれに帰着したかを中心課題とせず、加盟店の参加順序に伴う行動変化を経験学習論から説明する[1]。問い、理論、分析単位、主要指標、結果表、政策含意を切り替えることで、反復的政策が対象組織の能力とルーティンを変化させるという別の論点を提示する。

表１　日本経営品質学会投稿中論文と本稿の分析上の差異

観点	日本経営品質学会投稿中論文 （石暁冬・于航，2026）	本稿
中心課題	補助の便益帰着と静的バンチング	反復参加に伴う経験学習と閾値適応
理論枠組み	補助帰着、価格転嫁、市場競争	経験学習、探索と活用、ルーティン形成
分析単位	閾値×業種・都市・規模・HHI	加盟店×参加順序×閾値
主要指標	過剰質量、バンチング強度、異質性	B0・B5・C5、初動日数、早期反応比率
主要含意	便益配分と市場構造を踏まえた制度設計	学習による反応変化を追跡する動的ガバナンス

出典：石暁冬・于航（2026）および本稿の研究設計に基づき筆者作成。

１．３　本稿の貢献

本稿の貢献は三点ある。第一に、経験によって作業効率が向上するという学習効果（Arrow, 1962）を、補助制度への反復参加という政策実施場面へ拡張する。第二に、学習を売上高の増加ではなく、閾値位置取りの精度と起動速度によって操作化する。第三に、政策ルールを固定的な外生条件ではなく、加盟店が観察し、解釈し、販売ルーティンへ変換する対象として捉える。これにより、政策評価を「初期効果の測定」から「政策と加盟店行動が共進化する過程の管理」へ進める。

この貢献を概念的に整理すると、「参加経験の蓄積―取引結果のフィードバック―商品構成・販売説明の調整―閾値適応の精緻化―次回参加時の早期起動」という循環になる。ここで経験回数は知識そのものではなく、学習機会への曝露を表す。B0・B5・C5は調整結果の精度と資源配分を、反応日数と早期反応比率は蓄積知識を再利用する速度を示す。このように入力、変換過程、観察可能な結果を区別することで、経験回数の多さを直ちに学習成果と同一視することを避ける。

２　理論的枠組みと仮説

２．１　政策ルールを学習する加盟店

経験学習研究では、組織が活動を反復する過程で知識を獲得し、その知識を行動、技術、ルーティンへ組み込むことで成果が変化すると考える（Arrow, 1962; Argote and Miron-Spektor, 2011）。クーポン参加の初期段階では、加盟店は利用条件の説明、決済エラーへの対応、精算確認などの操作課題に直面する。ところが反復参加後には、どの顧客層が券を利用するか、どの価格帯で買い足しが生じるか、どの商品を組み合わせると閾値へ到達しやすいかを、過去の取引結果から推測できる。経験は、単なる制度認知から取引設計の知識へ変化する。

この学習過程では、決済プラットフォームの取引レポートがフィードバック装置として働く。加盟店は過去ラウンドの客単価、利用時間帯、クーポン利用額を参照し、次のラウンドでメニュー、セット商品、付帯サービス、販売説明を調整し得る。したがって、反復参加の効果は「クーポンを知っているか否か」ではなく、ルールを販売可能な商品構成へ翻訳する能力の差として現れる。本稿はこの観察可能な結果を「閾値適応」と呼ぶ。

サービス組織を対象としたDarr et al.（1995）は、反復経験による生産性向上だけでなく、知識の減価と組織内移転が成果を左右することを示した。消費クーポンでも、前回の販売知識が次回まで保持され、レジ担当者、商品企画担当者、店舗間で共有されるかが適応速度を規定すると考えられる。ただし本データは人員配置や店舗間の知識移転を観察しないため、本稿が直接検証するのは知識共有ではなく、加盟店単位で反復経験後の行動が精密化・早期化するかである。

２．２　探索からルーティン化への移行

March（1991）は、組織学習を新たな選択肢を試す探索と、既知の選択肢を精緻化する活用の緊張関係として整理した。初回参加の加盟店は、どの商品構成が有効かを探索するため、閾値近傍注文の発生には時間を要する。第２～３回の参加では、過去に成果を得た組合せの再利用が始まり、第４回以降には価格帯別のセットや販売説明が定型化される可能性が高い。Zollo and Winter（2002）が示すように、経験の蓄積は知識の明示化･符号化と結び付くと、再利用可能なルーティンへ転換される。この見方は、企業行動を反復可能なルーティンの進化として捉えるNelson and Winter（1982）とも整合する。

ただし、本稿の取引データは社内会議、マニュアル、個々の価格改定を直接観察しない。したがって、ここでいうルーティン化は組織内部の認知過程を直接測定した概念ではなく、同じ種類の制度刺激に対して反応がより精密かつ迅速になるという行動上の表現である。この限定を置くことで、観察データから測定できる経験勾配と、理論上想定される学習メカニズムを混同しない。

２．３　研究仮説

仮説１（位置取り強度）：加盟店の消費クーポン参加経験が増えるほど、割引閾値近傍に位置する注文の比率は上昇する。

仮説２（反応速度）：加盟店の消費クーポン参加経験が増えるほど、キャンペーン開始から最初の閾値近傍注文が現れるまでの日数は短縮する。

仮説３（ルール内一貫性）：経験段階と閾値適応の関係は､同一の購入額条件・補助額の組合せの内部で比較しても維持される。

三仮説は相互補完的である。仮説１だけでは高経験加盟店が特定券種へ偏っている可能性が残り、仮説２だけでは単なる運用習熟と区別しにくい。仮説３によって券種構成を一定にし、さらに強度と速度の双方が改善する場合に、経験学習解釈の妥当性が高まる。

２．４　需要側反応と加盟店学習の識別論理

閾値近傍への集中は､消費者が割引を失うことを避けるために買い足す需要側反応だけでも生じ得る。実際、デジタルクーポンの需要刺激効果は、心理的勘定や損失回避と整合的であることが報告されている（Liu et al., 2021）。したがって、ある一時点で閾値集中が確認されたという事実だけから、加盟店学習を推論することはできない。本稿の識別論理は、消費者側の制度認知が共通に作用する状況で、加盟店自身の参加履歴に対応して反応パターンが変化するかを問う点にある。

とりわけ重要なのは、近傍比率の水準差だけでなく、開始直後の発生比率と初動日数である。消費者も反復参加を通じて、券の取得、追加購入、決済の手順を学び、活動開始直後に効率よく買い足す可能性がある。他方、開始初日から閾値直上の商品・料理を取引可能な状態にするには、加盟店側で商品組合せ、値付け、在庫、レジ処理、従業員への販売説明を事前に整える必要がある。このため、高経験店で０～３日以内の集中が大きくなることは､過去情報を利用した販売ルーティン化と整合する。ただし、消費者側の反復学習を完全には排除できないため、反応速度は加盟店学習の唯一の識別根拠ではなく、同一閾値内比較および同一加盟店比較と併せて評価する。

以上の比較論理は三段階である。第一に、件数ではなく閾値分析範囲内の比率を用いて店舗規模の直接的影響を弱める。第二に、同一の購入額閾値と補助額の内部で経験群を比較し、券種構成の差を抑える。第三に、集中の強度だけでなく初動日数を併用し、静的な整数価格選好と過去情報を用いた事前準備を区別する。三条件が同じ方向を示すとき学習解釈は強まるが、顧客構成、消費者の反復学習、参加継続、告知時期は統制されない。したがって、本稿は「加盟店学習の識別」ではなく､「加盟店学習仮説と代替説明の比較」として分析結果を位置付ける。

３　データと研究方法

３．１　データと分析対象

分析資料は、中国のオフライン決済会社から提供された2024年通年のチベット自治区取引記録および消費クーポン活動台帳である。取引記録は7,665,669件で、取引時刻、加盟店識別子、MCC業種、取引金額、実支払額、クーポン利用額、都市、活動テーマ、ラウンド、バッチ等を含む。返品、取消、異常取引を除いた正方向・正常注文は7,603,717件、6,052加盟店、７都市、９業種で、総取引額は8,923,511,066.74元である。

クーポン利用額が０を超える正方向・正常注文は2,965,719件で、3,576加盟店、337ラウンドID、3,143バッチIDを含む。クーポン利用注文の取引金額は1,907,763,777.98元、補助利用額は390,788,005.19元である。閾値適応分析では、バッチ名から購入額条件と補助額を抽出できる満額割引型クーポンに限定し、閾値上下100元、活動開始後30日以内の注文を集計した[2]。

３．２　変数の定義

注文iの取引金額をV_i、対応するクーポンルールkの購入額閾値をE_k、注文iに適用された補助額をG_iとする。閾値からの距離D_iは次式で定義する。

$$D_i = [V_i - E_k] \quad (1)$$

D_i＝0は注文金額が閾値点に一致することを、|D_i|≦5は閾値上下５元以内に位置することを示す。自然な高額注文の影響を抑えるため、本稿では－100≦D_i≦100、すなわち閾値を100元下回る点から100元上回る点までの固定的な金額区間を「閾値分析範囲」と定義し、分母をこの範囲内の注文に限定する。これは時間区間や移動平均を意味しない。主要指標B0、B5、C5は次のように表す。

$$B0 = \Sigma 1\ (D_i = 0) / \Sigma 1\ (-100 \leqq D_i \leqq 100) \quad (2)$$

$$B5 = \Sigma 1\ (|D_i| \leqq 5) / \Sigma 1\ (-100 \leqq D_i \leqq 100) \quad (3)$$

$$C5 = \Sigma G_i\ 1\ (|D_i| \leqq 5) / \Sigma G_i\ 1\ (-100 \leqq D_i \leqq 100) \quad (4)$$

B0は閾値点集中率、B5は閾値近傍集中率、C5は閾値近傍補助集中度であり、各指標の定義と解釈を表２に示す。C5は補助資金がどの程度閾値近傍注文を通過したかを示すが、加盟店利益や値上げを直接測る指標ではない。反応速度は、加盟店－ラウンド単位で活動開始日から最初の|D_i|≦5注文までの日数を求め、経験群ごとの中央値で示す。

表２　主要変数の定義

記号	名称	定義	解釈
D_i	相対閾値距離	注文金額－適用閾値（１元未満切捨て）	０に近いほど制度閾値へ接近
B0	閾値点集中率	閾値分析範囲（±100元）内でD_i＝0の注文比率	精密な閾値一致
B5	閾値近傍集中率	閾値分析範囲（±100元）内で|D_i|≦5の注文比率	閾値適応の強度
C5	閾値近傍補助集中度	閾値分析範囲内補助額のうち|D_i|≦5注文の比率	補助資金の閾値近傍への集中
T	初動日数	活動開始から最初の|D_i|≦5注文までの日数	閾値適応の速度

出典：取引データおよび活動台帳に基づき筆者作成。

３．３　経験順序と比較設計

加盟店ｍが参加したクーポンラウンドを開始日の昇順に並べ、参加順序s_mrを付与する。注文は初回参加、第２～３回参加、第４回以降の三段階に分類する。各群の加盟店数は群内ユニーク数であり、同一加盟店が異なる参加時点を通じて複数群に寄与し得る。この設計は暦月比較よりも同一主体の経験蓄積に接近できる。暦月には季節、休日、予算執行、買替え施策、対象業種の変更が同時に混入するためである。

もっとも、参加順序はランダムに割り当てられていない。高経験群には、もともと規模が大きい、デジタル運用能力が高い、政策参加に積極的な加盟店が残りやすい。そのため本稿は、経験段階間の差を厳密な因果効果と解釈しない。代わりに、時間的先行性、比率と速度の同時変化、同一閾値内比較という三つの条件を満たすかを検討し、経験学習仮説の説明力を評価する[3]。

比率差が標本変動を超えるかを判断するため､二種類の統計推論を行う。第一に､加盟店をクラスター単位として9,999回のノンパラメトリック･ブートストラップを実施し、各経験段階と初回参加のB5差および95％信頼区間を求める。これにより、同一加盟店に属する多数の注文を完全に独立な観測として扱うことを避ける。第二に、同一加盟店内で初回参加と後続段階を対応させ、加盟店を等加重した変化を求める。信頼区間が０を含まない差のみを統計的に区別可能と表現し、０を含む差は記述的傾向として扱う。

３．４　研究倫理とデータ管理

分析用データでは利用者識別子および加盟店識別子が匿名化されており、氏名、住所、連絡先等の個人を直接識別する情報は用いていない。著者はデータ提供条件に従い、個別加盟店名を示さず、結果を集計値として報告する。活動台帳はルールと期間の照合に用い、件数・金額・加盟店数・利用者数は取引記録から算出した。 以上のようにデータの取得、保管、分析、報告は提供条件に沿って適切に行っており、本稿の分析と報告の範囲では研究倫理上の問題はないと判断した。

３．５　集計単位と再現可能性

本稿の集計は、注文を直接経験群へ割り当てるのではなく、まず加盟店ごとにラウンド開始日を確定し、同一開始日の複数バッチをラウンド単位で整理した上で参加順序を付す。次に、各バッチ名から閾値E_kと補助額G_kを抽出し、注文時刻がバッチの有効期間内にあることを確認する。この順序を採ることで、同一加盟店が同時期の複数券種を扱う場合に、バッチ数を経験回数として過大計上することを避ける。

金額は１元単位へ切り捨て、閾値点と近傍を共通口径で比較する。閾値分析範囲（±100元）は、高額注文の裾が比率を左右することを抑えながら、閾値周辺の局所的な再配置を捉えるための固定的な金額区間である。±５元は厳密一致だけに依存せず、端数、付帯料金、数量調整を含む実務上の閾値合わせを許容する。分析範囲や近傍幅を変更した感度分析は原資料に示されていないため、本稿では主要口径に限定し、将来の再検証課題として明示する。

再現可能性を高めるため、集計手順では、①異常・取消・返品取引の除外、②活動台帳と注文時刻の照合、③バッチ名からの閾値・補助額抽出、④加盟店別の参加順序付与、⑤閾値分析範囲と観察期間の適用、⑥経験群別集計、の順序を固定した。本文と表には各段階の母数、分析範囲、近傍幅を明記した。ただし、提供契約上、個票データおよび加盟店識別子を公開できないため、第三者による完全な再計算には同一提供元とのデータ利用手続が必要となる。

4　分析結果

4.1　主要閾値における基礎的集中

経験差を検討する前提として、主要な満額割引ルールで閾値反応が存在するかを確認した。表2で定義した閾値分析範囲を用いると、「5,000元以上で1,000元割引」では、範囲内26,377件のうち16,126件が閾値点に一致し、B0は61.14%、B5は64.95%であった。「3,000元以上で600元割引」ではB0が73.17%、B5が77.21%、「500元以上で100元割引」ではB0が73.34%、B5が75.92%である。複数の異なる金額条件で高い集中が現れることから、制度閾値が注文形成の参照点として機能している。

ただし、この静的集中だけでは、消費者が割引を得るために買い足したのか、加盟店が商品構成を調整したのか、自然な整数価格が重なったのかを区別できない。本稿が重視するのは、同じ指標が加盟店の参加経験に沿ってどのような勾配を示すかである。

4.2　参加経験と閾値適応の強度

参加経験と閾値適応の記述統計を表3に示す。初回参加群ではB5が60.99%、C5が59.86%であり、第2～3回参加群では64.10%、62.56%、第4回以降では85.19%、85.47%であった。記述統計上は参加段階が高いほど集中が強いが、数ポイント差を直ちに統計的な差とはみなさず、表4の信頼区間に基づいて判断する。

B0も57.18%から60.35%、84.80%へ変化しており、近傍への接近だけでなく閾値点への一致も高経験段階で強い。また、C5がB5とほぼ並行して変化するため、高経験群では分析範囲内の注文と補助金額の双方が閾値近傍へ集中している。ただし、これは補助が加盟店利潤へ移転したことの直接証拠ではなく、資金がルールに高度に適合した注文を通過する割合を示す記述指標である。

表3　加盟店の参加経験と閾値適応

経験段階	加盟店数	分析範囲内注文	B0	B5	C5	反応日数（中央値）
初回参加	324	17,993	57.18%	60.99%	59.86%	11
第2～3回	171	15,400	60.35%	64.10%	62.56%	3
第4回以降	53	10,365	84.80%	85.19%	85.47%	2

注：閾値分析範囲（±100元）、活動開始後30日以内。加盟店数は経験群内のユニーク数。
出典：中国の決済会社による2024年チベット自治区オフライン取引記録および消費クーポン活動台帳に基づき筆者作成。

表4に示すとおり、第2～3回と初回のB5全体差は3.11ポイント、95%信頼区間は［−5.29, 11.10］であり、統計的に区別できない。一方、第4回以降と初回の全体差は24.20ポイント、95%信頼区間は［3.69, 34.29］である。同一加盟店の対応比較では、第2～3回は5.17ポイント［0.40, 9.94］で初期段階の加盟店内改善と整合するが、第4回以降は1.20ポイント［−7.35, 9.74］で0と区別できない。したがって、高経験群の大きな全体差には継続学習だけでなく、高能力加盟店の残存や活動選択が含まれる可能性が高い。

表４　参加段階差の統計推論と同一加盟店対応比較

比較	全体差	クラスター95%信頼区間	対応店数	店内変化	店内95%信頼区間
第２～３回と初回	3.11ポイント	［−5.29, 11.10］	160	5.17ポイント	［0.40, 9.94］
第４回以降と初回	24.20ポイント	［3.69, 34.29］	50	1.20ポイント	［−7.35, 9.74］

注：全体差は注文加重。信頼区間は加盟店をクラスターとする9,999回のノンパラメトリック・ブートストラップ。店内変化は加盟店を等加重した対応比較。

４．３　参加経験と反応速度

最初の閾値近傍注文が現れる反応日数の中央値は、初回参加群の11日から第２～３回参加群の３日、第４回以降の２日へ短縮した。活動開始後０～１日以内の近傍注文比率は20.90%、41.36%、46.05%、０～３日以内の比率は28.97%、53.22%、66.17%であった。このような反応の前倒しは、仮説２の予測と記述的に整合する。ただし、消費者側も反復参加によって開始直後の買い足しを学習し得るため、速度差のみを加盟店の販売ルーティン化へ帰属させることはできない。

それでも、消費者が開始直後に効率よく買い足すには、加盟店側で閾値直上の商品組合せ、値付け、在庫、決済手順が取引可能な状態に準備されている必要がある。したがって、閾値点への精度と発生速度の同時変化は加盟店学習と整合する補助的証拠であるが、同一加盟店比較および代替説明の検討と併せて慎重に解釈する。

４．４　同一閾値内比較

券種構成による差を抑えるため、同じ購入額条件・補助額の内部で比較した結果を表５に示す。「5,000元以上で1,000元割引」では、B5が初回の54.15%から第４回以降の82.20%へ変化し、反応日数の中央値は16日から１日となった。「3,000元以上で600元割引」でもB5は64.11%から97.15%、反応日数は16日から１日となった。「2,000元以上で400元割引」では、第２～３回群が52.37%と初回の56.21%を下回るものの、第４回以降は81.53%であった。以上の三つの同一ルール内でも、参加段階による記述的な差が確認された。

主要三ルールはいずれも第４回以降のB5が最も高い一方、すべての中間段階で単調増加するわけではない。また、同一ルール内比較も同一加盟店の継続比較とは限らず、残存構成を完全には統制しない。したがって、仮説３は券種構成のみでは説明しにくい記述的勾配が確認されたという範囲で、限定付きに支持される。

表５　同一閾値内における経験段階別比較

閾値−補助額	経験段階	分析範囲内注文	B5	反応日数（中央値）
5,000−1,000元	初回参加	7,141	54.15%	16
	第２～３回	6,529	54.53%	7
	第４回以降	4,455	82.20%	1
3,000−600元	初回参加	3,374	64.11%	16
	第２～３回	2,222	72.46%	5
	第４回以降	2,770	97.15%	1
2,000−400元	初回参加	2,811	56.21%	6
	第２～３回	2,049	52.37%	4
	第４回以降	1,597	81.53%	3

出典：中国の決済会社による2024年チベット自治区オフライン取引記録および消費クーポン活動台帳に基づき筆者作成。

４．５　代替説明と結果の頑健性

第一の代替説明は、経験豊富な加盟店ほど規模が大きく、注文も多いという構成効果である。本稿は注文件数ではなく閾値分析範囲内比率を用いるため規模差の一部を抑えるが、能力や選択参加の差は残る。第二は、プラットフォーム画面や政府広報が閾値を強調した可能性である。この共通刺激は全群に作用するため経験差のすべてを説明しにくいが、高経験加盟店が参加するラウンドほど広報が強かった可能性は除けない。

第三は商品構成と券種構成の変化である。表５の同一閾値内比較は券種差を抑えるが、ラウンドごとの品目、季節性、参加継続を完全には固定しない。第四は消費者の反復学習であり、利用者も券の取得や追加購入に習熟して反応を早め得る。表４の結果では、第２～３回の同一加盟店変化は初期のルーティン化と整合する一方、第４回以降の店内変化は０と区別できない。したがって、高経験群の全体差は反復参加と適応行動の系統的関連を示すが、加盟店学習だけに帰属させない。今後は、利用者・加盟店パネル、加盟店固定効果を含むイベントスタディ、参加継続の選択補正、品目レベル価格、実験的なルール変更を導入する必要がある。

４．６　仮説評価の総括

仮説１については、B0、B5、C5が記述統計上は参加段階とともに高まるが、第２～３回と初回のB5全体差は０と区別できず、第４回以降と初回の全体差のみ95％信頼区間が０を含まない。同一加盟店比較では第２～３回の改善のみ０と区別できるため、位置取り強度の経験勾配は条件付きで支持される。仮説２については、反応日数の中央値と早期反応比率が記述的に改善するが、消費者学習を排除できないため補助的証拠と位置付ける。仮説３については、主要三ルールの第４回以降でB5が最大である一方、中間群は完全に単調ではなく、限定付きの支持である。

三仮説を総合すると、反復参加と閾値適応の精度・速度は系統的に共変し、その形は経験学習論と整合する。ただし、経験群への所属は無作為ではなく、観察された勾配には時間不変能力、継続参加の選択、消費者学習も含まれる。したがって結論は「経験が適応を生じさせた」という因果命題ではなく、「初期段階の加盟店内改善と高経験群全体の高い集中が確認されるが、長期差は学習と選択の双方からなる」という範囲に限定する。

５　考察

５．１　理論的示唆：政策誘発型の経験学習

本稿の第一の理論的含意は、反復的政策が企業行動を一方向に刺激するだけでなく、制度への適応能力そのものを形成し得る点にある。初回発行時の加盟店はルールの受け手であるが、経験が蓄積されると、閾値を価格帯、商品組合せ、販売説明へと翻訳する。政策は外生的環境として固定されず、加盟店の学習を通じて次回発行時の反応関数を変化させる。

第二に、本稿は経験学習を成果量ではなく適応の精度と速度で測定した。売上増加は需要規模、立地、広告、季節に左右されるが、同一閾値への集中率と開始後の反応日数は、ルール固有の知識が行動へ転換された程度により近い。これは、経験から知識への転換を重視するArgote and Miron-Spektor（2011）の枠組みを、デジタル政策の取引記録へ接続する試みである。

第三に、第４回以降で勾配が急になることは、探索から活用への移行を示唆する。ただし、本稿は社内の知識共有や手順書を観察していないため、動的能力の存在を直接立証したとはいえない。測定したのは、反復経験が閾値適応のルーティン化と整合的な行動パターンを生むことまでである。この限定は、理論概念を過大に適用せず、取引データが示せる範囲を明確にする。

５．２　政策的示唆：学習を前提とする動的ガバナンス

政策立案者が初回ラウンドの利用率や取引乗数をそのまま後続ラウンドへ外挿すると、加盟店側の適応を見落とす。同一閾値を長期間反復すれば、加盟店はその価格点に合わせたセットを標準化し、キャンペーン開始時から投入できる。その結果、取引額が維持されても、政策が新たに誘発する消費や学習の限界効果は変化し得る。したがって、各ラウンドの評価には、利用額・取引額に加え、B0、B5、C5、初動日数を組み込む必要がある。

具体的には、第一に、加盟店―ラウンド単位の経験順序を管理し、高経験加盟店でB5またはC5が急上昇した場合に商品構成・表示価格の確認を行う。第二に、同一の整数閾値を固定せず、業種別客単価に応じた閾値、小幅な閾値変更、段階型割引、補助上限を組み合わせる。第三に、活動開始後０～３日の集中を早期警戒指標とし、実施中にルールを見直せるダッシュボードを整備する。

ただし、加盟店学習は全て政策上望ましくないわけではない。利用処理の習熟、デジタル取引レポートの活用、顧客対応の標準化は、中小事業者のデジタル能力を高め得る。政策課題は学習を抑制することではなく、運用能力の向上と、少数の閾値への過度な価格集中を区別することである。望ましい設計は、加盟店のデジタル学習を促しつつ、制度の予測可能性が精密な閾値合わせだけに利用されない均衡を探る必要がある。

５．３　実務的示唆

加盟店にとっては、クーポン対応を一時的な値引きではなく、データを用いた販売改善の機会として位置付けることが重要である。ただし、閾値直上の商品だけへ過度に集中すると、キャンペーン終了後の価格体系や顧客信頼を損なうおそれがある。平常時の需要、在庫、利益率、顧客の実質負担を併せて評価し、短期的な利用額最大化と長期的関係維持を両立させる必要がある。

決済プラットフォームには、行政への集計報告だけでなく、学習の偏りを可視化する役割がある。加盟店別の経験段階、B5、C5、初動日数を匿名化した上で監視し、急激な変化を検知する仕組みを提供すれば、政策実施中の改善が可能になる。これは事後的な不正摘発ではなく、制度設計と事業者支援を同時に改善する経営品質上のフィードバックである。

５．４　経営品質論への示唆

公益財団法人日本生産性本部経営品質協議会の『顧客価値経営ガイドライン』は、「ありたい姿･リーダーシップ・社会的責任」「戦略」「組織能力」「顧客・市場」「顧客価値」「事業成果」の六つの実践領域を示している（公益財団法人日本生産性本部経営品質協議会, 2022）。本稿の結果との関係では、反復参加の経験を商品構成、値付け、在庫および決済手順へ反映することが「組織能力」と「顧客・市場」に対応する。ただし、B5やC5の上昇はそれ自体で「顧客価値」を意味せず、不要な買い足しや価格の不透明化を伴わないかを確認する必要がある。公共補助の公正な利用を「ありたい姿・リーダーシップ・社会的責任」と「戦略」に位置付けた上で、「事業成果」は利用額だけでなく、再来店、苦情、価格透明性等を含めて評価すべきである。

５．５　研究の限界と今後の課題

第一の限界は、反復参加の内生性である。もともと規模、顧客基盤、デジタル対応能力、政策への関心が高い加盟店ほど第４回以降まで残る場合、観察された経験勾配は上方に偏る。反対に、初期成果が弱く追加支援を必要とする加盟店ほど反復参加する場合には、勾配が下方に偏る可能性がある。表４の同一加盟店対応比較は時間不変能力の一部を抑えるが、品目選択、ルール適合、退出、顧客構成を完全

には統制しない。今後は、加盟店固定効果とラウンド固定効果を組み合わせたイベントスタディ、初回参加時期の差を利用する比較、参加継続の選択補正、参加資格や割当条件の外生的変更を利用する準実験により、経験効果と選択効果を分離する必要がある。

第二の限界は、取引明細の粒度である。現データには商品別数量、通常価格、原価、在庫、セット内容が含まれないため、消費者の自発的な買い足し、加盟店によるセット化、価格変更、会計単位の調整を取引単位で判別できない。POS明細と価格履歴を接続し、加盟店への半構造化聞き取りを併用すれば、どの学習経路がB5や反応速度の変化を生んだかを検証できる。

第三の限界は外的妥当性である。本稿はチベット自治区の単一年度・単一決済事業者を対象とする。市場競争、デジタル決済普及率、平均客単価、物流条件が異なる地域では学習曲線も異なり得る。今後は複数地域・複数年度を用い、閾値変更や制度休止後に知識が保持されるか、学習が店舗間で移転するかを検討する必要がある。これにより、反復政策に固有の学習と、一般的な販売能力の差をより明確に区別できる。

6　結論

本稿は、2024年チベット自治区のデジタル消費クーポンを対象に、加盟店の反復参加と閾値適応の関係を経験学習の観点から検討した。記述統計では、初回から第４回以降へ進むにつれてB5は60.99％から85.19％、C5は59.86％から85.47％へ変化し、反応日数の中央値は11日から２日となった。統計推論では、第４回以降と初回のB5全体差24.20ポイントの95％信頼区間は［3.69, 34.29］であった一方、第２～３回の全体差3.11ポイントは０と区別できなかった。同一加盟店比較では、第２～３回の5.17ポイント改善のみ95％信頼区間が０を含まず、第４回以降の1.20ポイント変化は０と区別できなかった。

以上は、初期参加段階で加盟店内の適応が進む可能性と、第４回以降の高経験群全体で集中が強いことを示す。しかし、高経験群の長期差には高能力加盟店の残存、活動選択、消費者の反復学習も含まれ、すべてを加盟店の継続学習へ帰属させることはできない。日本経営品質学会投稿中論文が静的なバンチングと便益帰着を扱ったのに対し、本稿は反復参加の時間構造、反応速度、販売ルーティンの形成に焦点を移した。したがって、同一データを用いながらも、説明対象と理論的貢献は異なる。

本研究の限界は、参加選択、商品別価格・数量情報、消費者側と加盟店側の行動分離、単一地域・単年度という点にある。今後は、加盟店内の縦断推定、POS明細との接続、聞き取り調査、他地域比較を組み合わせ、経験学習の因果経路と成立条件を検証する必要がある。それでも、政策対象者が同じルールに繰り返し接するほど反応関数を変化させるという事実は、デジタル政策評価に重要な示唆を持つ。消費クーポンは静的な補助パラメータではなく、行政、プラットフォーム、加盟店、消費者が相互に学習する制度である。ゆえに政策設計も、初期効果を固定的に評価するのではなく、反復による学習とルーティン化を継続的に観測する動的ガバナンスへ転換しなければならない。

【注】

［1］ 日本経営品質学会投稿中論文と本稿は同一の基礎取引データを用いるが、投稿中論文の主要結果である市場集中度・業種・都市別の便益帰着分析を本稿の中心的検証として再掲しない。本稿で市場構造に言及する場合も、学習メカニズムの境界条件としてのみ扱う。

［2］ 本文の経験段階別集計は、ルールを特定できる満額割引型注文、閾値分析範囲（±100元）、活動開始後30日以内という条件に基づく。表３の加盟店数は各経験群内のユニーク数であり、群間で同一加盟店が重複

し得る。表３および表５の「分析範囲内注文」は、この条件で抽出した注文件数である。

［3］本稿の「経験学習」は、反復参加と閾値適応の系統的関連を示す理論的解釈である。加盟店クラスター・ブートストラップと同一加盟店対応比較を行ったが、ランダム化、加盟店固定効果、参加継続の選択補正を備えた因果推定ではない。

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 73–90

論　　文

中国知識集約型専門サービス業における生成AI導入と専門職能力形成の再編
―コンサルティング・監査・法務を対象としたM-GTAによる探索的研究―

The Adoption of Generative AI and the Reshaping of Professional Skill Formation in Chinese Knowledge-Intensive Professional Services:
An Exploratory Study of Consulting, Audit, and Legal Services Using the Modified Grounded Theory Approach

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【要旨】

中国の知識集約型専門サービス業（KIPS）では生成AIの導入が進む一方、その実態と専門職能力形成への影響は質的に検証されてこなかった。本研究は、コンサルティング・監査・法務を対象に、中国語の公開資料26素材と半構造化インタビュー９素材から得た計1,041枚の概念カードを、修正版グラウンデッド・セオリー・アプローチ（M-GTA）により分析した。その結果、13の範疇と３つのコア・カテゴリーが抽出され、「組織→業務→人間→組織」の双方向循環モデルが導かれた。二次資料から帰納した４つの理論的命題の一次資料照合では、工程別人機分業が能力再構成を駆動する命題が全９素材と整合し、規制条件が直接規定・内面化・契約伝導の３経路で実践に浸透する制度的形態が示唆された。徒弟制は断絶の必然ではなく、「無AI実訓期」のような制度的再設計が可能であることが示唆された。

キーワード：生成AI、知識集約型専門サービス業、専門職能力形成、徒弟制、修正版グラウンデッド・セオリー・アプローチ

1　はじめに

1．1　研究の背景

生成AIは、知識労働の現場、とりわけ専門サービス業へ急速に浸透している。専門職タスクの大幅な効率化（Noy & Zhang, 2023）や経験の浅い労働者に集中する生産性向上（Brynjolfsson, Li & Raymond, 2025）が示される一方、AI能力の「境界外」の複雑な判断では正答率がむしろ低下する「ジャギド・フロンティア（ギザギザの技術境界線）」も報告された（Dell'Acqua et al., 2023）。その影響は職務やスキル層で一様ではない。

この衝撃は、中国の知識集約型専門サービス業（Knowledge-Intensive Professional Services、以下KIPS）――コンサルティング・監査・法務――にも及んでいる。中国では、《生成式人工智能服务管理暂行办法（生成AIサービス管理暫定弁法、2023年施行）》という早期の規制のもと、業界団体や大手ファームが導入を進め、「複合型人才」の育成を掲げてきた（北京登録会計士協会，2025）。他方、求人データの分析は、生成AIがエントリーレベルの職務に不均衡な代替効果を持つことを示唆する（Hu et al., 2025）。KIPSは、ジュニア層が徒弟制的実務経験を通じて育つピラミッド型の人材構造を持ち（Maister, 1993）、基層タスクの代替は能力形成の足場を揺るがしかねない構造的問題をはらむ。

1．2　先行研究とその限界

関連する先行研究は四つの領域に整理できる（表１）。

表１　先行研究の整理

研究領域	代表的研究	主要な知見	本研究との関係
KIPS・PSF組織論	Maister（1993）; von Nordenflycht（2010）	無形の専門知識を財とし、知識集約性・低資本集約性・プロフェッショナル化された労働力の３特徴を持つ	KIPS概念の理論的基盤
生成AIと専門職労働	Noy & Zhang（2023）; Dell'Acqua et al.（2023）; Brynjolfsson, Li & Raymond（2025）	生産性を高めるが、効果は経験の浅い層に偏り、複雑な判断では逆効果も生じる	検証対象となる実証的争点。いずれも米国中心
徒弟制・技能形成	Beane & Anthony（2024）	新技術は徒弟制ルートを機能不全にし、ジュニアの学習機会を奪う「逆転徒弟制」を生む	能力形成への影響を分析する理論的レンズ
中国の規制・業界動向	北京登録会計士協会（2025）; Hu et al.（2025）	業界は人材育成を掲げるが、労働市場データはエントリーレベル代替を示唆	言説と実践の乖離という問題意識の根拠

出典：各研究をもとに筆者作成

表１が示すように、KIPS組織論は生成AIへの応答を扱っておらず、生成AIの実証は中国を対象としなかった。徒弟制研究はKIPSのピラミッド構造と生成AIを接続しておらず、中国の業界資料は現場実践の検証を欠く。

この整理から、３点の研究ギャップを特定する。第一に、中国KIPSにおける生成AI導入の質的実証研究の不在である。第二に、制度言説と現場実践の乖離の未検証である。業界は「AIは専門家を代替しない」と繰り返すが（北京登録会計士協会，2025）、検証が示す効果の偏りとの整合は検出されていない。第三に、Beane & Anthony（2024）の「逆転徒弟制」がKIPSで生起しているかの経験的検証の不足である。

1．3　研究目的とリサーチクエスチョン

本研究の目的は、中国KIPSにおける生成AI導入の実態と、専門職の能力形成・人材育成への影響を、現場の実践に即して探索的に解明することにある。木下（2020）の修正版グラウンデッド・セオリー・アプローチ（M-GTA）を用いる。リサーチクエスチョンは以下の3点である。

RQ1：中国KIPSにおいて、生成AIはどの業務領域に、どのような形態で導入されているか。

RQ2：生成AIの導入は、専門職の能力形成・人材育成にどのような影響を及ぼしているか。

RQ3：導入と影響のあり方を規定する組織的・制度的要因は何か。

2　理論的枠組みと実務界の動向

2．1　KIPS理論と専門職能力形成

本研究の分析対象であるKIPSの学術的基盤は、von Nordenflycht（2010）による専門サービス・ファーム（PSF）の定式化――①知識集約性、②低資本集約性、③プロフェッショナル化された労働力――に求められる。コンサルティング・監査・法務はこの分類体系の「クラシックPSF」に位置づけられ、Maister（1993）が指摘するように、競争優位の源泉は設備や資本ではなく専門職個人の能力とその形成過程に帰着する。

この能力形成は、Abbott（1988）の言う専門職の管轄権（jurisdiction）、すなわち特定の問題領域に対する診断・推論・処置の排他的権利をめぐる職業間競争を背景として、徒弟制（apprenticeship）を通じて担われてきた。ジュニア層が基層的タスクを反復するなかで熟練者の暗黙知を継承する仕組みは、三業種に共通する能力パイプラインの中核である。ただし、知識基盤の形式化度・暗黙度は業種間で異なり（Morris & Empson, 1998）、能力形成の様相が一様でない可能性に留意が必要である。本研究の問いは、テクノロジーと専門職組織研究の系譜に位置づけられる（Smets et al., 2017）。

2．2　生成AIと専門職労働の先行研究

生成AIの専門職労働への影響について、Dell'Acqua et al.（2023）は、コンサルタントを対象としたフィールド実験により、AIの能力境界が「ジャギド・フロンティア」をなし、その境界は事前に見分けにくいことを実証した。

生産性効果は階層間で偏り、Brynjolfsson, Li & Raymond（2025）は、AI支援による生産性向上が最も経験の浅い労働者に集中することを示した。他方、Beane & Anthony（2024）は、新技術の導入局面で熟練者が自らの専門性再開発に奔走し、ジュニアから学習機会がさらに奪われる「逆転徒弟制（inverted apprenticeship）」を同定した。この両義的帰結は、生成AIがKIPSの徒弟制にもたらす緊張を理論化する本研究の中核的視座となる。

2．3　中国KIPS業界における生成AI導入の動向

中国では、2023年8月に《生成式人工智能服务管理暂行办法》が施行され、生成AIサービスの提供に対する規制枠組みが整備された。この制度的環境のもと、業界団体も導入の議論を主導しており、北京登録会計士協会（2025）は、監査業界の人機協同の仕組みと4類のリスクを整理し、「業務を理解し技術を理解する」複合型人才の希少性を中核的課題として指摘している。HEC Alumni（2026）は、主要ファームが生成AIを効率化の道具ではなくサービス提供モデルそのものを再編する契機と捉える動向を報告している。

３　研究方法

本研究では、修正版グラウンデッド・セオリー・アプローチ（Modified Grounded Theory Approach、以下M-GTA）（木下，2020）を採用した。M-GTAは、分析テーマと分析焦点者の事前設定、分析ワークシートによるコーディングの明確化、理論的メモノートによる省察の制度化を特徴とし、実務経験をもつ分析者の一方向的解釈を点検する仕組みを備える。本研究では分析テーマを「生成AIの浸透に伴う中国KIPSの業務・人材・組織の変容プロセス」、分析焦点者を「中国のコンサルティング・監査・法務に従事する専門職」と設定した。

３．１　データ

本研究のデータは、二次資料と一次資料の２系列からなる。二次資料は、中国語の公開資料26素材（2025年２月～2026年５月公表）であり、内訳はコンサルティング系Ｃ群５素材、監査系Ｄ群13素材、法務系Ｅ群８素材である。選別基準は以下の４点である。（1）対象業界をKIPS３業種に限定する。（2）発言主体を業界協会・ファームの管理層または実務専門職とする。（3）内容を生成AI導入の実態・人材育成・組織戦略に関する実質的記述とする。（4）時間枠を上記の対象資料の公表期間とする。各資料の出典・公表日・URLは巻末の分析資料一覧に明示する。なお公開資料を質的二次データとして分析する妥当性は、M-GTAがテキスト中の「語り」を分析対象としうること（木下，2020）、管理層の発言が業界を俯瞰する構造的視座を提供すること、複数発信主体の併用が媒体偏向を抑制すること、の３点により担保される。

一次資料は、2026年７月13日から８月６日にかけて実施した半構造化インタビュー等であり、原則としてオンライン会議により中国語で行い、所要時間は20～30分を目安とした。質問票は10の主題モジュール（M0-M9）からなり、各設問に二次資料分析で得られた範疇との対応を設計根拠として付記した。質問票のモジュール構成と主要設問は、巻末の付録に示す。９素材（I01-I09）を収集し、513枚の概念カードを生成した。収集は３波に分け、第一波（I01-I05、274枚）の分析結果に基づくGap Analysisを経て、現場級視点と命題照合の補強を意図した第二波（I06-I08、200枚）を理論的サンプリングにより実施し、さらに監査業種の管理層視点の補強と標本の業種間均衡化を意図した第三波（I09、39枚）を実施した。表２に一次資料の概要を示す。

表２　一次資料の概要

素材ID	業種	職務層級	実施日	記録形式
I01	コンサルティング	総監（ディレクター。経営管理層）	2026年７月13日	語音実録
I02	コンサルティング	創業者・資深顧問（シニア・アドバイザー）（従業20余年）	2026年７月15日	構造化実録
I03	コンサルティング	創業者兼CEO	2026年７月20日	口語転写
I04	監査	パートナー（監査総責任者）	2026年７月21日	構造化実録
I05	法務	律所（法律事務所）パートナー	2026年７月24日	口語転写
I06	法務	律所（法律事務所）パートナー	2026年７月25日	口語転写
I07	法務	商事弁護士（執業５年＝実務経験５年）	2026年７月30日	構造化実録
I08	監査	審計員（監査実務担当者）（外勤＝訪問監査）	2026年８月１日	構造化実録
I09	監査	創設者・上級パートナー（中小会計・税務ファーム）	2026年８月６日	口語転写

出典：筆者作成

表２が示すように、サンプルはコンサルティング３名・監査３名・法務３名の業種横断構成であり、職務層級も経営管理層（総監・創業者・パートナー）から中堅・現場級（執業５年の弁護士・外勤審計員）までを含む。この層級の変異は、管理層の戦略言説と現場の実務経験の位相差を検出する分析戦略上、必須の条件である。監査の管理層については、I04（全国に展開し数百名のパートナーを擁する会計士事務所の監査総責任者）とI09（深圳の中小会計・税務ファームの創設者・上級パートナー）の２視点が確保され、組織規模を異にする管理層の対比が可能となった。

３.２　分析手順

分析はM-GTA（木下，2020）の手続に基づき、分析手順書に定めたStep 0-9に従って実施した。分析の全体像を図１に示す。以下、各ステップの手続と結果を示例とともに示す。

Step 0（適合性評価）では、素材ごとに５項目ルーブリック（叙述具体性・主題網羅度・転写品質・理論関連性・倫理手続）を各± ２点で採点し、合計６点以上を分析適格（Type A）とした。例えばI08は、叙述具体性・理論関連性で各２点、転写品質・倫理手続で各１点の合計８点でType Aと判定された。一次資料９素材はすべて適格（６点以上）であった。

Step 1-2（意味単位化・第１水準概念化）では、テキストから意味単位を抽出し、分析ワークシートに相当する概念カードに原始引用・概念ラベル・標準ラベル・RQ帰属・分析者注を記録した。概念ラベルはデータの生の表現を尊重して中国語で生成した。例えばI08の「AI编造税收政策踩了坑（AIが捏造した税収政策で痛い目にあった）」という発話から「AI幻觉踩坑—すべて人の手で再確認規則の教訓形成」という概念ラベルを生成し、統合コード辞書の標準ラベル「人間による最終品質保証」に帰属させた（I08-001）。本ステップの結果、二次資料から528枚、一次資料から513枚の概念カードを得た（ワークシートの例示は§4.1の表３を参照）。

Step 3（間隔分析）では、二次資料の核心素材の約３割を冷却期間後に盲態で再分析し、統合コード辞書を優先適用したうえで再現性を検証した。その結果、概念同定率94.7%・引用一致率100%が確認され、編码の実質的安定性が示された。

Step 4-6（辞書統合・範疇化）では、二次資料由来の290ラベル（辞書v0.4）を基盤とし、一次資料の概念のうち辞書に対応ラベルがないものを新規ラベルとして採録し、辞書をv0.7（387ラベル）へ改版した。例えばI08の「基础底稿、简单抽查工作必须纯手工完成，禁止使用AI（監査調書・簡単な抜取検査は純粋に手作業で完遂し、AI使用を禁止する）」から生成された「無AI実訓期による基本功強制保護」（I08-048）は、辞書に対応ラベルがなく新規ラベルとして採録された。またI09の「客户会自己通过AI来去查询问题，但最终还是会回到专业机构确认（顧客は自らAIで問題を照会するが、最終的には専門機関に確認へ回帰する）」という回答から生成された「AI出力の信頼性確認需要の専門職回流」（I09-027）も同様に新規採録された。新規ラベルは第一波で81、第二波で12、第三波で４の計97であり、第二波以降はいずれも既存範疇に帰属して新規範疇は出現しなかった。範疇化は概念間の類似性・対比性・因果性を統合基準とし、13の第２水準範疇が生成された（§4.2）。

Step 7-9（構造マップ・理論的ストーリー・命題の照合と精緻化）では、範疇間の関係を構造マップ（図２）として統合し、理論的ストーリーを記述するとともに、二次資料分析から導出した４つの命題（P1-P4）を一次資料９素材と照合して精緻化した（§4.4・§4.5）。

分析の一貫性を確保するため、４つの分析規則を設定した。すなわち、概念ラベルの語序を［RQ］—［現象］—［属性］に固定する規則、主論点をRQ1（業務）・RQ2（人材）・RQ3（組織）のいずれかに主帰属させる規則、１意味単位の１側面を１概念とする規則、および統合コード辞書の既存ラベルを最優先で適用する規則である。両系列のカードは同一のラベル体系の下で合流し、二次資料で構築された概念

体系が一次資料の編码を規定すると同時に、一次資料の新規概念が辞書の改版を通じて体系へ還流する設計とした。

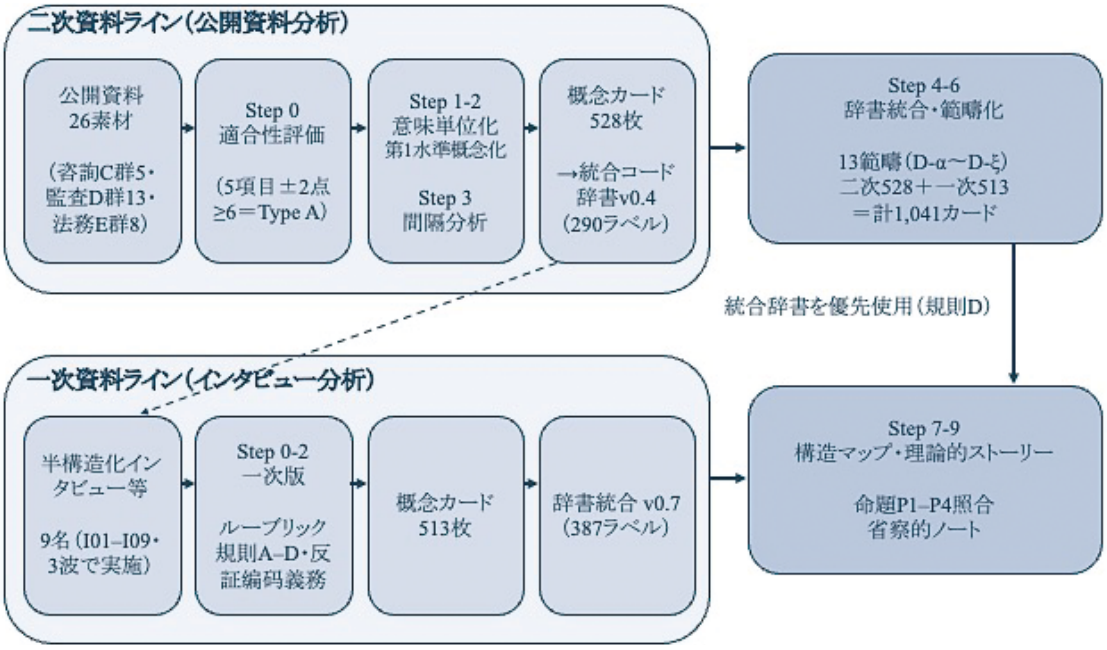

図１　M-GTA分析手順の全体像

出典：筆者作成

３．３　分析の厳密性と研究倫理

分析の厳密性の確保には、データ源の三角検証（公開資料×インタビュー・３業種横断・層級変異）を設計上の基盤としつつ、３つの仕組みを用いた。第一に粒度検証（概念カード数÷意味単位数が1.0-1.3の基準内にあることを素材ごとに確認、I07＝1.10、I08＝1.25）、第二に統合コード辞書による新旧ラベルの重複点検、第三に省察的ノートによる監査証跡（audit trail）の保存であり、各概念の生成経緯を遡及可能にした。

研究倫理については、インタビュー対象者に説明・同意書を事前に送付し、研究目的、録音、匿名化の方式、随時中断の権利等を説明したうえでインフォームド・コンセントを取得した。匿名化は対象者をI01-I09の識別子で表記し機関名を抽象化する方式とし、録音および転写稿は研究者本人のみが保管する。なお本研究は、所属大学の研究倫理に関する規程に基づく所定の事前確認手続きを経て実施した。

４　分析結果

４．１　分析データの概要

本章では、第３章の手順に基づいて得られた結果を報告する。分析対象は、二次資料26素材由来の528枚と一次資料９素材由来の513枚、合計1,041枚の概念カードである。

以下、カード引用には「(I08-110)」形式の識別子（素材番号-カード連番）を付す。

概念カードによる概念生成のプロセスの透明性を示すため、一次資料I08（監査・外勤審計員）の分析ワークシートを例示する（表３）。同様の手順で全素材の分析を行った。

表３　分析ワークシートの例示（I08素材）

カードNo	原始データ引用	概念ラベル	標準ラベル（辞書準拠）	RQ帰属	分析者注（省察）
I08-001	AI编造税收政策踩了坑	AI幻觉踩坑-すべて人の手で再確認規則の教訓形成	人間による最終品質保証	RQ1	AIの捏造による失敗経験から「すべて人の手で再確認」を自己規則化。検証義務の内面化の原点叙述
I08-012	但凡依赖会计准则、税法、业务实质做主观判断、取舍的、一律人做	分工標準①-職業判断の有無による分業	判断密度による人機分業基準	RQ1	四基準体系（判断・担責・実質・守秘）の首位規準。I02の単一基準からの拡張
I08-013	带来监管追责、客户财税损失的关键步骤、禁止AI决策	分工標準②-執業リスク担責によるAI決策禁止	核心決定の人工主導	RQ1	「禁止AI決策」の強い禁止形。素材内で反復出現
I08-048	基础底稿、简单抽查工作必须纯手工完成、禁止使用AI	新人无AI实训期-基本功の強制的保護（新規）	無AI実訓期による基本功強制保護（新規）	RQ2	辞書に対応ラベルなし。試用期の純手工（完全手作業）強制＋考核（考課）通過後にAI権限開放。新規ラベルとして採録
I08-065	把数字化规则落地固化的中坚执行人员、属于管理岗稀缺能力	変革落地中堅人材の欠如-上下兼顧の執行層薄弱（新規）	変革落地を担う中堅執行人材の欠如（新規）	RQ2	辞書に対応ラベルなし。頂层設計と一線遵守を繋ぐ執行層が全所で最も希少
I08-073	入职前２到３个月强制无AI手工训练、打好基本功	若手AI利用の段階的制限-試用期全面禁止の強化形	若手AI利用の検索･情報収集限定	RQ2	辞書の「検索限定」より強い「全面禁止→考核（考課）後解禁」の段階的許可制（用法拡張）
I08-110	借AI要求降价十分普遍	借AI压价の普遍化-値下げ圧力未発生への反証	AI使用由来の値下げ圧力の未発生【反証】	RQ1	【反証】I01・I04の未発生報告と正面矛盾。現場級は圧価を直接観察しており層級間位相差の証拠
I08-123	对我们业务有实际影响	生成式AI管理弁法等の実務影響-内部整改倒逼	AI規制の実務影響未顕在化【反証】	RQ3	【反証】《暫行弁法》が訓練禁止・人工复核（人による再確認）･留痕（証跡記録の保持）として実務手続を直接規定。規制から実務への伝達が完結

出典：筆者作成（I08素材のM-GTA分析結果に基づく）

表３が示すように、原始引用に密着した概念ラベルの生成、標準ラベルへの帰属または新規採録、反証編码の区別が追跡可能に記録されている。

４．２　範疇化の結果

1,041枚の概念カードに対する範疇化の結果、13の第２水準範疇が生成された。表４に各範疇の記号・名称・帰属カード数（二次・一次別）を示す。

表４　第２水準範疇の一覧

範疇記号	名称	二次カード	一次カード	計
D-α	導入の浅層性・経済制約	60	17	77
D-β	工程別人機分業	87	80	167
D-γ	方法論転換・規範整備	38	25	63
D-δ	危機意識・位相認識	38	40	78
D-ε	人材類型・複合能力	69	89	158
D-ζ	二元的育成戦略	10	9	19
D-η	人間回帰	55	47	102
D-θ	データ安全・ガバナンス	35	35	70
D-ι	制度的推進主体	31	8	39
D-κ	顧客価値・需要側転換	30	80	110
D-λ	組織級AI戦略	41	39	80
D-μ	育成体系	28	36	64
D-ξ	組織形態	6	8	14
計		528	513	1,041

出典：筆者作成（M-GTA分析結果に基づく）

表４から、最大範疇はD-β「工程別人機分業」（167枚）、次いでD-ε「人材類型・複合能力」（158枚）であり、導入の中核的経験が「業務工程の再編」と「人材像の再定義」に収斂していることが示唆される。他方、D-κ「顧客価値・需要側転換」は二次30枚に対し一次80枚と増加し、需要側の変化が制度言説より現場で強く意識されている傾向が読み取れる。

理論的飽和は、Step 4-6で述べた通り、第二波・第三波の新規16ラベルがいずれも既存13範疇に帰属し、３波連続で新規範疇が出現しなかったことで確定した。もっとも第二波ではD-ε（＋40）、D-κ（＋28）、D-θ（＋20）等が大きく増加しており、人材像（D-ε）と需要側圧力（D-κ）が実務最前線の回答者（I07・I08）において特に強く問題化されていることを反映している。第三波（I09）ではD-κへの配分が最大（＋９）であり、中小ファームの経営層においても需要側の変化が強く意識されていることが示された。

４.３　コア・カテゴリーの選定

次に、13範疇からコア・カテゴリーを選定した。選定にあたっては３基準を設定した。①統合力（結節点として機能するか）、②変異の説明力（業界・所有制・発言場・階層の条件差による観察の変異を説明できるか）、③RQ層との接続（いずれかのリサーチクエスチョンに明確に対応するか）の３点である。表５に選定結果を示す。

表５　コア・カテゴリー選定の結果

核心	範疇・名称	RQ層	選定理由
コア１	D-β 工程別人機分業	RQ1層	最大範疇（167枚）。D-α を条件・D-γ を深化・D-κを結果として因果連鎖で束ねる結節点
コア２	D-ε 人材類型・複合能力	RQ2層	第２位の範疇（158枚）。D-μ・D-ζ・D-η を「能力再構成」軸で統合
コア３	D-λ 組織級AI戦略	RQ3層	戦略昇格・統一底座（基盤）・専門組織再設計を包摂し、組織的要因の層を代表

出典：筆者作成（M-GTA分析結果に基づく）

表５に示すように、選定された３核心はそれぞれRQ1～RQ3の１層に対応する構造となり、D-βは条件（D-α）から結果（D-κ）までを因果連鎖で束ね、D-εは育成関連３範疇を「能力再構成」軸で統合し、D-λは戦略昇格・AI統一底座（基盤）・組織再設計を包摂する。

他方、落選した範疇も分析から除外されるのではない。D-αは因果条件、D-δは認識の範疇で行動を包摂しないためD-λへの因果条件、D-ζは部分的充足にとどまるためD-εの構成要素として位置づけ、残る７範疇は次節のパラダイム分析に組み込んだ（図２）。

４.４　範疇間関係の分析

選定された３つのコア・カテゴリーについて、それぞれパラダイム分析（因果条件・中核現象・脈絡条件・中介条件・結果の５要素）を行った（表６～表８）。さらに、コア・カテゴリー間の関係を構造マップとして統合した（図２）。

表６　コア・カテゴリー１（D-β 工程別人機分業）におけるパラダイム分析

要素	記述	代表概念（カードNo）
因果条件	生成AI技術の成熟と同業競争･顧客要求が、浅層的導入から業務工程への組込みを駆動する	専用訓練不要化（E02a-007）;开源戦略（D02d-003）；同業善用者競争（E04-012）；顧客要求による必須化（E06-023）
中核現象	業務を標準化可能性の軸で工程に分解し、AI主導工程（検索・定型・初稿生成）と人間主導工程（複核（再確認）・判断・責任引受）を配分し直す営み	工程別人機分業モデル（D01c-007, C01-001）；標準化軸の人機分界（E07-007）；専門知のAI移植（D01c-002）
脈絡条件	業界の経済構造（低利潤･内巻（過当競争）価格競争）と規制環境が分業の深度と速度を規定する	価格内巻（過当競争）化（C01-011）;業界経済性による導入制約（D01c-015, D02d-016）；規模間導入格差（D03-014）
中介条件	データ統制と人的能力が分業の実現を条件づける	データ安全の底線防衛（D02a-020, D02c-013）；複合型人材の希少性（D03-012, D02d-008）；ツール適配不足と定制対応（E07-004）
結果	効率の数値実証と業務領域の拡張が生じ、方法論転換（D-γ）とビジネスモデル変容（D-κ）へ波及する	効率向上の数値実証（C01-002, C04-001/002）；規制駆動の全量検査化（D02f-024）

出典：筆者作成（M-GTA分析結果に基づく）

表７　コア・カテゴリー２（D-ε 人材類型・複合能力）におけるパラダイム分析

要素	記述	代表概念（カードNo）
因果条件	工程別分業（D-β）が初級業務から代替を侵食させ、単一専門の能力構成と徒弟的育成経路を無効化する	初級業務の代替圧力（E04-006, E06-016, C05-016）；実代替と人員再配置（E06-008）；基準試験での人間超越認識（D02d-001）
中核現象	「専門×技術」の二元能力を核に能力要件が再定義され、人材の類型化と新職種の制度化が進行する営み	人材類型論・四類型（D01c-018, D02f-020）；専門×技術の二元能力（D01c-023）；AI新興職種の出現（D02b-023）
脈絡条件	人材が中核資産である専門職産業の資産構造と、協会･政策による制度的推進が再構成を下支えする	人材中心資産論（C01-021）；協会の業界動員（D02f-025）；多元主体協同育才（D03-023）
中介条件	育成制度（職級連動･全員認証）と育成戦略が再構成の速度を規定し、資深層の抵抗が働く	職級連動の段階的育成（D01b-010）；全員生成AIリテラシー化（E06-011）；二元的育成戦略（D01c-020）
結果	役割が実行者から洞察提供者へ再定義され、最終判断の人間回帰（D-η）が生じる	洞察提供者への転換（D01b-007）；人間による最終品質保証（D01c-010, C01-003）

出典：筆者作成（M-GTA分析結果に基づく）

表８　コア・カテゴリー３（D-λ 組織級AI戦略）におけるパラダイム分析

要素	記述	代表概念（カードNo）
因果条件	存続の危機意識（D-δ）と競争軸の算力・模型への転換が、ツール導入を組織級戦略へ昇格させる	存続の危機意識(D01c-005, C01-014, C03-001)；伝統コンサルティングの三重困境（C05-002)；競争軸の算力転換（D02f-010）
中核現象	生成AIを全所戦略の底座（基盤）として位置づけ、中台（共有デジタル基盤）・専門組織・組織的知識基盤を再設計する営み	組織級戦略への昇格（E04-018, E06-001, D02c-001)；AI統一底座（D02a-007, D02c-010)；四庫体系（４つの知識庫からなる体系）による組織的知識基盤（E02a-012）
脈絡条件	所有制・ガバナンス形態（パートナー制・提成制（歩合報酬制）の分散構造）と制度的推進が戦略の選択肢を規定する	パートナー制の限界（C05-012)；央国企（中央企業・国有企業）の国産模型（中国国産モデル）選好（D02d-004)；業界協会による導入仲介（E01-007）
中介条件	投資能力・データ安全ガバナンス（D-θ)・長期主義の失敗許容文化が戦略実行を条件づける	グローバル規模投資（D02a-012)；データ安全の底線防衛（D02a-020, D02c-013)；戦略級失敗許容（E04-019）
結果	組織形態の変容（D-ξ）とビジネスモデル変容（D-κ）が生じ、戦略は業務層（D-β)・人材層（D-ε）を駆動する	公司制･ダイヤモンド型への変容(C05-013/014)；反哺（還流）循環（D02f-008）

出典：筆者作成（M-GTA分析結果に基づく）

３つのパラダイム分析を統合したものが図２である。理論的構造の中核は「組織→業務→人間→組織」の双方向循環であり、存続の危機意識（D-δ）を因果条件として組織は戦略昇格（D-λ）で応答し、それが工程別人機分業（D-β)、人材類型・育成体系（D-ε）へと翻訳される（下降方向)。他方、複合人材は組織の隘路（D03-012）となる一方、反哺（還流）循環（D02f-008）を通じて組織へ還流し、戦略の成立条件となる（上昇方向)。非選定の10範疇は、因果条件・脈絡条件・中介条件・結果・構成要素として構造内に配置される。

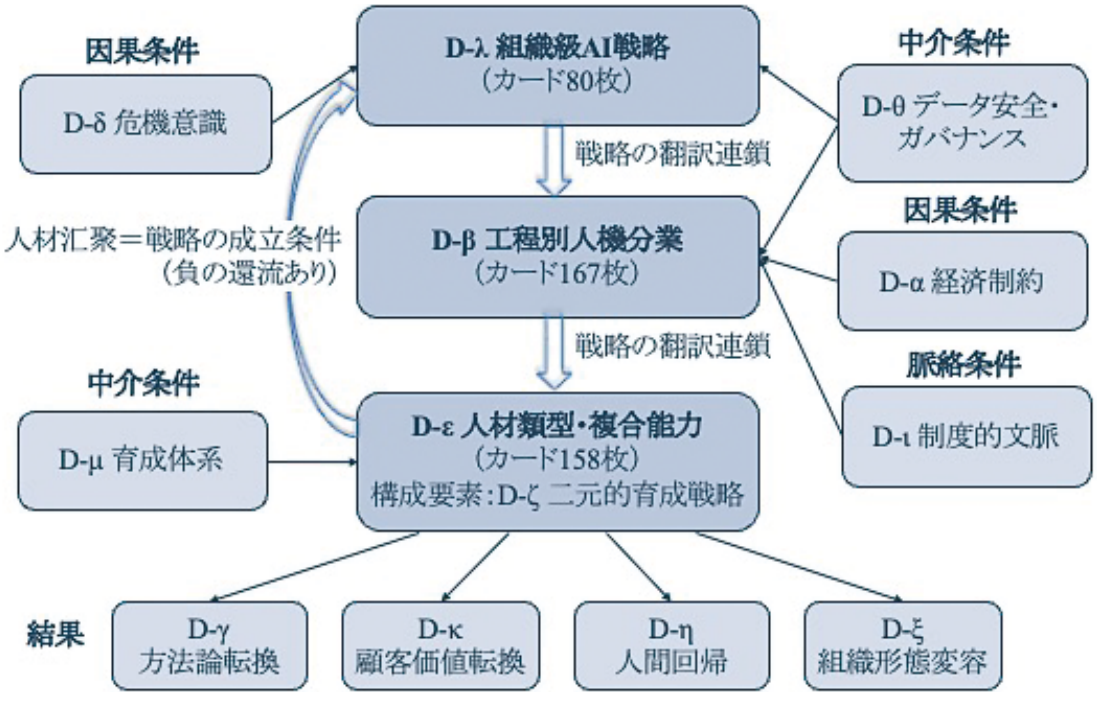

図２　中国KIPSにおける生成AI適応の理論構造マップ

出典：筆者作成（M-GTA分析結果に基づく）

横断的な知見として２点を指摘する。第１に、人事連動の業種間分化である。法務・コンサルティングでは認証・「績効」（業績評価）・「晋升」（昇進）とAI活用の連動は観察されなかったのに対し、監査（I08）では全面連動が報告された。第２に、値下げ圧力の層級間位相差である。大規模組織の管理層（I01・I04）では未発生とされ、中小組織の管理層（I09）では「予期」の段階にとどまる一方（I09-025）、現場層では「十分普遍・反復圧価」（極めて一般的で、繰り返し値下げを要求される）（I08-110）と報告され、認識が層級に応じて３段階に連続してずれる構造が確認された。この２点の理論的含意は考察章で検討する。

４．５　命題の深化と境界設定

最後に、二次資料分析から帰納的に導出した４命題（P1-P4）について、一次資料９素材との照合を行い、その発生機制と適用境界を精緻化した。本手続は帰納的に生成した命題を一次データで深化させる質的照合である。照合区分は、整合・部分整合・不整合・無言及の４区分とし、表９に結果を示す。

表９　命題P1-P4の一次資料照合結果

命題	整合	部分整合	不整合	無言及	総合評価
P1 戦略昇格→導入深度分岐（D-λ→D-β）	5	3	1	0	概ね整合
P2 分業深度→能力再構成（D-β→D-ε）	9	0	0	0	強整合
P3 複合人材→戦略成立条件（D-ε→D-λ）	2	2	2	3	弱整合
P4 規制条件の中介浸透	4	4	1	0	整合（一次照合で強化）

出典：筆者作成（M-GTA分析結果に基づく）

P1（戦略昇格→導入深度分岐）は整合５・部分整合３・不整合１で「概ね整合」である。内訳には業種間の分化が認められる。監査ではI04（パートナー）とI08（審計員）が層級を超えて組織的深化を一致して報告したのに対し、法務ではI05・I06・I07の３素材で「戦略不在→個人駕馭（個人主導での活用）」のパターンが反復された。第三波のI09（創設者・上級パートナー）は、経営層の推進と現場の自発が併存しつつ戦略化には至らない「混合駆動」を呈し（I09-020）、駆動形態は戦略昇格（I01・I04）・混合駆動（I09）・個人駕馭（I02・I05-I07）の３類型に整理された。命題の方向性は整合するが、顕在化の仕方は業種と組織規模により異なる。

P2（分業深度→能力再構成）は９素材すべてが整合で不整合がなく「強整合」。本研究の中核命題である。この連鎖は育成の下流工程でも実証的に完結し、I07は徒弟的育成の「空転」リスクを、I08は「無AI実訓期」による育成経路の再設計を報告した。さらに分業基準はI02の「判断密度」からI08の「四基準体系」へ精緻化された。I09は浅層分業（「溝通」（顧客対話）・判断は人間、「査詢」（情報照会）・「文案」（文書）作成はAI）と限定的能力再構成の組合せを示し、深度対応関係の下限側でも命題が成立することが確認された。

P3（複合人材→戦略成立条件）は整合２・部分整合２・不整合２・無言及３で「弱整合」。上向き経路は監査事務所系の素材でのみ顕在化した。I09は複合人材の未顕在（I09-015）を認識しつつ、戦略未昇格ゆえ隘路としては顕在化しておらず、中小規模組織では隘路化しないという修正方向を補強した。この結果から修正候補として「規模条件＋欠如層二層分化」を設定した。すなわち、隘路として認識されるのは一定規模以上の組織に限られ、欠如層は「精英複合型」（エリート複合型）（I04）と中堅執行型（I08-065）に二層分化するという修正である。

P4（規制条件の中介浸透）は整合４・部分整合４・不整合１であり、二次資料段階の暫定評価から整

合性が強化された。不整合はI01（コンサルティング・総監）の１件で規制の実務影響なしと報告された（I01-043，I01-042）が、残る８素材では部分的なものを含め浸透が認められた。浸透経路として３型が確認された。直接規定（《生成式人工智能服务管理暂行办法》が訓練への使用禁止・「人工復核」（人による再確認）・「留痕」（証跡記録の保持）・「平台備案」（プラットフォーム届出）として実務手続に規定、I08-123）、内面化（I05・I06で規範が行動基準として内在化）、契約伝導（国有企業の守秘条項が契約経由で国外モデルの使用禁止として伝導、I07-042）の３型である。さらにI09では、「本地部署」（オンプレミス導入）の検討と顧客のデータ守秘要求（I09-029）に示されるように、規範が市場取引を介して間接的に浸透する経路が確認され、中介浸透の裾野の広がりが裏付けられた。

なお、P1およびP3の管理層における戦略意思の照合は、第三波の追加により２視点（I04・I09）に基づく。I04は全国展開し数百名のパートナーを擁する会計士事務所の監査総責任者、I09は深圳の中小会計・税務ファームの創設者・上級パートナーであり、規模の異なる組織を俯瞰しうる層級の情報源が確保された。他方、I08のP1＝整合評価は現場級の自己報告に基づく。

５　考察

５．１　リサーチクエスチョンへの回答

RQ1（導入の領域と形態）について、生成AIは標準化可能な工程――検索・定型文書・初稿生成――から選択的に導入され、業務の一括代替ではなく「工程別人機分業」の形態をとった。導入の深度は組織級戦略への昇格の有無で分岐し（P1、概ね整合）、駆動形態は戦略昇格（I01・I04）・混合駆動（I09）・個人駕馭（I02・I05-I07）の３類型に整理された。監査では層級を超えた組織的深化と経営層・現場併存の混合駆動が、法務では戦略不在の個人駕馭が反復された。もっともI02のように戦略不在でも個人レベルの完全導入は可能であり、昇格は必要条件ではない。

RQ2（能力形成・人材育成への影響）について、工程別分業の深度が能力再構成を駆動する連鎖（P2）は９素材すべてと整合し、不整合はなかった。徒弟的育成経路への影響は、初級業務の代替による縮減、I07の「空転」リスク、I08の「無AI実訓期」による再設計という三様相として現れ、分業基準の四基準体系への精緻化とあわせて、能力再構成が責任担持・実質審査・守秘管理を含む複合的問題であることが確認された。

RQ3（組織的・制度的要因）について、規制条件は直接規定（I08-123）・内面化（I05・I06）・契約伝導（I07-042）の３経路で実践に中介的に浸透していた（P4、整合）。さらにI09では「本地部署」（オンプレミス導入）の検討と顧客のデータ守秘要求（I09-029）に示される市場取引を介した間接浸透が確認され、中介浸透の裾野の広がりが裏付けられた。とりわけ契約伝導は、国有企業の守秘条項が契約経由で国外モデルの使用禁止と中国国産モデル選好（D02d-004）を促す「規制―国有企業顧客―ファーム」の伝導連鎖であり、中国固有の制度的経路である。複合人材の欠如による負の還流（P3）は弱整合にとどまったが、監査事務所系素材でのみ顕在化したことから、「規模条件＋欠如層二層分化」の修正候補が示された。さらに人事制度連動の業種間分化と、値下げ圧力の認識が大所管理層の「未発生」から中小所管理層の「予期」（I09-025）を経て現場層の「普遍」（I08-110）へ連続する層級間位相差から、業種と層級がこれらの要因の効き方を規定する中介条件であると考えられる。

５．２　理論的含意

第１に、本研究の「標準化可能性による工程分岐」は、Dell'Acqua et al.（2023）の「ジャギド・フロンティア」の組織内実装形と解釈できる。監査の一現場（I08）で運用される四基準体系（判断・担責・

実質・守秘）は、技術的能力の有無ではなく法的責任・規制・データ安全の制度的論理で人機の境界を引くものであり、フロンティアの輪郭を組織が主体的に引き直す点で、Dell'Acqua et al.（2023）の議論に対して制度的文脈の重要性を補完する知見を提供する。この四基準の敏感度は業種間で異なり、法定署名責任をもつ監査・法務で担責・守秘の比重が特に高い。

第２に、Beane & Anthony（2024）の「逆転徒弟制」との対話である。本研究の育成経路縮減と「空転」リスクは同理論の断絶の力学と整合的である。しかし中国監査では「無AI実訓期」――あえてAIを遮断して実務判断の基礎を訓練する期間――という対抗的実践が観察された（I04-009；I08）。これは暗黙知継承の断絶に対し、組織が意図的に技術的空白を設けて初学者の基本功形成を強制する「意図的脱自動化」の防御的認知足場と理論づけられ、徒弟制の断絶は技術の必然ではなく制度的な再設計によって回避・緩和されうる。

第３に、「層級間位相差」の理論化である。値下げ圧力の認識は、大規模組織の管理層では「未発生」（I01・I04）、中小組織の管理層では「予期」の段階（I09-025）、現場層では「普遍」（I08-110）と、層級に応じて３段階に連続してずれることが確認された。この事実は、需要側圧力の認識が層級で系統的にずれることを示す。この位相差は、管理層が「AIによる高付加価値化」の戦略レトリックで溢価（プレミアム価格）を維持しようとする一方、現場層が納品現場で効率化を口実とした値引き・人日（１人×１日の工数単位）圧縮に直面するという、戦略言説と現場実践の解耦（デカップリング）を反映しており、KIPS研究に階層変異を分析単位として組み込む必要性を示唆する。

第４に、Brynjolfsson, Li & Raymond（2025）のジュニア集中効果と本研究の育成機会喪失リスクは同一過程の両義的側面である。AIはジュニアの現在のパフォーマンスを引き上げつつ、将来のシニアを生む徒弟的足場を削りうる。

５．３　研究の限界

本研究には以下の限界がある。第１に、一次資料が９素材に限られる。監査の管理層についてはI04（大規模会計士事務所の監査総責任者）とI09（中小会計・税務ファームの創設者・上級パートナー）の２視点を得て規模対比が可能となったが、大規模組織の管理層は依然として１視点である。コンサルティングの大手ファームも未観測である。もっともI04の組織戦略に関する陳述は、協会の研討会（シンポジウム）における複数のパートナー発言（D01・D02）と内容的に整合しており、二次資料との三角測量により一定の裏付けを得ている。第２に、I08による組織的制度連動の報告は現場級の自己報告に基づき、管理層の直接観測ではない。第３に、二次資料は公開された制度言説であり、現場実践との位相差を含む可能性がある。一次資料との対比で部分的に検出しえたが完全な制御には至っていない。

６　おわりに

本研究は、中国の知識集約型専門サービス業（KIPS）３業種を対象に、二次資料26素材とインタビュー９素材から生成した計1,041枚の概念カードにM-GTAによる分析を行い、13の範疇と３つのコア・カテゴリーを選定し、「組織→業務→人間→組織」の双方向循環モデルを提示した。一次資料との照合では、P2（分業深度→能力再構成）が不整合のない中核命題として強く裏付けられた。本研究の貢献は、制度言説と現場実践の乖離が指摘されてきた中国KIPSの生成AI導入実態を、質的データに基づき理論化した点にある。

実務的含意は２点である。第１に、徒弟制の断絶は技術的必然ではなく、「無AI実訓期」に代表される制度的再設計で回避可能である。第２に、規制は３経路で実務へ浸透するため、導入組織は規制対応

を導入設計の前提として組み込む必要がある。

今後の課題は２点である。第１に、大規模組織の管理層の複数視点やコンサルティングの大手ファームなど未観測の領域を補う追加インタビューにより、概ね整合・弱整合にとどまるP1・P3の境界条件を確定する。第２に、縦断的設計による時間的変化の検証と他国との制度比較を通じて、専門職能力形成の再編が制度的差異によってどのように規定されるかを明らかにする。

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【分析資料一覧】

１．二次資料（公開資料26素材・すべて中国語）

C01：王海程・李程亮（2025）「AI时代全面到来，企业还需要咨询公司吗？」36氪〈https://m.36kr.com/p/3183096786689413〉（2026年６月30日閲覧）

C02：陳剣光（2025）「访谈｜安永陈剑光：AI不会简单“取代”人类 而是一种增强工具」中国経営報（新浪財経転載）〈https://finance.sina.com.cn/jjxw/2025-06-10/doc-inezqfeh5778476.shtml〉（2026年６月30日閲覧）

C03：和君集団（2026）「和君同行 行则将至｜2026年和君集团年会精彩摘编（上）」和君集団官网〈https://www.hejun.com/page92?article_id=3466〉（2026年６月30日閲覧）

C04：宫迅伟（2025）「纵横原创｜宫迅伟：AI时代，咨询师真的会被取代吗？」北大縦横官方公衆号〈http://mp.weixin.qq.com/s?__biz=MjM5ODM3NjIwMQ==&mid=2650793350&idx=1&sn=f9f88593fe152399a73e6fb072f44f99〉（2026年６月30日閲覧）

C05：朱琦（2025）「独家对话SIA中国掌门人：黑石2.5亿欧元投资背后，AI正在彻底改写咨询行业」胖鯨頭条〈http://mp.weixin.qq.com/s?__biz=Mzk0ODM4NzExOA==&mid=2247577166&idx=1&sn=150ce44458e728773764108f7b973ecc〉（2026年６月30日閲覧）

D01a-f：北京注册会计师協会（2025）「数智赋能・人才重塑——人工智能时代注册会计师行业人才变革研讨会综述」〈https://www.bicpa.org.cn/p1/xydt/20250813/54571.html〉（2026年６月30日閲覧）——張晏生・金科・黄婷婷・謝振杰・薛貴・謝力の各発言部分を６素材に分割

D02a-f：北京注册会计师協会（2025）「“人工智能赋能注册会计师行业发展”研讨会综述」〈https://www.bicpa.org.cn/p1/xydt/20250709/54425.html〉（2026年６月30日閲覧）——安永（張翠玲）・畢馬威（董常凌）・天職国際（李銘楊）・信永中和（周峰）・德勤（范為）・協会（汪寧）の各発言部分を６素材に分割（D02a・D02b・D02fは2025年８月13日綜述等の複数場合を統合）

D03：証券時報（2025）「审计行业期待AI赋能 多重瓶颈如何突破？」（新浪財経転載）〈https://finance.sina.com.cn/roll/2025-08-14/doc-infkxinm5502933.shtml〉（2026年６月30日閲覧）

E01：法治日報（2025）「当律师遇上AI，会擦出怎样的火花」司法部网站〈https://www.moj.gov.cn/pub/sfbgwapp/fzgzapp/ggfzfwapp/lsgzapp/202504/t20250410_517208.html〉（2026年６月30日閲覧）

E02a-b：商法／Asian Legal Business（2026）「对话总法律顾问：AI革命」〈http://china.legalbusinessonline.com/features/对话总法律顾问：ai革命（zhen）〉（2026年６月30日閲覧）——聯想・度小満の総法律顧問対談を２素材に分割

E03：植德律師事務所（2025）「活动回顾｜法律AI业务实战分享活动在植德青岛办公室圆满举行」植德官网〈https://www.meritsandtree.com/Content/2025/11-18/1742012741.html〉（2026年６月30日閲覧）

E04：律新社（2025）「AI会颠覆律师？真正的竞争对手不是AI，而是那些更善于运用AI的律师同行丨律新观察」〈http://mp.weixin.qq.com/s?__biz=MzkyODI5NjY4NQ==&mid=2247874045&idx=1&sn=a25591fc276911757f9bb19ecd70511b〉（2026年６月30日閲覧）

E05：中華全国律師協会（ACLA）（2025）「人工智能浪潮下的律所实践探索——业务进阶」〈https://www.acla.org.cn/info/cab0337cce9343109c4326bd7ed24917〉（2026年６月30日閲覧）

E06：Asian Legal Business（2026）「AI观察｜中国律所加速AI技术融合」〈http://china.legalbusinessonline.com/features/ai观察—中国律所加速ai技术融合（zhen）〉（2026年６月30日閲覧）

E07：上海法律科技協会（2026）「法律AI落地的现实壁垒和破局之道」〈https://mp.weixin.qq.com/s/8WmMGmRo_-TxfxIqc1MWvg〉（2026年６月30日閲覧）

2．一次資料（半構造化インタビュー９素材）

素材ID	業種	職務層級	実施日
I01	コンサルティング	総監	2026年７月13日
I02	コンサルティング	創業者・資深顧問	2026年７月15日
I03	コンサルティング	創業者兼CEO	2026年７月20日
I04	監査	パートナー（監査総責任者）	2026年７月21日
I05	法務	律所（法律事務所）パートナー	2026年７月24日
I06	法務	律所（法律事務所）パートナー	2026年７月25日
I07	法務	商事弁護士（執業５年＝実務経験５年）	2026年７月30日
I08	監査	審計員（監査実務担当者）（外勤＝訪問監査）	2026年８月１日
I09	監査	創設者・上級パートナー（中小会計・税務ファーム）	2026年８月６日

【付録】半構造化インタビュー質問票（主題モジュールM0-M9）

本質問票は、HEC Alumni（2026）の枠組みを参照しつつ設計した10の主題モジュール（M0-M9）からなる。各設問はM-GTAにおける感受性概念として機能するものであり、範疇を事前に固定するものではない。プローブ（追及質問）は被験者の語りに応じて適宜用いた。

モジュール	質問領域	主要設問（中国語原文）と日本語訳
M0	導入と属性確認	请您简单介绍一下您的职位、所在机构的主要业务领域、以及您目前主要负责的工作内容。 （訳）職位・所属機関の主要業務領域・現在の担当業務について紹介いただく。
M1	初期認知と感情反応	您第一次在工作中接触生成式AI大概是什么时候、通过什么契机？当时您的第一反应是什么？／从那以后到现在、您对AI的看法发生过哪些变化？这种变化大致发生在什么时间点、因为什么事情？ （訳）初めて業務で生成AIに接した時期と契機、当時の第一印象。その後のAIに対する認識の変化とその転換点。
M2	業務プロセスにおけるAI活用の実態	目前您在哪些具体业务环节会使用AI ？能否以最近的一个项目为例、讲讲AI实际是怎么用的？／AI介入之后、哪些任务的时间大幅缩短了？有没有过去受重视、现在明显贬值的技能？／反过来、AI介入后反而更花时间的工作有吗？／（経営層）公司层面有没有把AI工具产品化、平台化？ （訳）具体的な業務工程におけるAIの利用実態。時間が大幅に短縮された業務、価値が低下した技能、逆に時間がかかるようになった作業（AIアウトプットの検査等）。経営層にはAIツールの製品化・プラットフォーム化の有無も質問。
M3	能力要求の変化	和三年前相比、贵公司对顾问／律师／审计师的能力要求发生了什么变化？／现在公司里最被看重、最稀缺的能力是什么？／您身边有没有“既懂专业、又懂AI”的复合型人才？这类人在公司里的位置、晋升和发展情况如何？／初级员工的工作内容和成长路径发生了什么变化？ （訳） 3年前と比較した能力要求の変化。最も重視され希少な能力。複合型人材の有無とその処遇・昇進。ジュニア層の業務内容と成長経路の変化（徒弟的育成の存続可否）。
M4	組織的対応（人事・評価・昇進・価格）	AI引入前后、公司的人事制度有没有调整？比如晋升标准、绩效考核指标、薪酬结构？／收费或定价模式有变化吗？／公司是否提供AI相关的培训或制度支持？／招聘政策有变化吗？ （訳）人事制度（昇進基準・業績評価指標・報酬体系）の変更有無と推進主体。料金・価格設定モデルの変化。AI関連の研修・制度支援。採用政策の変化。
M5	クライアント関係と価値の転換	客户对你们使用AI是什么态度？有没有客户要求披露AI的使用情况、或者因为“你们也用了AI”而要求降价？／客户购买的“东西”变了吗？合同里有没有出现成果挂钩的条款或AI相关的知识产权条款？ （訳）AI利用に対する顧客の態度、AI利用の開示要求や値下げ要求の有無。顧客が購入する対象の変化（成果連動条項・AI関連の知的財産条項等）。
M6	AIガバナンスとリスク	公司内部或行业层面、对AI使用有哪些规则或自律规范？／国家的AI相关政策（比如2023年《生成式人工智能服务管理暂行办法》、数据安全方面的法规）对你们的业务有实际影响吗？／您担心过“AI依赖”的问题吗？ （訳）社内・業界レベルのAI利用規則・自律規範（顧客データ守秘・AI生成物の署名・開示等）。国家のAI政策の実務への影響。AI依存への懸念。
M7	抵抗・失敗・成功要因	在推进AI应用的过程中、遇到过哪些阻力？来自员工、合伙人还是客户？／有没有AI应用“失败”或达不到预期的经历？回头看、原因是什么？ （訳）AI活用推進における抵抗の有無とその主体・源泉。AI活用の失敗経験とその原因、成功の条件。

モジュール	質問領域	主要設問（中国語原文）と日本語訳
M8	専門家アイデンティティと将来像	您觉得“咨询师／律师／审计师”这个职业的核心价值变了吗？在您的工作中、什么是AI替代不了的？／三年后、您希望、或者预期自己会处在什么位置？您觉得这个行业会变成什么样？／如果要给刚进入这个行业的年轻人一句建议、您会说什么？ (訳)専門職の中核的価値の変化とAIが代替できない領域。３年後の自己と業界の展望。業界への新規参入者への助言。
M9	収束	今天的话题里、有没有我没问到、但您认为很重要的内容？ (訳) 未質問の領域の確認。追加インタビューへの協力と適切な対象者の紹介の依頼。

出典：筆者作成（質問票はHEC Alumni（2026）の枠組みを参照して設計）

城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 91–121

Article

Development Challenges and Strategic Choices of Bank Technology Service Providers under Narrowing Net Interest Margins:

A Comparative Case Study of Six Firms in China and Japan

銀行の純金利マージン縮小下における銀行向け テクノロジーサービス企業の発展への挑戦と戦略的選択

―中国・日本６社の比較事例研究―

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Abstract

Commercial banks facing narrow net interest margins increasingly use technology to reduce costs, improve risk pricing, expand fee income, and renew core systems. External demand, however, is filtered by budgets, in-house capacity, procurement, legacy systems, and data and outsourcing rules. This paper compares three Chinese providers—Digital China Information Service Group, Yusys Technologies, and Sunline—with NTT DATA, Nomura Research Institute, and TIS. The cases are assessed through customer mix, products, revenue models, technology investment, and operating outcomes. Transaction cost economics frames banks' build-or-buy choices; the resource-based view and dynamic capabilities theory explain vendors' ability to reuse project knowledge and sustain services. Chinese firms remain more dependent on customized delivery and show wider variation in profitability and cash conversion. Japanese firms have stronger platform, maintenance, and recurring-revenue businesses, but face slow domestic growth, legacy-system costs, and organizational inertia. Four problems recur: mismatched customer portfolios, customization and collection pressure, weak productization and recurring income, and strain on talent, R&D coordination, and compliance. Each problem is linked to a strategic response, and Japanese practices are classified as transferable, adaptable, or unsuitable for China.

Keywords: narrowing net interest margins; bank technology services; IT outsourcing; productization; China-Japan comparison; dynamic capabilities

1. Introduction

1.1 Research Background, Objectives, and Questions

Net interest margin (NIM) remains a useful summary of earnings from traditional deposit and lending activities. Evidence from several banking systems links low short-term rates and a flatter yield curve to weaker net interest income, with the effect becoming more pronounced when rates are already low (Borio et al., 2017; Brei et al., 2020; International Monetary Fund, 2020). China has experienced the same pressure. Commercial banks' NIM declined from 2.08% at the end of 2021 to 1.52% at the end of 2024 and 1.42% at the end of 2025, alongside lower loan prime rates, fierce competition for high-quality borrowers, mortgage repricing, and a larger share of time deposits (China Banking and Insurance Regulatory Commission, 2022, 2023; National Financial Regulatory Administration, 2024, 2025, 2026). A thinner margin raises the value of cost control, fee income, and stronger risk management. It can also constrain technology budgets and make banks less tolerant of implementation failure. The implications for outside providers are therefore mixed rather than uniformly favorable.

Technology sits near the center of banks' response to this earnings pressure. Core-system renewal, data governance, intelligent risk control, domestic technology substitution, cloud infrastructure, and generative AI may support efficiency or new business. Even so, a need for technology is not the same as a decision to buy it from an outside firm. Large banks commonly keep architecture, data, and key algorithms inside technology subsidiaries or in-house teams, relying on vendors for selected modules, consulting, and implementation. Smaller institutions are more dependent on external solutions, yet they usually operate with tighter budgets, fewer specialists, and weaker project-management capacity. NIM pressure may thus widen the potential project pipeline while making individual projects more price-sensitive and more difficult to deliver profitably.

Japan is informative precisely because it is not a simple model to copy. Its banks have passed through long periods of low interest rates while also dealing with demographic decline, consolidation among regional banks, and pressure on local profitability. Shared core systems, long maintenance arrangements, and business platforms supported by durable vendor relationships gradually became important features of the financial IT market. A survey by the Financial Services Agency records continuing work on open-system migration, resource sharing, and IT governance among regional institutions (Financial Services Agency, Japan, 2022). These arrangements emerged from a banking structure, procurement environment, regulatory system, and market history that differ from China's. The comparison is therefore used to identify the conditions behind particular vendor strategies, not to present one national model as superior.

Accordingly, the cases are restricted to firms outside commercial-bank organizational structures whose main financial-sector activities include software, core systems, data and risk management, consulting, systems integration, maintenance, or business-platform services. The paper is not a general account of bank digital transformation. It asks a narrower question: how do budgets, internal capabilities,

procurement, legacy systems, and regulation filter operating pressure inside banks before it reaches outside providers, and how do those providers respond through customer selection, product design, delivery models, and capability investment?

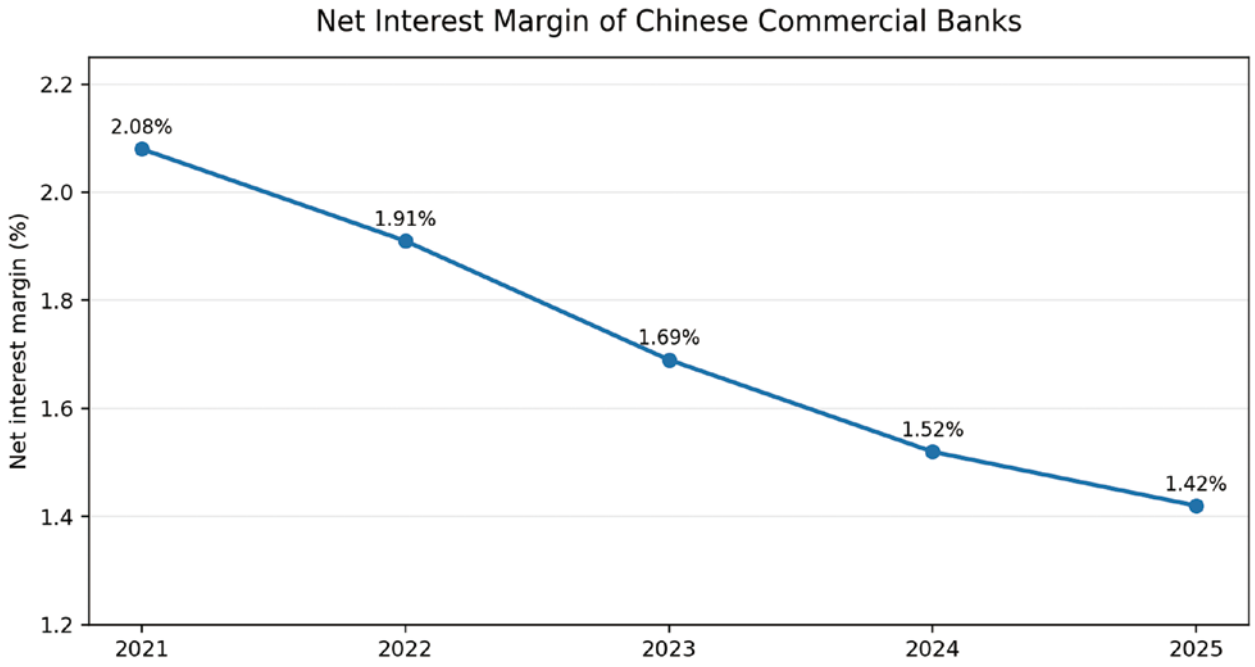

Figure 1. Changes in the Net Interest Margin of Chinese Commercial Banks

Source: China Banking and Insurance Regulatory Commission (2022, 2023) and National Financial Regulatory Administration (2024, 2025, 2026). All figures for 2021-2025 are year-end values.

$$\mathrm{NIM}_t = \frac{\mathrm{NII}_t}{\overline{\mathrm{IEA}_t}} \times 100\% \tag{1}$$

In Equation (1), NIM_t is the NIM in period t, NII_t is net interest income in period t, and $\overline{\mathrm{IEA}_t}$ is average interest-earning assets in period t. Chinese data use the regulatory definition. Because Japanese disclosures use different definitions, the Japanese analysis relies mainly on Bank of Japan discussions of bank earnings and spreads and does not directly combine absolute NIM values based on different definitions.

Using the six cases, the article compares customer selection, product structure, revenue models, organizational capabilities, and operating outcomes in China and Japan. It then traces the principal problems faced by the firms, the mechanisms behind those problems, and the strategic adjustments that appear most relevant to the Chinese market. NIM is treated as part of the external environment; the firms that serve banks, rather than the banks themselves, remain the direct object of analysis.

Table 1. Research Questions and the Four Challenge Chains

Research question	Analytical focus	Corresponding challenge chain
RQ1	How do the Chinese and Japanese sample firms differ in customers, products, revenue models, and operating outcomes?	Common comparison in Section 2
RQ2	What operating and strategic challenges do the sample firms face?	(1) Customer positioning and structure, (2) customization, delivery, and collection, (3) productization and recurring revenue, (4) talent, R&D organization, and compliance
RQ3	How do bank demand, institutional conditions, and firm capabilities jointly cause these challenges?	Section 4 explains each of the four challenge chains
RQ4	Which Japanese practices can Chinese firms adopt, and under what conditions?	Four strategic responses and the boundaries of transferability in Section 5

Source: Developed by the author from the research objectives.

The four challenge chains were chosen with a practical test in mind: each problem should be visible in the evidence, linked to a plausible cause, and matched with an implementable response. Productization is considered together with recurring revenue because licensing, maintenance, subscription, and platform income all depend on some degree of repeatability. Talent, R&D organization, and compliance are grouped in a single capability chain because bank projects require these functions to work together from product design through delivery and vendor qualification.

1.2 Core Concepts, Literature Review, and Research Gaps

NIM is defined here as net interest income divided by average interest-earning assets. The ratio reflects the spread generated through asset-liability management, pricing, and funding costs. Its decline may be caused by falling asset yields, sticky deposit costs, shifts in the balance-sheet mix, or stronger competition. A lower NIM is not treated as proof that a bank's overall condition has deteriorated. Rather, it is used as an indicator of pressure that may prompt management to reconsider cost, revenue, and risk decisions.

Bank technology service providers are defined as independent firms that supply financial institutions with core systems, digital-banking applications, data analytics, risk management, consulting, IT outsourcing, maintenance, or business platforms. Bank-owned technology subsidiaries, consumer-payment platforms, and investment-oriented financial groups are excluded because their funding, customer access, and governance differ materially from those of independent vendors.

Productization means turning needs shared by several customers into software platforms, modules, interfaces, and implementation methods that can be sold and deployed repeatedly. A common label is not enough: if each implementation requires substantial redevelopment, the offering remains highly customized. Recurring revenue includes maintenance, upgrades, licensing, subscriptions, platform fees, and long-term operations. What these streams share is a weaker dependence on the final acceptance of a single project.

In this article, corporate development strategy refers mainly to the choice of customers and products, the design of the revenue model, and the allocation of R&D, personnel, and compliance resources. The six firms vary greatly in size, fiscal-year convention, and business scope. For that reason, the comparison relies on business patterns and relative indicators rather than absolute revenue rankings.

Research on low interest rates and bank profitability supplies the macroeconomic setting. Using an international sample, Borio et al. (2017) found that profitability tends to rise with short-term rates and the slope of the yield curve, and that the relationship becomes nonlinear at low rate levels. Brei et al. (2020) showed that banks alter business models and intermediation activities in response, although capital, risk appetite, and market structure limit the adjustment. The International Monetary Fund (2020) likewise noted that prolonged low rates may compress NIM and encourage fee income, cost reduction, or greater risk taking. This literature helps explain why technology needs may intensify, but its principal unit of analysis remains the bank.

A separate literature addresses information-systems outsourcing and the choice between internal development and external procurement. Transaction cost economics focuses on asset specificity, uncertainty, transaction frequency, and governance costs. In their study of U.S. banks, Ang and Straub (1998) found that production-cost advantages, transaction costs, and financial slack jointly shaped outsourcing decisions. Williamson (2008) placed the same problem within the governance of outsourcing and supply-chain relationships. For bank technology, the point is that quoted vendor prices are only one part of the decision. Internal development costs, coordination, data exposure, and dependence on a supplier also matter. When a system is highly specific to the bank, external purchase may be neither cheaper nor safer than internal development.

The resource-based view turns attention from the transaction to the provider. Sustained advantage depends on resources that are valuable, rare, difficult to imitate, and difficult to replace (Barney, 1991). In bank technology, accumulated knowledge of banking processes, critical-system architecture, delivery methods, trusted customer relationships, and compliance qualifications are more defensible than a single fashionable technology. Dynamic capabilities theory adds a temporal dimension: providers must notice changes, commit to selected opportunities, and reconfigure resources as cloud computing, artificial intelligence, domestic technology substitution, and regulation evolve (Teece et al., 1997).

Three gaps remain relevant to the present comparison. First, independent providers receive less attention than banks, especially in research on productization, delivery costs, and cash conversion. Second, comparisons between China and Japan often stay at the institutional level or rely on isolated success cases rather than applying the same indicators to comparable firms. Third, discussions of narrower NIM and technology demand frequently stop before asking whether the demand becomes an external contract. A multiple-case design can shed light on these questions, although it cannot establish a universal causal model.

1.3 Theoretical Framework, Method, and Sample Selection

The framework separates three steps that are often compressed into one: conversion of external demand, choice of governance, and realization of provider capability. Pressure on NIM and profitability may increase a bank's interest in cost reduction, new revenue, and stronger risk control. That interest becomes effective external demand only when funding is available and procurement and implementation are feasible. The bank then chooses among internal development, external purchase, and a hybrid arrangement, taking account of in-house capability, asset specificity, legacy systems, procurement rules, and regulatory risk. Providers respond through customer selection, product architecture, pricing, and investment in people and organization. Transaction cost economics is used for the bank's governance choice; the resource-based view and dynamic capabilities theory are used to interpret the provider's ability to win, repeat, and adapt the work.

The expression below is not an estimable model. It is included to keep technical need distinct from effective external procurement:

$$ED_i = TD_i \times BA_i \times IF_i \tag{2}$$

In Equation (2), ED_i is the effective external technology demand of bank i, TD_i is technology-demand intensity, BA_i is budget availability, and IF_i is institutional and implementation feasibility. $0 \leq BA_i \leq 1$, $0 \leq IF_i \leq 1$. This is not an estimable structural model. It illustrates that even when technology demand is strong, external procurement may remain weak if budget availability or institutional feasibility approaches zero.

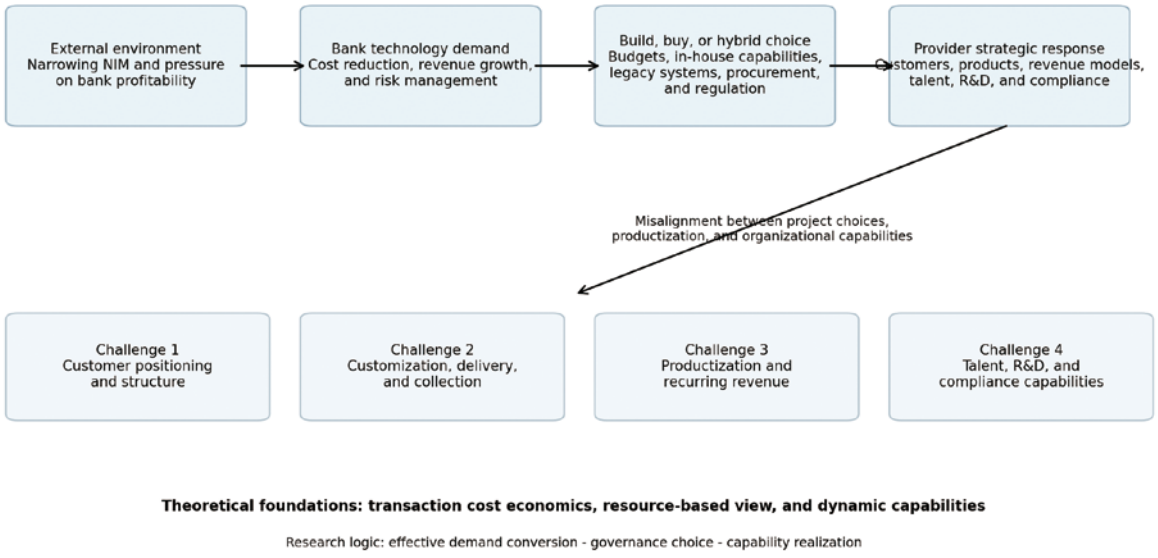

Figure 2. Theoretical Framework and the Four Challenge Chains

Source: Developed by the author based on Ang and Straub (1998), Williamson (2008), Barney (1991), and Teece et al. (1997).

A paired multiple-case design is used. The Chinese sample consists of Digital China Information Service Group (DCITS), Yusys Technologies, and Sunline; the Japanese sample consists of NTT DATA, NRI, and TIS. Each firm has a material bank-technology business, a reasonably continuous public record,

identifiable products and customer cases, and a sufficiently long operating history. The Japanese firms are much larger, so the comparison does not rank them against the Chinese firms by scale. It focuses instead on growth, margins, segment structure, platform use, and customer coverage.

The evidence base combines official statistics and regulatory documents, annual reports and earnings materials, public project information, and established research on outsourcing and strategy. Audited reports and regulatory publications are preferred to promotional materials. Where implementation results are reported only by a company, the wording is deliberately qualified. The market discussion draws on Chinese NIM statistics, Bank of Japan analysis, and Japanese IT-governance materials. Firm-level analysis uses 2023-2025 data for the Chinese companies and five fiscal years through March 2026 for the Japanese companies, together with receivables, contract assets, and operating cash flow where available. Indicators from different market definitions or business-segment classifications are not combined merely to create a longer series.

The same comparison dimensions are used throughout: positioning, customer structure, products, revenue model, technology and organizational investment, and operating outcomes. Observable evidence is presented before the problems are named; the causes and proposed responses follow in separate sections. This ordering is intended to make the argument traceable and to reduce the risk of choosing evidence after the conclusion has already been formed.

1.4 Contributions and Structure of the Article

The article's theoretical contribution is modest but specific. It inserts effective-demand conversion and build-or-buy choice between NIM pressure and vendor strategy, rather than assuming that lower margins automatically enlarge the market for financial technology. Its practical contribution is a set of four problem-cause-response chains and an assessment of when Japanese experience with shared platforms, maintenance, and reliable delivery is relevant to China.

The article is organized in five sections. After the background, theory, and method, Section 2 presents the market and firm evidence. Section 3 identifies four challenge chains, and Section 4 explains how they arise. Section 5 develops the corresponding responses, sets limits on the transfer of Japanese practices, and concludes with the study's limitations.

2. Current Development of Bank Technology Service Providers in China and Japan

2.1 Banking Environments and Technology-Service Markets in China and Japan

China's low-NIM environment reflects pressures on both sides of bank balance sheets. Competition for high-quality corporate and retail borrowers has reduced asset yields, while a larger share of time deposits and slower repricing of deposit costs have kept funding costs from falling at the same pace. Regulatory data place commercial-bank NIM at 1.54%, 1.54%, 1.53%, and 1.52% across the four quarters of 2024

(National Financial Regulatory Administration, 2025). As margins narrow, banks have stronger reasons to examine cost-income ratios, risk-capital use, and the total profitability of customer relationships instead of relying on loan growth alone.

Bank technology spending has also changed in composition. Investment that once centered on channels increasingly covers core systems, data governance, domestic technology substitution, risk management, and AI. Published estimates of the overall market are not fully comparable because institutions define IT investment and solutions differently, and some annual figures circulate only through secondary sources. The article therefore does not construct a continuous market-size series. Demand is assessed through regulatory indicators, company financial data, and identifiable projects, avoiding reverse-calculated or inconsistently defined totals.

Demand differs sharply by bank type. Large state-owned and joint-stock banks have bigger budgets, but they also employ larger technology teams and impose demanding entry standards on vendors. Outside firms are more likely to provide architecture adaptation, specialized modules, consulting, or large-scale implementation than to control the entire system. City commercial and rural commercial banks rely more on outside products and managed operations, yet their budgets, credit quality, and project-management capacity may be weaker. The resulting market is unusual: demand is real, but so are aggressive bidding, deep customization, and long collection periods.

Procurement practices reinforce this pattern. Chinese banks commonly use project tenders or framework agreements, and many vendors compete for the same work. Accepting customer-specific requirements helps providers secure revenue, but it also makes standardization harder. Because revenue recognition depends on project size, budget timing, and acceptance, reported results can be seasonal and volatile even when underlying demand remains strong.

Japan's market developed under a different combination of forces: low returns, demographic change, consolidation among regional banks, and limited growth in a mature economy. The Bank of Japan's April 2025 Financial System Report examined how a changing rate environment affected loan and deposit pricing, while the April 2026 report noted continuing lending growth alongside the need to manage the balance-sheet effects of further rate increases (Bank of Japan, 2025, 2026). Japanese experience should therefore be read as the outcome of several overlapping developments, including recent rate normalization, rather than as a single three-decade low-rate episode.

Shared systems and long maintenance relationships are prominent in Japan's financial IT market. The Financial Services Agency has documented continuing challenges in IT governance, resource allocation, and talent development at regional institutions (Financial Services Agency, Japan, 2022). Products such as NTT DATA's BeSTA, MEJAR, and PITON and NRI's THE STAR and BESTWAY show how requirements common to several institutions can be organized as shared systems, platforms, and continuing ser-

vices (NTT DATA Group Corporation, 2025; Nomura Research Institute, Ltd., 2026c).

The same market also has formidable entry barriers. Core-system switching costs are high, long-standing vendor relationships are common, and financial regulators expect robust business continuity, cybersecurity, and third-party risk management. The Financial Services Agency's cybersecurity guidelines explicitly address third-party risk and shared infrastructure (Financial Services Agency, Japan, 2024). These conditions support predictable maintenance revenue, but they can also entrench suppliers and slow organizational change.

Japanese providers consequently face two tasks that pull in opposite directions. Shared platforms are expected to lower unit costs as regional-bank consolidation reduces the customer base, yet old systems still require expensive maintenance, testing, and migration. Success depends as much on dependable operation and risk control as on technical novelty.

2.2 Sample Firms, Basic Characteristics, and Operating Performance

Table 2. Positioning and Comparative Roles of the Six Sample Firms

Country	Firm	Comparative role	Bank technology-service characteristics	Main customer or platform evidence
China	DCITS	Broad financial IT and systems integrator	Financial-industry business is important and covers core systems, data, channels, domestic technology substitution, and AI	More than 2,000 financial and quasi-financial customers served; financial-industry revenue of about RMB 4.526 billion in 2025
China	Yusys Technologies	Banking software and solutions provider	Software development, systems integration, and innovative operations; relatively high R&D intensity	High exposure to large and medium-sized banks; joint operations and revenue-sharing models
China	Sunline	Core banking and digital-finance specialist	Strong core-system capabilities and numerous domestic and overseas bank projects	More than 800 customers worldwide and experience in nearly 100 bank core-system projects
Japan	NTT DATA	Large integrated IT and shared core-system provider	Critical-system integration, shared systems, long-term maintenance, and open-platform migration	BeSTA, MEJAR, and PITON, with broad coverage of regional banks and cooperative financial institutions
Japan	NRI	Consulting and financial business-platform provider	Integration of consulting and IT, with stable platform and maintenance revenue	THE STAR, BESTWAY, and related platforms; about 60% of revenue has recurring characteristics
Japan	TIS	Payments, financial IT, and modernization provider	Financial IT, payment platforms, system modernization, and BPO/SaaS	PAYCIERGE and Xenlon modernization services; Financial IT disclosed as a separate segment

Source: Digital China Information Service Group Company Ltd. (2026), Beijing Yusys Technologies Co., Ltd. (2026), Shenzhen Sunline Tech Co., Ltd. (2026), NTT DATA Group Corporation (2025, 2026), Nomura Research Institute, Ltd. (2026a, 2026b, 2026c), and TIS Inc. (2025, 2026).

The firms are not matched by size, and the comparison does not pretend otherwise. NTT DATA's global revenue is many times larger than that of the Chinese companies, while NRI and TIS have substantial operations outside banking. The pairs are used only to create a workable analytical structure: DCITS and NTT DATA represent broad integration and large-project capability; Yusys Technologies and NRI allow comparison of software, platforms, and continuing services; Sunline and TIS illustrate specialized products and modernization. No pair is assumed to be equivalent in every respect.

Disclosure conventions create a further limitation. Chinese listed firms report by calendar year, whereas Japanese companies generally report for fiscal years ending in March. The text therefore identifies the closing date explicitly. NTT DATA calls the year ending March 2026 FY2025, while NRI and TIS describe it by the year ended March 2026; the references retain the firms' original titles. Trend tables follow each company's own convention, and absolute financial amounts remain in local currency.

Table 3. Operating Indicators of the Chinese Sample Firms in 2025

Firm	Operating revenue (RMB bn)	YoY growth	Net profit attributable to owners (RMB bn)	Net profit margin	R&D/revenue	Top-five customer share
DCITS	13.163	31.59%	0.056	0.43%	4.10%	30.20%
Yusys Technologies	3.623	-8.46%	0.432	11.92%	10.09%	41.36%
Sunline	1.958	12.76%	0.021	1.05%	7.84%	22.35%

Source: Digital China Information Service Group Company Ltd. (2026), Beijing Yusys Technologies Co., Ltd. (2026), and Shenzhen Sunline Tech Co., Ltd. (2026). Net profit margin is calculated as net profit attributable to owners of the parent divided by operating revenue.

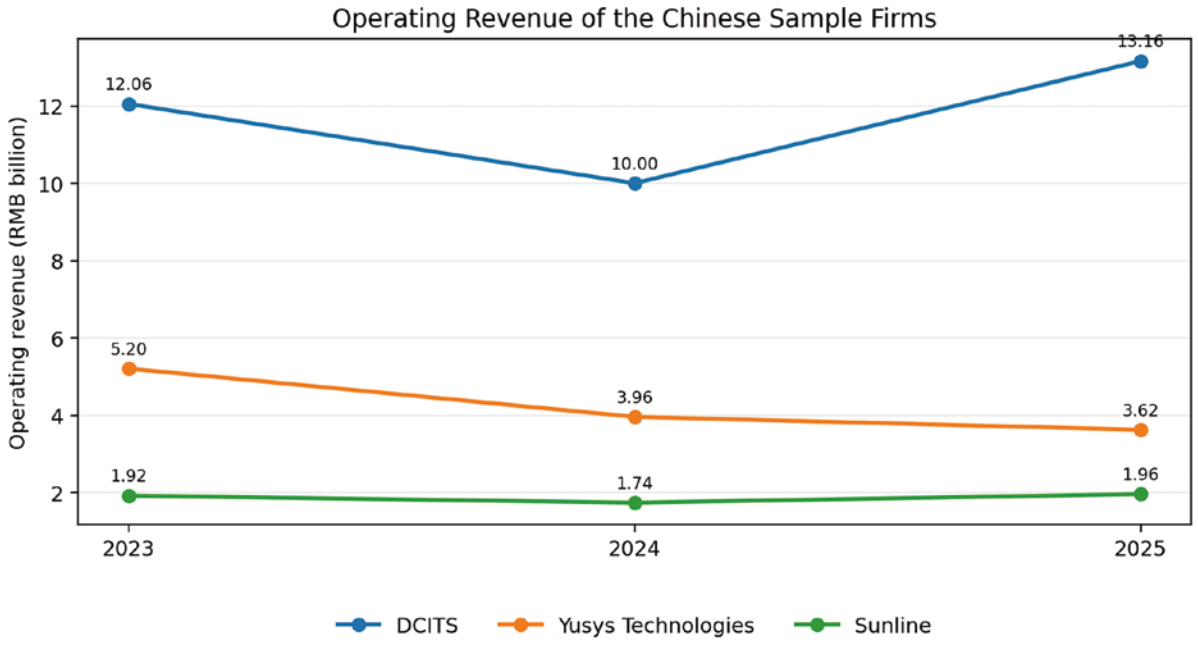

Figure 3. Operating Revenue of the Chinese Sample Firms, 2023-2025

Source: Compiled from Digital China Information Service Group Company Ltd. (2026), Beijing Yusys Technologies Co., Ltd. (2026), and Shenzhen Sunline Tech Co., Ltd. (2026).

Table 4. Revenue, Profit, and Operating Cash Flow of the Chinese Sample Firms, 2023-2025 (RMB billions)

Firm-year	Operating revenue	Net profit attributable to owners	Net cash flow from operating activities
DCITS-2023	12.056	0.207	0.235
DCITS-2024	10.003	-0.524	0.091
DCITS-2025	13.163	0.056	-0.039
Yusys Technologies-2023	5.204	0.326	0.447
Yusys Technologies-2024	3.958	0.380	0.941
Yusys Technologies-2025	3.623	0.432	0.621
Sunline-2023	1.918	0.032	–
Sunline-2024	1.736	0.019	0.120
Sunline-2025	1.958	0.021	0.148

Source: Three-year key financial indicators and cash-flow data reported in the firms' 2025 annual reports. Sunline's 2023 net cash flow from operating activities was not separately available in the verifiable materials used for this table and was therefore not estimated.

The three-year data reveal very different relationships among scale, profit, and cash. DCITS returned to growth in 2025 after a decline in 2024, but its 31.59% revenue rebound produced only RMB 56 million in net profit attributable to owners of the parent, and operating cash flow became negative. The broad project portfolio had therefore not yet translated into a comparable recovery in earnings or cash. Yusys Technologies moved in the opposite direction: revenue fell from RMB 5.204 billion in 2023 to RMB 3.623 billion in 2025, while net profit increased from RMB 326 million to RMB 432 million. Strong cash flow in 2024 and 2025 is consistent with a shift away from low-efficiency revenue, although public data do not reveal the contribution of individual projects. Sunline's revenue recovered to RMB 1.958 billion in 2025, but net profit remained near RMB 21 million, suggesting that R&D, implementation, and acceptance cycles continued to weigh on the core-system business.

Customer concentration varies just as widely. The top five customers represented 41.36% of Yusys Technologies' 2025 revenue, 30.20% at DCITS, and 22.35% at Sunline. These figures should not be read mechanically. A large bank contract is naturally capable of raising concentration, and such a customer may also bring reputation and follow-on work. The risk becomes material when delays, budget changes, or pricing pressure at a few customers feed directly into revenue and cash collection.

Table 5. Project Working-Capital Use and Cash Conversion of the Chinese Sample Firms in 2025

Firm	Accounts receivable (RMB bn)	Contract assets (RMB bn)	Project working-capital ratio (WCR)	Operating cash-flow/revenue ratio (CFR)	Top-five customer share
DCITS	1.967	2.366	32.92%	-0.30%	30.20%
Yusys Technologies	0.565	0.078	17.75%	17.15%	41.36%
Sunline	0.775	0.059	42.62%	7.56%	22.35%

Source: The firms' 2025 annual reports and the author's calculations. WCR and CFR are calculated using Equations (3) and (4). Both are cross-sectional supporting indicators and do not measure the quality of individual projects.

$$\mathrm{WCR}_i = \frac{\mathrm{AR}_i + \mathrm{CA}_i}{\mathrm{REV}_i} \times 100\% \tag{3}$$

$$\mathrm{CFR}_i = \frac{\mathrm{OCF}_i}{\mathrm{REV}_i} \times 100\% \tag{4}$$

In Equation (3), AR_i is the accounts receivable of firm i, CA_i is contract assets, and REV_i is operating revenue. WCR_i approximates the working capital tied up in project acceptance and collection. In Equation (4), OCF_i is net cash flow from operating activities, and CFR_i measures the extent to which revenue is converted into operating cash. Because the three firms have different business mixes, these indicators should be interpreted together with profit margins, customer structure, and project disclosures.

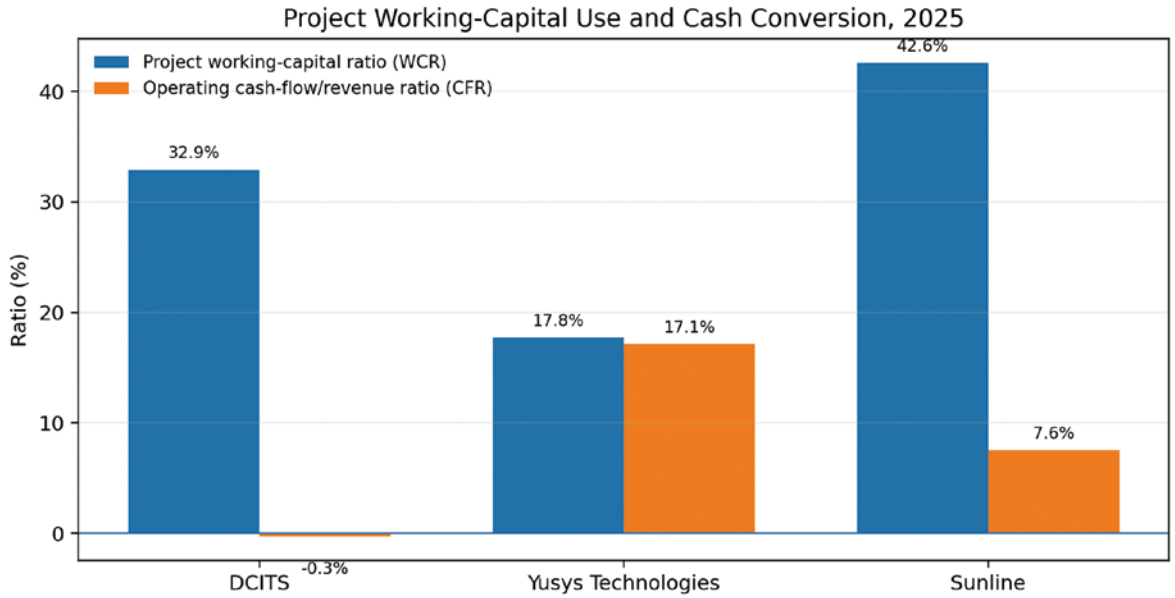

Figure 4. Project Working-Capital Use and Cash Conversion of the Chinese Sample Firms in 2025

Source: Compiled from Table 5. Underlying data are from the firms' 2025 annual reports.

The working-capital indicators add another layer to the comparison. Sunline had the highest WCR in 2025, at 42.62%, but still generated a positive CFR of 7.56%. DCITS recorded a WCR of 32.92% and a CFR of -0.30%, so the recovery in reported revenue was not matched by operating cash. Yusys Technologies combined the lowest WCR with the highest CFR. None of these ratios proves that one firm's projects are better than another's, but together they make the timing of acceptance and collection visible in a way that revenue growth alone does not.

Table 6. Operating Indicators of the Japanese Sample Firms for the Fiscal Year Ended March 2026

Firm	Operating revenue (JPY bn)	YoY growth	Comparable operating profit (JPY bn)	Margin	Financial-related disclosure
NTT DATA	5,004.614	7.9%	488.211	9.8%	Consolidated group basis; global banking revenue not separately disclosed
NRI	814.708	6.5%	156.673	19.2%	Financial IT Solutions revenue 405.152; segment operating profit 74.255; margin 18.3%
TIS	596.479	4.3%	76.229	12.8%	Financial IT revenue 98.730, down 1.5%; segment operating profit 12.729; margin 12.9%

Source: NTT DATA Group Corporation (2026), Nomura Research Institute, Ltd. (2026b), and TIS Inc. (2026). NTT DATA and TIS use consolidated operating profit. For NRI, the table uses the company's separately disclosed reference profit excluding impairment and related factors to indicate continuing operating performance, while actual operating profit is reported in the text. The profit definitions are not fully comparable and should not be ranked directly.

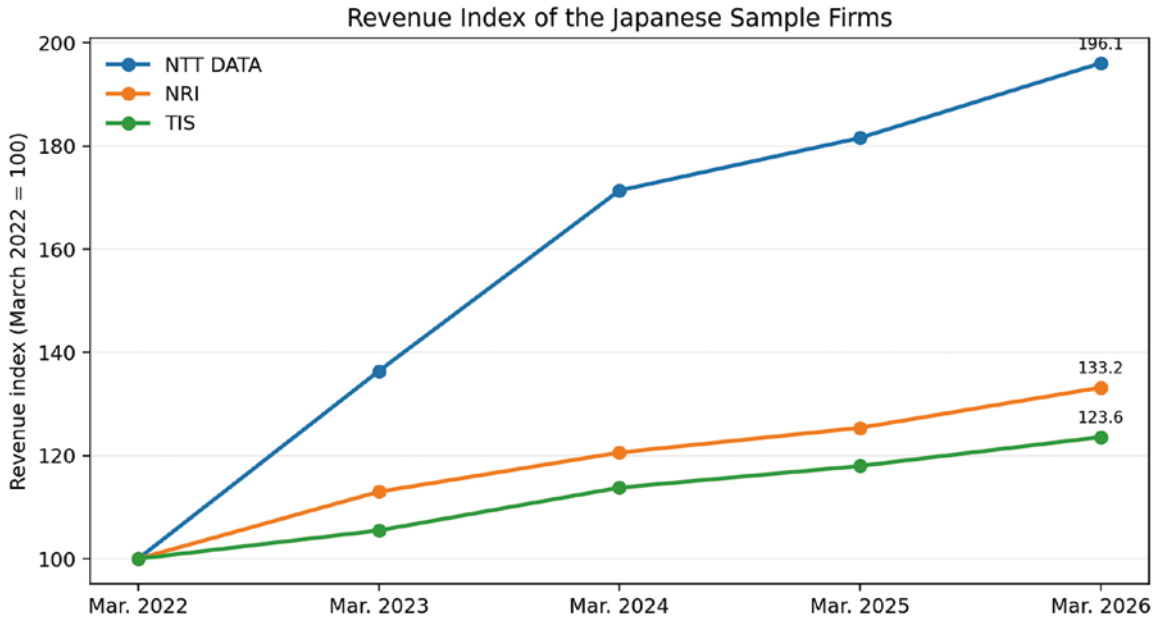

Figure 5. Revenue Index of the Japanese Sample Firms (March 2022 = 100)

Source: Calculated by the author from NTT DATA Group Corporation (2026), Nomura Research Institute, Ltd. (2026a, 2026b), and TIS Inc. (2025, 2026), with revenue for the year ended March 2022 set equal to 100.

The indexed series shows that NTT DATA grew fastest over the five years. Its revenue for the year ended March 2026 was about 1.96 times the March 2022 level, compared with roughly 1.33 times for NRI and 1.24 times for TIS. That difference must be interpreted cautiously because NTT DATA's expansion also reflects acquisitions, changes in consolidation, and international growth. The steadier paths of NRI and TIS are more informative for examining how platforms, maintenance, and large-project cycles operate in a mature domestic market.

NRI reported JPY 814.708 billion in revenue and JPY 58.273 billion in actual operating profit for the year ended March 2026. Because impairment and related items affected the reported figure, the company also

presented reference profit of JPY 156.673 billion, equivalent to a 19.2% margin. Within the group, Financial IT Solutions generated JPY 405.152 billion in revenue and JPY 74.255 billion in segment operating profit, a margin of 18.3% (Nomura Research Institute, Ltd., 2026b). NRI describes business platforms, system management and operations, and enhancement development as the basis of a stable revenue structure, with recurring business contributing about 60% of total revenue (Nomura Research Institute, Ltd., 2026c). This mix dampens the effect of individual project cycles, although the gap between actual and reference profit is a reminder that platform and overseas businesses still carry asset-quality and execution risk.

TIS increased consolidated revenue by 4.3% and operating profit by 10.4% in the fiscal year ended March 2026. Its Financial IT segment, however, recorded a 1.5% decline in revenue while operating profit rose by 3.3% (TIS Inc., 2026). The company attributed part of the revenue movement to the end of peak phases in several large projects. Better cost control and service revenue softened the effect on profit, but did not remove the underlying project cycle. NTT DATA reported consolidated revenue of about JPY 5.00 trillion and an operating margin of 9.8%, with growth arising from Japanese operations, overseas business, and data-center-related transactions (NTT DATA Group Corporation, 2026). Neither group's overall growth should therefore be treated as a direct measure of organic expansion in bank technology services.

2.3 Customer Structure, Market Positioning, and Business Models

The Chinese firms all serve several tiers of banks, but they have developed different centers of gravity. DCITS combines a broad solution portfolio with large-scale implementation across financial and quasi-financial customers. Yusys Technologies reported that large commercial banks, joint-stock banks, and policy banks contributed more than half of 2024 revenue, and its 2025 customer concentration confirms the continuing importance of major-bank projects. Sunline is more specialized in bank core systems and has extended that expertise to city commercial banks, rural commercial banks, and overseas institutions.

Major banks bring large contracts, demanding technical standards, and valuable reference cases. They also require extensive presales work, adaptation, and compliance effort and usually have considerable bargaining power. Smaller-bank projects are more modest in size and may be easier to replicate, but these customers often combine a stronger need for vendors with weaker budgets and project capability. The strategic question is therefore not how widely a firm can diversify its customers, but whether its customer mix fits the level of standardization in its products.

Relationships are generally more stable in the Japanese sample. NTT DATA's business report describes shared core systems and open-system frameworks used over long periods by regional and other financial institutions (NTT DATA Group Corporation, 2025). NRI similarly turns common requirements into multi-customer platforms. BESTWAY, THE STAR, and related services support recurring operations, enhancement development, and maintenance, which together account for roughly 60% of revenue (Nomura Research Institute, Ltd., 2026c). Continued growth in Financial IT revenue through March 2026

suggests that the combination can provide a comparatively stable base.

TIS also has deep relationships in payments and financial IT, although the timing of large credit-card projects remains visible in segment revenue. Its stated shift from one-off integration toward services and modernization reflects a practical constraint of mature markets: when the pool of new customers is limited, growth depends increasingly on expanding the value of existing relationships.

Table 7. Comparison of Products and Revenue Models in the Chinese and Japanese Samples

Dimension	Main pattern in the Chinese sample	Main pattern in the Japanese sample	Comparative implication
Core systems and infrastructure	Many core-system, domestic substitution, and distributed-architecture projects with deep customer adaptation	Mature shared core systems, open-platform migration, and long-term maintenance	China offers greater growth potential; Japan has deeper experience in sharing and stable operations
Digital banking, data, and risk management	Broad product lines, often customized to individual bank requirements	Platform services combined with consulting and continuous functional enhancement	A common product name must be distinguished from genuinely repeatable sales
Revenue model	Project development, systems integration, and acceptance-based revenue remain important; maintenance and innovative operations are limited	Higher shares of platform use, enhancement development, system management, and operations outsourcing	Recurring revenue can reduce single-project volatility but requires long-term governance
Implementation model	Tendering, negotiated sales, customization, and on-site implementation are common	Long vendor relationships, shared centers, and delivery of large critical systems	China is more flexible but more price competitive; Japan is more stable but has higher switching costs
Technology modernization	Rapid domestic substitution, cloud-native development, and AI adoption	Mainframe migration, open systems, and legacy modernization	Both markets must balance innovation with business continuity

Source: Annual reports, business reports, integrated reports, and earnings materials of the six firms. See the reference list for details.

Yusys Technologies illustrates the gradual, rather than complete, move away from project income. In 2023, software development and services represented 63.84% of revenue, systems integration 33.05%, and innovative operations 3.02%. Innovative operations carried a relatively high gross margin, but the business was still small; its share reached 4.66% in 2025. Chinese providers are experimenting with operations and revenue-sharing arrangements, yet project delivery remains the dominant commercial model.

DCITS earned about RMB 4.526 billion from the financial industry in 2025 through financial software, systems integration, and digital-intelligence services. Its sizeable receivables and contract assets underline how strongly broad integration work depends on delivery, acceptance, and collection. Sunline is more concentrated on core banking and digital-finance products. That specialization gives it a clearer product base, but a core-system replacement still requires lengthy adaptation, testing, and implementation.

NRI provides the clearest example of a platform-oriented revenue model. It classifies about 60% of revenue as stable recurring business, including system management and operations, business platforms, and enhancement development. Financial IT Solutions revenue reached JPY 405.152 billion in the year ended March 2026 (Nomura Research Institute, Ltd., 2026b, 2026c). NTT DATA's BeSTA, MEJAR, and PITON similarly combine common banking functions with shared operations and open-system migration (NTT DATA Group Corporation, 2025). TIS has built asset-based and modernization services around PAYCIERGE and Xenlon (TIS Inc., 2025).

The economic outcome of an individual project can be represented as follows:

$$\Pi_j = R_j - C_{\mathrm{std},j} - C_{\mathrm{cus},j} - C_{\mathrm{com},j} - C_{\mathrm{coo},j} - K_{\mathrm{wc},j} \tag{5}$$

In Equation (5), Π_j is the economic profit of project j, R_j is contract revenue, $C_{\mathrm{std},\,j}$ is standard delivery cost, $C_{\mathrm{cus},\,j}$ is customized-development cost, $C_{\mathrm{com},\,j}$ is compliance and security cost, $C_{\mathrm{coo},\,j}$ is cross-organizational coordination cost, and $K_{\mathrm{wc},\,j}$ is the working-capital cost caused by delayed collection. Even a high-value customized project may create limited economic value when nonstandard costs are excessive.

2.4 Technology Investment, Organizational Capabilities, and Representative Cases

All three Chinese firms report investment in cloud-native systems, AI, and domestic technology substitution. R&D expenditure in 2025 equaled 4.10% of revenue at DCITS, 10.09% at Yusys Technologies, and 7.84% at Sunline (Digital China Information Service Group Company Ltd., 2026; Beijing Yusys Technologies Co., Ltd., 2026; Shenzhen Sunline Tech Co., Ltd., 2026). These percentages show commitment of resources, not the commercial success of the resulting work. Platform adoption, repeat implementation, and recurring revenue are needed to judge whether R&D has become a product asset.

DCITS's strength lies in broad financial IT capability and the ability to implement large core-system, data-governance, and infrastructure projects. The same breadth can make priority setting difficult. Yusys Technologies maintains an extensive bank-software portfolio and has tested technology-operation revenue sharing and overseas digital-bank operations. Sunline has accumulated experience from nearly one hundred core-system projects and has developed cloud-native core platforms and overseas modernization solutions. Its challenge is less a shortage of project knowledge than the conversion of that knowledge into modules that can be reused without extensive redevelopment.

MEJAR provides a concrete example of NTT DATA's shared-system and modernization approach. The 2024 migration to an open system used PITON as a central framework while preserving the stability required of a critical banking system (NTT DATA Group Corporation, 2025). NRI's BESTWAY and related platforms obtain scale from common use across institutions, and the stability of the firm's revenue mix suggests that platform services and maintenance reinforce one another (Nomura Research Institute, Ltd., 2026c). TIS approaches the same problem through Xenlon Migrator and a combination of payment

services and systems-development capability (TIS Inc., 2025).

The cases suggest that technology spending becomes economically durable only when it is embodied in reusable assets, dependable delivery methods, and relationships that continue after implementation. Public reports can document products and projects, but they rarely permit independent verification of implementation outcomes. Company claims are therefore used as descriptive evidence, not as proof of causation.

3. Four Major Challenges Facing the Chinese and Japanese Sample Firms

3.1 Customer Positioning and Customer-Structure Risk

Customer positioning becomes a problem when growth is pursued without a clear ordering of markets. A Chinese provider may serve large banks, joint-stock banks, regional institutions, non-bank finance companies, and overseas customers while also investing in core systems, data, marketing, payments, domestic technology substitution, and AI. Such breadth can diversify demand, but it can also leave sales and R&D without a common priority. The mismatch is most visible when a firm does not decide which customers merit deep customization and which should be served through a standard platform.

Concentration among major customers is one part of the same problem. In 2025, the top five customers accounted for 41.36% of Yusys Technologies' revenue, 30.20% at DCITS, and 22.35% at Sunline. Large banks bring revenue and credibility, but a delayed project, a budget revision, or a change in procurement pricing can affect the provider materially. Regional-bank customers are more dispersed, yet individual projects may be smaller, requirements more fluid, and collection slower. The evidence in Table 5 also shows that concentration and working-capital intensity do not move together mechanically. Contract terms, project type, and cash flow matter as much as the headline share.

In Japan, customer-structure risk takes a different form. Long relationships with major financial institutions support renewals and maintenance at NTT DATA, NRI, and TIS, but consolidation among regional banks and a shrinking domestic customer base limit new-account growth. Established relationships may also encourage continued investment in existing systems and make expansion into new platforms, industries, or overseas markets slower.

The central issue is therefore neither concentration nor dispersion in isolation. It is whether the customer portfolio fits the provider's products, margins, and delivery capacity. Ideally, the assessment would combine customer concentration, revenue by bank type, project margin, collection time, renewal, and reuse. Public disclosures cover only part of that information, so the conclusions here are necessarily cautious.

3.2 Dependence on Customized Projects and Pressure from Delivery and Collection

Customized delivery is the second challenge. Core banking and data systems are highly specific to each institution: account structures, processes, risk rules, historical data, and peripheral interfaces differ

substantially. Vendors often promise broad adaptation in order to win contracts. The result can be longer implementation, more labor, repeated changes in scope, and a growing gap between the original bid and the work actually required.

Receivables, contract assets, and operating cash flow provide indirect evidence of that pressure. In 2025, DCITS reported about RMB 4.333 billion in combined receivables and contract assets, a WCR of 32.92%, and a CFR of -0.30%. Sunline's WCR was 42.62% and its CFR 7.56%, while Yusys Technologies recorded 17.75% and 17.15%, respectively. The figures show that contract value, accounting profit, and cash collection occur on different timetables. None is a stand-alone measure of project quality, but the combination of high working-capital use, weak cash conversion, and margin pressure warrants attention to acceptance rules, change orders, and payment terms.

Large-project cycles are also visible in Japan. TIS's Financial IT revenue fell by 1.5% in the fiscal year ended March 2026, even as segment operating profit rose by 3.3%. The end of peak development phases reduced revenue, while cost control and service income softened the effect on profit (TIS Inc., 2026). NTT DATA and TIS also carry the cost of legacy migration and business continuity. Old-system knowledge, parallel operation, and extensive testing make these projects expensive even when they are well managed.

Customization is not undesirable in itself. A demanding project for a strategically important bank can deepen the relationship and create a barrier to entry. The economic problem begins when custom requirements are not converted into reusable modules, when project selection is based mainly on contract size, when payment milestones lag behind delivery risk, or when the provider absorbs repeated customer changes without compensation.

3.3 Insufficient Productization and Recurring Revenue

The third challenge is the weak conversion of project knowledge into products and recurring income. Chinese providers often present extensive product catalogs, but a common name does not guarantee a common implementation. If every bank requires a redesigned data model, process, and interface, R&D costs cannot be spread across customers and growth continues to depend on additional project staff.

Yusys Technologies' innovative operations rose from 3.08% of revenue in 2024 to 4.66% in 2025, but remained small beside software development and systems integration. Sunline has a stronger product base in core banking, although a full core replacement will always require substantial implementation. DCITS operates across a broad financial-technology portfolio. For all three, the key question is whether experience gained in one project becomes a platform, component, or method that lowers the cost of the next.

Japanese providers have a more developed recurring-revenue base, but stability introduces a different risk. Around 60% of NRI's revenue is recurring, and Financial IT Solutions continued to grow through March 2026. NTT DATA operates large shared systems and maintenance businesses, while TIS grew profit faster

than revenue even though Financial IT remained exposed to project peaks. These models reduce volatility, yet they can also tie organizations to established architectures and customer networks. A platform that is not renewed through cloud, data, and AI capabilities can turn a stable franchise into path dependence.

Productization and recurring revenue are best understood as two stages of the same process. Without reusable assets, licensing, subscription, and platform pricing are difficult to sustain. Without continuing service relationships, a standardized product may still produce only a one-time sale. Relevant evidence therefore includes reuse, platform-customer numbers, maintenance and subscription income, renewals, and the conversion of R&D into commercial offerings.

3.4 Pressure on Talent, R&D Organization, and Compliance Capabilities

The final challenge concerns the organization of knowledge, R&D, and compliance. Bank projects require people who understand accounting, clearing, credit, risk, regulation, and complex architecture at the same time. That combination is developed through experience rather than short training. During rapid growth, firms may add implementation staff while sales, delivery, and R&D continue to pursue different objectives. Sales seeks contracts, delivery seeks a timely launch, and R&D seeks a reusable platform. Without shared measures, immediate customer demands usually win.

R&D intensity is therefore an incomplete indicator. Yusys Technologies' high ratio must eventually be reflected in product revenue and profitability, particularly as overall revenue has declined. Sunline's capitalization of development expenditure needs to be read alongside project progress, impairment testing, and actual reuse. DCITS must allocate R&D across a wider set of financial and non-financial activities. A higher percentage is evidence of spending, not proof of superior innovation.

Japanese firms face a related, but older, workforce problem: the pool of specialists familiar with legacy systems is declining, while recruitment of new technical talent remains difficult. The Financial Services Agency has identified IT staffing and development problems at regional financial institutions and shinkin banks (Financial Services Agency, Japan, 2022). At the same time, cloud services, generative AI, and extended supply chains broaden cybersecurity and outsourcing risk. Providers now need capabilities in data classification, access control, model risk, disaster recovery, and business continuity as part of ordinary delivery.

Compliance is not merely overhead. It determines whether a provider can enter critical bank systems and whether a customer will entrust it with long-term operations. When testing, documentation, and security controls are rebuilt separately for every project, costs rise without creating a reusable advantage. The stronger approach is to turn those requirements into common baselines, tools, and evidence that can be applied across products.

Table 8 summarizes the four challenges and their main evidence.

Table 8. Four Challenge Chains and Their Main Evidence

Challenge chain	Chinese sample	Japanese sample	Main evidence and limits of inference
1. Customer positioning and structure	Broad business coverage; high top-five customer shares at some firms; uneven project quality among regional-bank customers	Stable long-term customers but limited new-customer growth in a mature domestic market	Customer shares, customer types, renewals, and project contributions; public data do not reveal customer-level profit
2. Customization, delivery, and collection	Customized projects, receivables and contract-asset use, and seasonal revenue	Large-project cycles, legacy migration, and long-term maintenance costs	Revenue, margins, receivables, contract assets, and project announcements; no single indicator is conclusive
3. Productization and recurring revenue	Operations, subscription, and platform revenue remain limited overall; repeatability varies	Recurring revenue is more mature but may create path dependence and slower innovation	Revenue categories, platform customers, product reuse, and R&D conversion
4. Talent, R&D organization, and compliance	Shortage of hybrid talent, weak coordination among R&D, sales, and delivery, and repeated compliance work	Shortage of legacy specialists, rising labor costs, and stricter third-party risk requirements	Personnel structure, R&D investment, risk disclosures, security certification, and regulatory requirements

Source: Compiled from the tables in Section 2, the risk disclosures of the six firms, and Financial Services Agency, Japan (2022, 2024).

The four challenges reinforce one another, although the responses in Section 5 are presented with a primary one-to-one correspondence. Customer positioning determines the projects a firm is willing to accept; project selection shapes customization and cash flow; productization determines whether project work can become recurring revenue; and talent, R&D, and compliance make the other three adjustments possible. Section 4 separates the cause chains for clarity before bringing them together in an integrated mechanism.

4. Causes of the Four Challenges

4.1 Causes of Customer Positioning and Customer-Structure Risk

Customer-positioning risk begins with the sharp segmentation of bank demand. Large banks require highly secure and complex systems but can perform much of the work internally. Smaller banks need more outside support, yet are more sensitive to price and implementation time. A vendor that uses the same sales logic across these groups may over-customize for major banks and still fail to control unit costs in the smaller-bank market.

Procurement and reputation then pull providers toward landmark customers. A major-bank project can improve a firm’s standing in later tenders and strengthen its brand, even when the margin is thin or the payment terms are demanding. Repeated pursuit of such contracts raises concentration and can allow a small group of customers to shape the product roadmap and absorb R&D resources.

The broader market environment reinforces the tendency in different ways. Rapid growth in China

encourages vendors to add product lines and customer industries, while Japan's mature market favors closed networks built around long relationships and shared systems. Without a customer-evaluation method that considers margin, collection, reuse, and strategic value, these market structures are passed directly into the firm's portfolio.

4.2 Causes of Customization, Delivery, and Collection Pressure

Customization pressure is rooted in the asset specificity of bank systems. Core platforms are closely tied to organizational structures, products, accounting rules, risk controls, and historical data, so a standard package cannot simply replace the existing system. Transaction cost economics predicts that high specificity and uncertainty leave contracts incomplete and increase coordination and change costs after signing (Ang & Straub, 1998; Williamson, 2008). External procurement therefore shifts some work to a vendor, but does not remove the need for extensive adaptation.

Bank procurement practices add to the problem. Budgets are approved by year and by project, tender documents list functions in detail, and payment is often tied to milestones or final acceptance. Vendors may bid aggressively and underestimate the complexity required to win. Once delivery begins, changing requirements, interface dependencies, and coordination across bank departments expand the scope. Back-loaded payment terms then turn the delivery gap into contract assets and receivables.

Legacy systems are a common source of cost in both countries, although the technical context differs. Chinese banks are replacing domestic and distributed architectures, while Japanese banks are opening and modernizing mainframe environments and maintaining aging programs. Migration must preserve data integrity, continuous operation, and regulatory traceability, so testing is far more demanding than in ordinary enterprise software. Japanese shared systems distribute part of the cost, but they also require negotiation over common versions and institution-specific exceptions.

Internal management can magnify these external pressures. Weak project screening, unclear boundaries between product and delivery work, poor reuse of project knowledge, and uncertain authority for project managers all increase the chance of overruns. When sales performance is measured mainly by contract value, a firm has an incentive to accept projects with low margins, high change risk, and unfavorable payment terms.

4.3 Causes of Insufficient Productization and Recurring Revenue

Productization fails when customer incentives and vendor incentives point in the same short-term direction. Banks often describe their processes as unique and ask for dedicated functions; vendors seeking rapid revenue respond to the request rather than challenge it. Over several projects, R&D teams may solve similar problems repeatedly without producing a shared industry model, a standard interface, or a configuration tool.

Recurring services also face an institutional mismatch. Bank budgeting, asset management, and procurement are designed more readily for projects, licenses, and maintenance contracts than for cloud platforms, usage-based fees, or joint operations. Questions about data boundaries, accounting treatment, and long-term service risk make customers cautious. A vendor cannot create a recurring model by pricing alone; the bank must also accept service-level agreements, continuing access arrangements, and clear exit terms.

From a resource-based perspective, genuine productization rests on accumulated banking knowledge, platform architecture, implementation methods, and trusted customer relationships (Barney, 1991). General-purpose technical capability is insufficient if the firm lacks business models and long-term operating experience. Japan's shared platforms were built through years of coordination and standard setting, not by moving a collection of bespoke applications to the cloud.

Dynamic capability can be weak at either extreme. Stable maintenance income may reduce the incentive to change a successful architecture, while a rapidly growing Chinese provider may spread investment across every fashionable technology. In both cases, the firm notices opportunities but does not make a disciplined choice about where to reconfigure resources.

4.4 Talent, R&D Organization, Compliance Pressure, and the Integrated Mechanism

Bank technology work depends unusually heavily on combined knowledge and accumulated experience. A core-system specialist must understand business rules, regulation, and architecture, and that knowledge cannot be replaced quickly. During expansion, firms often add developers and implementation staff, increasing fixed cost while leaving project knowledge scattered across teams and individuals.

Misalignment among sales, delivery, and R&D further weakens the return on that investment. R&D seeks a common platform, sales needs a quick response to the customer, and delivery carries the deadline and satisfaction risk. Without strong product managers, architecture governance, and shared performance measures, standard modules are modified repeatedly and project experience fails to accumulate.

Compliance pressure follows from the critical nature of banking and the sensitivity of financial data. Banks must control the risks created by outsourcers, cloud providers, and subcontractors, and vendors must meet requirements for cybersecurity, access control, auditability, business continuity, and incident reporting. The Financial Services Agency's cybersecurity guidelines explicitly emphasize third-party risk (Financial Services Agency, Japan, 2024), while Chinese bank data and outsourcing requirements impose comparable barriers for critical-system providers.

Compliance spending has both a short-term cost and a long-term strategic value. Testing, documentation, and control design increase the cost of a project today. If the work remains project-specific, the cost is repeated. If it is converted into security baselines, certifications, and automated evidence, the same investment can become a trusted capability that supports standard products and continuing services.

Taken together, the four cause chains form a single operating mechanism.

NIM pressure raises demand inside banks for efficiency, new revenue, and stronger risk control, but only budgets and institutional feasibility turn that demand into an external opportunity. Banks then choose internal development, procurement, or a hybrid according to their own capabilities, the specificity of the system, and regulatory risk. Vendors make customer and product choices in response. The four challenges appear when those choices are not aligned with project economics, productization, and organizational capability.

The relationships also run in reverse. Customized projects absorb labor and working capital, leaving less cash and attention for platform R&D. Weak productization keeps the firm dependent on large individual contracts, which increases concentration. Gaps in talent or compliance block entry into higher-value continuing services. By contrast, stable platform and maintenance revenue can finance R&D, support specialist development, and reduce dependence on any one project.

NIM is thus a background pressure, not a direct cause of vendor weakness. It changes the balance between banks' need for technology and their willingness or ability to pay for it. Market structure, procurement, legacy systems, regulation, and firm capability determine the outcome. Strategic responses therefore have to extend beyond calls for more bank IT spending; providers must change the customers they pursue, the way they deliver, the assets they reuse, and the capabilities they institutionalize.

Table 9. Levels of Causes for the Four Challenge Chains

Challenge chain	Bank-demand causes	Institutional and market causes	Internal firm causes
Customer positioning and structure	Differences in bank type, budget, and in-house capability	Demonstration effects of major clients, intense competition in China, and relationship barriers in Japan	Customer evaluation focused on contract value and mismatch between customers and products
Customization, delivery, and collection	Differences in processes and legacy systems and high critical-system risk	Project budgeting, tendering, acceptance, and outsourcing rules	Weak scope control, limited module reuse, and weak management of payment terms
Productization and recurring revenue	Banks emphasize customization and remain cautious about subscriptions and cloud services	Constraints from data, procurement, and long-term service rules	R&D pulled by projects, weak platform-operation capabilities, and path dependence
Talent, R&D organization, and compliance	Need for hybrid talent and highly reliable services	Talent supply, cybersecurity, and third-party risk requirements	Misaligned departmental goals and weak knowledge accumulation and compliance productization

Source: Developed by the author from the six cases and the theoretical framework.

5. Strategic Responses and Conclusions

5.1 Customer Segmentation and Portfolio Optimization

The first response is a more disciplined approach to customer segmentation. A provider should choose target banks by reference to its own products and delivery capability, not simply assume that every institution is a potential customer. Large banks are the natural market for complex integration, architecture consulting, high-security modules, and long maintenance relationships. Joint-stock banks often place greater weight on risk pricing, wealth management, transaction banking, and data applications. Regional banks need products that are affordable, quick to deploy, and suitable for sharing.

Customer decisions should be based on life-cycle value rather than contract size alone. Expected margin, collection time, reuse, renewal, reference value, and resource consumption all matter. A landmark project may justify up-front investment, but management should specify what standard modules or follow-on services the project is expected to create. For regional banks, configurable products, shared platforms, and joint procurement can lower unit cost without turning every contract into a low-margin customization exercise.

Portfolio optimization is not the same as reducing the top-five customer ratio at any cost. A strong long-term customer can be a valuable source of stable revenue and learning. The risk arises when one client controls both the product roadmap and the provider's cash flow. Internal warning thresholds can therefore cover the customer's share of revenue, receivables, and R&D resources, while projects with persistent low margins, repeated scope changes, or poor collection are gradually exited.

Japan's experience is useful for customer-success and renewal practices, but not as a justification for closed networks. Long relationships should rest on service quality and transferable products, with open interfaces and a credible customer exit route.

5.2 Modular Delivery and Stronger Project and Cash-Flow Management

Delivery should be organized in three layers: a common platform, configurable modules, and genuinely customized interfaces. The platform carries the architecture and security baseline; most differences should be handled through parameters, rules, and workflow configuration. Custom code should be reserved for legacy connections and business features that cannot reasonably be standardized. A clear ceiling on customization, together with explicit pricing for out-of-scope changes, makes that boundary enforceable.

Technical progress and payment milestones should move together. For a large project, acceptance can be divided into requirements confirmation, prototype validation, module completion, data migration, parallel operation, and final launch. This avoids placing all revenue and cash at the final stage. Where customer credit is weaker or requirements remain unstable, advance and milestone payments should carry a larger share of the contract.

Post-project review is equally important. Actual and budgeted person-days, change frequency, collection days, defects, and reusable assets should be compared after completion and fed back into customer and product decisions. A project category that repeatedly produces losses or delay should be withdrawn from price competition rather than subsidized with revenue from the next contract.

NTT DATA's work on open shared core systems and TIS's legacy modernization show the value of repeatable migration frameworks, tools, and parallel validation (NTT DATA Group Corporation, 2025; TIS Inc., 2025). Chinese providers can adopt the method and asset-building logic, but the implementation must reflect domestic technology substitution, data localization, and local procurement practice.

5.3 Focus on Core Products and Increase Recurring Revenue

The third response is to reduce product breadth where there is no clear customer base or reuse potential. R&D should be concentrated in one or two domains where banking knowledge creates a real barrier. Core products should be judged by adoption, configuration ratio, implementation time, reuse, maintenance cost, and recurring income rather than by the length of the feature list.

Recurring revenue can be built incrementally from existing customers. Chinese procurement rules may not support an immediate move to multi-year SaaS contracts, but annual maintenance, version upgrades, regulatory-rule packages, security services, data-quality services, and module subscriptions are already closer to familiar purchasing practices. These services allow the provider to develop renewal and service-level management before moving into broader cloud or joint-operation models.

A platform also requires governance, not just common code. Shared systems for regional banks need clear rules on data separation, access rights, version decisions, disaster recovery, and exit. Otherwise, multi-customer demand merely becomes centralized customization. Industry bodies, cloud providers, and security institutions can support interface and compliance standards, but the provider should retain control of its core business models and customer knowledge.

NRI's revenue structure demonstrates how platforms, enhancement development, and maintenance can support one another (Nomura Research Institute, Ltd., 2026c). The lesson for Chinese firms is to standardize common demand and charge for continued improvement, not to reproduce Japan's long-term binding relationships.

5.4 Build Integrated Talent, R&D, and Compliance Capabilities

The fourth response is organizational. Banking specialists, product managers, architects, delivery managers, and security and compliance personnel need to participate in the same product process. Product managers should identify common requirements and defend the boundary between configuration and customization. Architecture governance should preserve platform consistency, while delivery teams feed operational experience back into the roadmap. Performance measures should combine revenue with

margin, collection, reuse, and renewal so that departments are not rewarded for conflicting outcomes.

Knowledge also needs to move from individuals into the organization. Repositories of business rules, data models, interfaces, migration scripts, test cases, and incident reviews make experience reusable. Staff rotation can develop professionals who understand both banking and technology. For legacy systems in particular, formal knowledge-transfer arrangements and automation tools reduce dependence on a small number of specialists.

R&D spending should follow an explicit product roadmap. Project R&D and platform R&D need separate accounting and separate expectations; platform investment should be linked to adoption, reuse, and revenue. Capitalized development expenditure requires continuing review of economic benefits and impairment risk rather than use as a short-term earnings device. AI investment is more credible when tied to measurable applications such as requirements analysis, testing, knowledge retrieval, risk monitoring, or customer service.

Compliance can itself be designed as a reusable capability. Common baselines should cover data classification, identity and access management, secure development, model risk, third-party management, disaster recovery, and incident response, with automated evidence where possible. Certifications and a history of stable operation strengthen qualification for major banks and make long-term maintenance and platform services easier to sell.

The relevance of Japanese practice varies across these four strategies, and Table 10 separates direct lessons from those that require adaptation.

Table 10. Classification of Japanese Practices by Transferability

Category	Japanese practice	Conditions for use in China	Assessment
Directly transferable	Priority for critical-system stability, rigorous testing, long-term maintenance, knowledge accumulation, and business-continuity management	Does not depend on unique institutions and represents a general capability for critical-system services	Should be adopted directly and converted into standard methods
Transferable with adaptation	Shared core systems, business platforms, multi-institution operations, and recurring charges	Requires common interfaces, data isolation, version governance, coordinated procurement, and exit mechanisms	Suitable for regional banks or similar institutions, but requires Chinese governance arrangements
Transferable with adaptation	Modernization tools and open-platform migration	Must fit domestic technology substitution, Chinese databases, regulation, and the local cloud ecosystem	Adopt the methodology and assetization of tools rather than copying the technology stack
Not directly transferable	Fixed long-term vendor relationships, closed customer networks, and highly lock-in-oriented contracts	China has different competition and procurement systems, and excessive lock-in could reduce bank choice	Vendor binding should not replace product and service competitiveness

Source: Developed from NTT DATA Group Corporation (2025), Nomura Research Institute, Ltd. (2026c), TIS Inc. (2025), and institutional differences between China and Japan.

The most useful Japanese lesson is not a particular contract form or a fixed vendor relationship. It is the mutually reinforcing combination of product platforms, continuing maintenance, and risk governance. China's market is larger, more heterogeneous, and subject to faster technology substitution, so direct imitation would be unwise. Chinese providers can draw on Japanese experience in standardization and continuing service while retaining competition, open interfaces, and credible exit arrangements.

The four research questions can now be answered in light of the case evidence, before turning to the limits of the analysis.

For RQ1, Chinese commercial banks' NIM fell from 2.08% at the end of 2021 to 1.42% at the end of 2025. This increased the value of cost reduction, revenue diversification, and risk management, but budgets, internal development, procurement rules, and regulation continued to filter external purchasing. The Chinese sample shows sharp differences in revenue, profit, customer concentration, and cash conversion, particularly in working capital tied to projects. All three Japanese firms expanded revenue over five years, though the sources of growth differed. NRI benefited from platforms and continuing services, TIS remained sensitive to the timing of large Financial IT projects, and NTT DATA also drew growth from overseas and data-center activities. Customized delivery and cash conversion are more visible concerns in the Chinese cases; shared platforms, maintenance, and limited growth in a mature market are more prominent in Japan.

RQ2 is best summarized through four connected challenge chains: customer positioning and customer structure; customization, delivery, and collection; productization and recurring revenue; and talent, R&D organization, and compliance. The value of this arrangement is practical. It keeps observable evidence, causal explanation, and strategic response connected instead of treating them as separate lists.

For RQ3, the cases do not support a direct sequence from narrower NIM to greater external demand. Lower margins can intensify technology needs while simultaneously tightening budgets. Internal capability, procurement, legacy systems, and regulation determine how much demand reaches vendors. The problems observed in the six firms therefore reflect the interaction of bank demand, institutional conditions, and provider capability.

For RQ4, Japan provides direct lessons in system stability, continuing maintenance, and the accumulation of operating knowledge. Shared systems, business platforms, and modernization tools are relevant only after adjustment to Chinese procurement, data, and technology conditions. Dependence on a fixed supplier and closed customer networks should not be transferred.

Several limitations qualify these conclusions. The sample contains only six firms, and their scales differ substantially. Fiscal years, segment boundaries, and profit definitions are not fully comparable across countries. Public disclosures do not reveal customer-level margins, implementation person-days, renewal

rates, or detailed payment terms, and annual reports inevitably present management's own account of performance. The findings should therefore be read as explanatory and strategic rather than causal or universal.

The most valuable next step would be access to internal project data linking customer type, degree of standardization, receivables turnover, and profitability. A broader sample could also distinguish comprehensive providers, core-system specialists, and platform firms, or examine build, buy, and hybrid decisions through surveys and econometric analysis.

Table 11. Correspondence among Challenges, Causes, and Strategic Responses

Challenge chain	Core causes	Primary response	Testable indicators
Customer positioning and structure	Segmented bank demand, incentives from landmark projects, relationship barriers, and weak internal customer evaluation	Customer segmentation and portfolio optimization	Concentration of customer revenue and receivables, project margins, collection, renewal, and reuse
Customization, delivery, and collection	Asset specificity, legacy systems, project procurement and acceptance, and weak scope control	Modular delivery, staged acceptance, and cash-flow management	Customization ratio, implementation person-days, delays, contract assets, and receivables turnover
Productization and recurring revenue	Customer-specific demand, procurement constraints on subscriptions, project-driven R&D, and weak operating capabilities	Focus on core products and expand maintenance, licensing, subscriptions, and platform revenue	Platform customers, reuse frequency, recurring-revenue share, and renewal rate
Talent, R&D organization, and compliance	Scarcity of hybrid talent, conflicting departmental objectives, and third-party and data-risk requirements	Product-oriented organization, knowledge accumulation, R&D roadmaps, and compliance productization	Share of hybrid talent, R&D conversion, defects, security incidents, and certifications

Source: Conclusions of this study. Data and case evidence are reported in the tables in Section 2 and in the reference list.

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Appendix: Data Definitions and Evidence Index

Appendix Table 1. Sources and Definitions of Key Data

Data item	Definition	Source	Use in the article
NIM of Chinese commercial banks	Year-end values for 2021-2025	Regulatory indicator tables of the National Financial Regulatory Administration and its predecessor	Figure 1 and Sections 1.1 and 2.1
Revenue, profit, R&D, and customer concentration of the Chinese sample	Calendar years 2023-2025; RMB; ratios calculated by the author	Annual reports of the three Chinese firms	Tables 3-5, Figures 3-4, and Section 3
Revenue and profit of the Japanese sample	Fiscal years ended March 2026; JPY; profit definitions separately stated	Official results materials of NTT DATA, NRI, and TIS	Table 6 and Figure 5
NRI recurring revenue	The company defines platform, operations, and enhancement development, representing about 60% of revenue, as stable recurring business	NRI Business Outline 2026 and results for the year ended March 2026	Sections 2.2, 2.3, and 3.3
Japanese shared core systems and open-system migration	Regional-bank open-system trend and NTT DATA's MEJAR/PITON	Financial Services Agency report (2022) and NTT DATA Business Report 2025	Sections 2.1, 2.4, and 5.2
TIS Financial IT volatility	Segment revenue and profit affected by the completion of peaks in large projects	TIS consolidated results for the year ended March 2026	Sections 2.2 and 3.2
Project working-capital use and cash conversion in the Chinese sample	Year-end 2025 receivables and contract assets and full-year operating cash flow; WCR and CFR calculated by the author	2025 annual reports of the three Chinese firms	Table 5, Figure 4, and Section 3.2
Five-year revenue index of the Japanese sample	Fiscal years ended March 2022-2026, with March 2022 = 100	Official results materials of NTT DATA, NRI, and TIS	Figure 5 and Section 2.4

Source: Compiled by the author.

Data are interpreted conservatively. Undisclosed indicators are not estimated, and reverse-calculated market-size figures are excluded. Fiscal years, profit definitions, and segment boundaries remain as reported unless a transparent adjustment is possible. Company statements are used to describe products and projects, while audited financial statements and regulatory materials carry greater weight in evaluating performance.

城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 123–165

Article

Reshaping the International Monetary System under the "Tripartite Shock":

A Geo-Technological Analysis and Empirical Study of Gold-Backed Stablecoins

地政学・制度・技術の「三重ショック」による国際通貨システムの再編

―金担保型ステーブルコインに関する地政学的・技術的分析と実証研究―

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Abstract

The international monetary system (IMS) is presently going through its major structural change since the fall of the Bretton Woods system in 1973. This dissertation explores the rise of gold-backed stablecoins as part of the so-called tripartite shock: the new geopolitical fragmentation (weaponized interdependence), the institutional renaissance of the gold as a reserve asset, and the technological money revolution of blockchain.

This study fills in the gap between International Political Economy (IPE) and digital finance through a distinctive viewpoint called Geo-Technological. It conceptualizes gold-backed stablecoins as more than simple financial instruments, but a separate synthetic class of asset which proposes a kind of a best of both worlds: the political neutrality and safety of gold and the transaction speed and finality of distributed ledger technology (DLT). To operationalize the Sovereign-Digital Nexus hypothesis, the study operates the comparison of the two market leaders, Paxos Gold (PAXG) and Tether Gold (XAUT) in terms of case analysis. The results demonstrate a fatalist rift between the model known as the Compliant/On-Grid (PAXG) which is accommodating to the current Western models of regulation but subject to the leverage of jurisdiction seizure, the model Offshore/Shadow (XAUT) which is focused on sovereign resistance and seizure-evasion by means of strategic obscurity and jurisdictional arbitrage. Ultimately, the findings indicate that tokenized gold is emerging as a crucial mechanism for non-aligned actors to bypass US-controlled correspondent banking, thereby accelerating the transition toward a multipolar monetary framework.

Keywords: International Monetary System; Gold-Backed Stablecoins; Weaponized Interdependence; Tokenization; Geopolitics; Monetary Sovereignty; PAXG; XAUT

Chapter 1: Introduction

1.1 Research Background: The Paradigm Shift of the Monetary Order

International monetary system (IMS) is visibly experiencing the most profound and extensive structural change since the collapse of the Bretton Woods fixed exchange-rate regime in 1973 (Truman, 2017). It is not just a normal cyclical adjustment but a paradigm shift, a secular transformation in the international financial structure. This change is not elicited by any one single economic event but rather a combination of three overlapping and mutually supporting structural shocks together known as the Tripartite Shock.

This transformation is driven by a 'Tripartite Shock' characterized by overlapping geopolitical, institutional, and technological shifts. Geopolitically, the fracturing of the post-Cold War order has led to the direct weaponization of finance through sanctions and asset freezes. This systemic coercion has, in turn, catalyzed an institutional response, specifically a strategic push toward global de-dollarization and the revival of gold as a primary reserve asset (Milesi-Ferretti and Wessel, 2025). Concurrently, a technological revolution in blockchain-based payment rails has emerged, providing the necessary infrastructure to operationalize this shift and offering a radical alternative to traditional cross-border transfer mechanisms. Where all these powers meet, however, there is the emergence of a new synthetic asset category: gold-backed stablecoins, which, as a sector, is not on the fringes of crypto-phenomenology, but rather a complex solution to the needs of an unaggregated world. These assets combine the apolitical and secure-haven properties of gold with the transactional functionality and finality of blockchain technology.

1.1.1 The Fragility of the Post-Bretton Woods "Non-System"

In order to know what is being disrupted at present, it is necessary to establish what order is being replaced. Scholars often describe the international monetary order of the post-1973 as a non-system (Truman, 2017). The next phase, unlike rules-based Bretton Woods system, which was based on the use of gold-convertibility and fixed exchange rates, has been characterized by market-based adjustment, the privatization of the international monetary arrangements, and the formation of the de facto dollar standard.

International dominance of the US dollar is based on the strong network effects and the way it performs three traditional functions of money; as the leading unit of account of trade invoicing, the leading medium of exchange in the foreign exchange market, and the preferred global store of value. The US Treasury market forms a basic foundation of this system, which forms the so-called safe asset of the whole edifice of modern finance. Nonetheless, this structure is based on an implicit assumption of de facto trust in US-centric institutions an assumption that is currently becoming apparent to collapse under the pressure of geopolitical fragmentation.

1.1.2 The "Tripartite Shock" to the Monetary Order

The Geopolitical Shock: Weaponization of Finance The greatest factor is that the shift to using the financial system as an initial front in great-power rivalry is becoming more widespread. Weaponization of US

dollar and the clearing system that is involved, namely SWIFT and CHIPS, has ceased to be across any theoretical risk, but rather, it has become a systemic reality. The G7 move to freeze over 300 billion of Russian foreign reserves held by the Central Bank in 2022 was a critical turning point, and has fundamentally altered the risk calculation of every sovereign state (Donovan and Nikoladze, 2025). This incident reflected both the strength of the American financial system and also demonstrated the termination of the impartiality with regard to the use of dollars. To most non-aligned or hostile countries, the dollar has turned into a global common good, rather than a systemically vulnerable currency. Empirical studies can verify that states which have been or are allied to those which were sanctioned by the US, are methodically decreasing their share of dollar reserves.

The Institutional Shock: The Geopolitical Comeback of Gold The institutional reaction to this weaponization has been a vigorous, strategic initiative or de-dollarization. The dollar declined from 71% to 59% as central bank managers diversified their portfolios by the year 2021 (Arslanalp, Eichengreen & Simpson-, 2022). Gold has been the greatest beneficiary of this trend. Three years (2022-2024) of annual central bank net gold purchases of more than 1,000 tonnes of gold have taken the price of gold to record highs. The survey of the 2025 World Gold Council showed that 73 percent of central banks are now projecting the declining portion of reserves in the dollar, and 43 percent are planning to acquire more gold as a result of the threat of sanctions and geopolitical stability (J.P. Morgan Research, 2025). Gold is now considered as an inflation hedge, and a kind of geopolitical hedge, an asset that becomes the liability of no one and is inaccessible to the chokepoint impact of the US financial system.

The Technological Shock: The Stablecoin “Money Revolution” In parallel, a revolution in settlement infrastructures is being brought about by blockchain technology-based money revolution. The most significant innovation has been the stablecoins, which have offered 24/7, instant almost and borderless payment railles, through peer-to-peer. In 2024, the on-chain transfer value of stablecoins had reached more than $27.6 trillion, more than the annual volumes of Visa and Mastercard. Nevertheless, this revolution is dollar-dominated with overwhelmingly positive effects, which results in the digital dollarization or cryptoization in the emerging markets (Feingold, 2025). This tendency empties the domestic banking systems and erodes the monetary sovereignty. As such, whereas physical gold is politically safe and technologically illiquid and USD-stablecoins are politically dangerous and technologically useful.

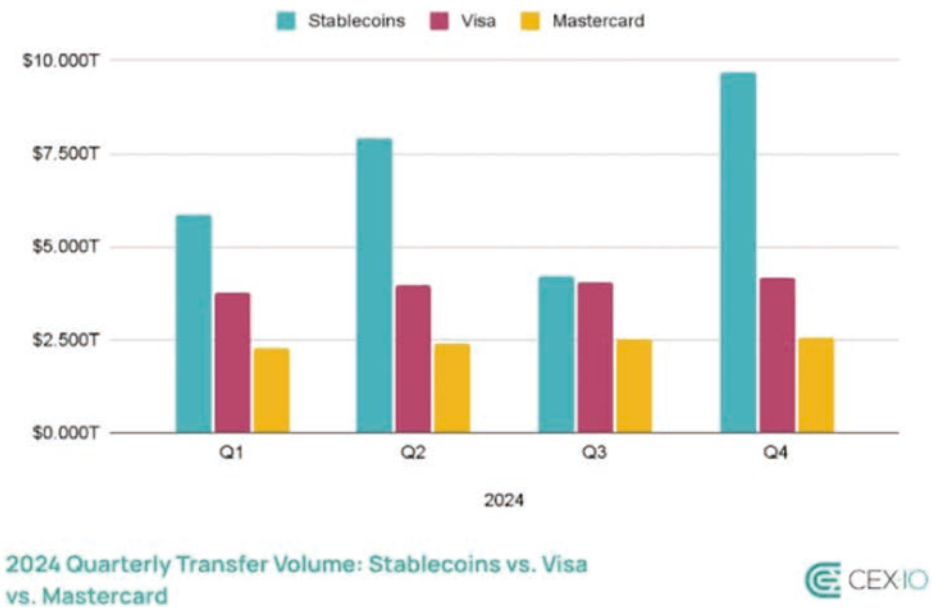

Figure 1.1 2024 Quarterly Transfer Volume: Stablecoins vs. Visa vs. Mastercard (source: Feingold, 2025)

1.2 Problem Statement and Research Significance

1.2.1 Academic significant research gap: Analysis of Interdisciplinary Silos

The swift emergence of gold-backed stablecoins has revealed a critical blind spot in existing academic and policy literature. In this study, the disciplinary silos found to create a significant blind spot are identified.

International Political Economy (IPE) scholars generate macro-political understanding of de-dollarization and the effect of sanctions, but are technically illiterate when it comes to judging a digital asset system. They tend to rule out gold as a retrograde move back to an analogue commodity, lacking its digitization as a digital-first commodity. Financial economics and crypto-asset research, on the other hand, generate very technical empirical studies, but concentrate virtually entirely on fiat-backed stablecoins such as USDT and USDC. They consider gold tokens as mere retail investment instruments for portfolio diversification, and fail to realize their strategic value to non-aligned sovereign states. Scholars study the productivity of the "rail" (blockchain) but do not understand the geopolitical importance of the "cargo" (gold). This is a gap that does not allow a holistic opinion on how tokenized gold can be circumvented by the correspondent banking system which is controlled by the US.

1.2.2 Uniqueness of Gold Stablecoins as "Geo-Technological" Synthetic Assets

Gold-backed stablecoins are a unique financial innovation, which separates the unit of account (Gold) with the medium of exchange (Blockchain). They offer the benefits of both worlds; the perennial safe-haven qualities of gold and the revolutionary technological efficacy of a blockchain asset. Contrary to USD-stablecoins, which have reserves which are on the internal side of the US jurisdictional perimeter, a foreign-issued gold stablecoin that is supported by physical gold stored in non-Western vaults is an off-grid financial instrument. It provides a non-sovereign, digital safe-haven, which is technologically handy and politically secure, and is the real way of avoiding systemic sanctions evasion.

1.3 Research Question and Objectives

With this burning research problem, the main question of this dissertation is the following: What is the role and the possible influence of gold-backed stablecoins on the diversification of the international monetary system?

To accomplish this, the research has four objectives that it aims to achieve:
Objective 1 (The Mechanism): To deconstruct and analyze the operational, technical, custodial and regulatory mechanisms of most prominent gold-backed stablecoins.
Objective 2 (The Role): To assess their potential of playing a central role in monetary operations, and its sustainability as a new type of sovereign reserve asset.
Goal 3 (The Impact: Opportunities): To measure how their emerging markets can become digitalized in terms of de-dollarization and attain financial independence.
Objective 4 (The Impact: Challenges): To critically explore the dangers of financial instability and their utilization as an instrument of systemic sanctions evasion.

1.4 Research Methodology: Mixed Methods Design

This multi-methodological nature of the research problem is necessitated by the synthetic nature of the research problem, which needs to be functioning in a young, data-poor environment. The dissertation that is designed is of the mixed-method to establish a causal linkage between macro-geopolitical drivers (the why) and micro-level technical features (the how).

1.4.1 Qualitative: Comparative Case Study of PAXG and XAUT

The qualitative part focuses on the comparative study of the two market leaders, namely, Paxos Gold (PAXG) and Tether Gold (XAUT). These tokens are a natural experiment of monetary governance. They are two radically opposite directions: the Compliant/On-Grid model (PAXG) fits into the existing frameworks of Western financial institutions, and the Offshore/Shadow model (XAUT) exists on the periphery of Western regulation and values sovereign resistance.

1.4.2 Quantitative: Macro Data Triangulation

The quantitative part applies macro-data analysis to give a background and size to the welfare of these assets. It includes the triangulation of the data provided by the World Gold Council (WGC) and the International Monetary Fund (IMF) on the trends of sovereign reserves with on-chain forensic data and market data. The study assists in gaining a holistic view of the Sovereign-Digital Nexus by utilizing both qualitative governance deconstruction and quantitative adoption metrics.

Chapter 2: Literature Review and Theoretical Framework

2.1 Theoretical Pillar I: The International Monetary System and "Weaponized Interdependence"

2.1.1 Hegemonic Stability Theory and the Kindleberger Trap

Hegemonic Stability Theory (HST) is the basis of the existing unipolar rule of the US dollar over the global monetary system (IMS). The theory was best known as expressed by Charles Kindleberger (1986) which states that a liberal international economic order is not a self-sustaining phenomenon but should have one dominant power- a hegemon- that supplies much needed global public goods that assure systemic stability. These are multifaceted as they include the upkeep of open markets in distress goods, lending in a long-term process, and, most importantly, as the international lender of last resort in times of acute financial strains. During the post-1945 period, the US dollar was introduced as the main channel through which such stability-enhancing functions would be performed, acting as the grease in which the gears of world trade would run and a consistent anchor by which the value of different international markets can be measured. This exceptional position has bestowed on the United States what Valéry Giscard d'Estaing has described as exorbitant privilege in that it is able to run consistent deficits whilst the rest of the world continue to place an almost insatiable demand on dollar-denominated safe assets.

Yet, this hegemonic arrangement is also transitional as is implied in the scholarship of Gilpin (2016), and other scholars. Although a hegemon is efficient because there is a decrease in transaction costs and uncertainty in the exchange rates, there is also an imbalance of power distribution. The result of this is what is referred to as the "Kindleberger Trap" when the hegemon lacks the ability or the goodwill to continue keeping the system open. There comes a critical moment when the hegemon is no longer an apolitical provider of international stability but starts to use the international financial infrastructure as a national statecraft instrument. Under this systemic "trust" that was the basis of the de facto dollar standard, there is an incentive to find other alternatives to the currency of hegemon that are non-contributory or neutral, which will be motivated accordingly. The recent revival of gold as a reserve currency can therefore be hypothetically explained as a coordinated sovereign reaction towards a hegemon who is becoming viewed to be shifting its role of benevolent to hostility or predatory in its handling of the world finance.

2.1.2 Weaponized Interdependence Theory: The Panopticon and Chokepoint Effects

Although the classic liberal theories of interdependence indicated that economic integration was bound to bring peace as the costs of war became prohibitive, the theory of weaponized interdependence proposed by Farrell and Newman (2019) gives a more structurally correct and cynical explanation of the modern IMS. They contend that the global economic networks including supply chains, financial messaging systems, and others, are not decentralized webs but are highly concentrated with central nodes. It is the state which has jurisdiction over such nodes that has a special kind of structural power which can be used to gain coercive ends. This weaponization is achieved in two main processes; the Panopticon Effect and the Chokepoint Effect.

The Panopticon Effect is the capacity of the hub state to gather and trace the flows of the world information. Since most of global financial messages are transmitted in the SWIFT system and cleared in the CHIPS network in New York, the US has an unmatched perspective of the flow of global worth. This would make it easy to monitor money trail everywhere, and the hub state would monitor any enemies and even impose its own domestic rules to another country on an international level. The Chokepoint Effect is more explicit and coercive in nature as it is associated with the possibility to shut a target out of the network altogether. Considering the network benefits of the dollar system, any disconnection of the hub makes one economically isolated, so disconnection of the banking system of Iranian banks to the SWIFT network would be disastrous. The US dollar in this theoretical framework is not just a medium of exchange, it is a key element of global infrastructure making the US have a totalizing kind of structural domination. Farrell and Newman (2019) also caution, however, that excessively using such mechanisms poses an existential threat to non-aligned sovereigns, pushing them into the direction of so-called network autonomy which directly encourages the uptake of so-called off-grid assets, such as gold-backed stablecoins.

2.1.3 The 2022 "Rubicon" Moment and the End of Reserve Asset Neutrality

Few days after the invasion of Ukraine on February 26, 2022, the theoretical risks that the weaponized interdependence scholarship identified were converted into a systemic reality. The move of the G7 states to freeze some 300 billion of Central Bank of Russia (CBR) foreign exchange fund was, according to experts, a critical turning point in monetary history in the global monetary history (Larsen, 2025). The effect that this act brought was fundamentally to break the long held, unwritten agreement on absolute safety and extraordinary immunity of central bank reserve assets. The most valued safe asset in the world, the US Treasury bond, the first time it had encountered this in the post-WWII world, had turned into inside money, an asset that eventually is the debt of a political force and is at its arbitrary will.

This incident was a paradigm shift in bringing the concept of safety in reserve management. In the past, reserve managers were concerned with credit and market risk; now, they have to be concerned with the so-called geopolitical risk or seizure risk (after 2022). This change has been theorized by Zoltan Pozsar as the beginning of Bretton Woods III, the period where the insider money (claims on the hegemon) is supplanted by the outside money (assets which are the responsibility of no one, e.g. gold and commodities). The political neutrality of an asset has become the most critical aspect of an asset in this new monetary environment. Sovereign states which are not concomitants to the US foreign policy have lost the holding of the US Treasuries as a risk free undertaking but a strategic vulnerability.

The practical end result of this realization has been a historical gold rush flight out of weaponized fiat. The demand of gold by central banks was at record levels in late 2022 and during 2023, with countries attempting to restore a so-called geopolitical hedge, which is not subject to G7 sanctions. Nonetheless, according to McDowell (2023), the physical gold offers the intended, so-called outside money, neutrality, but is in a digital world, an analog asset that is characterized by a significant logistical friction and is not useful in

modern commerce in terms of facilitating a transaction. This dissertation proposes that gold-backed stablecoins are the logical and technological development of the vision of Pozsar in the Bretton Woods III vision. They provide a way to close the divide between the political security of gold and the digital effectiveness of the blockchain, and so they are operationalizing a novel type of synthetic neutrality, of a fractured international system.

2.2 Gold's Return and the "Safe Asset Shortage" Theory

2.2.1 Defining the Safe Asset Shortage: The Caballero-Farhi Framework

The reason why sovereign entities are again re-engaging in gold requires the first analysis of the theoretical architecture of the so called Safe Asset, which has become eminent since the 2008 Global Financial Crisis. Caballero, Farhi, and Gourinchas (2017) give a basic definition of a safe asset as a debt instrument that is likely to retain its value and be liquid even in the time of gross economic and financial crises. An important property of such an asset is that it is information insensitive. According to Gary Gorton, a really safe asset is one in which all the participants in the market accept the fact that it is useless to compile expensive private information about the underlying value of an asset; a US Treasury bond is the perfect example, and the asset is accepted at face value without the holder even having to read about the fiscal complexities of the government that issued the bond itself.

Expanding on this, Caballero and Farhi (2018) have found a so-called empirical anomaly, the so-called Safe Asset Shortage, that assumes that there is a chronic mismatch between the global demand of these assets, which is caused by high saving ratios in the emerging economies and high requirements of Basel III regulations, and the supply of these assets. The entire production of this supply is accomplished by very few developed economies with United States being the main producer. This imbalance traps into a safety trap regarding excess demand pushing yields to the zero lower limit by the fiscal capability and political desire of the US government to employ debt issues. This supply shortage in the past has compelled the market to produce as alternatives, privately labelled (AAA-rated) mortgage-backed securities, which later failed in 2008 when it was found that they were information-sensitive during crises. Nevertheless, the classical literature had assumed that political safety of US government debt was certain without the modelling of the possibility that the issuer would nullify the safety of the asset by political action.

2.2.2 Evolution of Gold: From "Inflation Hedge" to "Sanctions Hedge"

The paradigm shift in the early 2022 shift in geopolitics shifted the gold beyond the margins of the portfolio theory into the core of the international relations. In the case of the former US Treasury bonds holders whose holdings had been frozen after the invasion of Ukraine, what they thought is an informational insensitive, risk free asset now acquired situational seizability risks. This has triggered the revisitation of the role of gold beyond the conventional groupings that have been developed within the financial literature. An example is the historical classification of gold by Baur and Lucey (2010) as either a hedge (uncorrelated on average with stock returns) or a safe haven (uncorrelated with stock returns in periods of extreme market distress) in terms of its effectiveness against inflation or market crashes.

The modern-day judgment is now moving to a new level of gold being a “Geopolitical Hedge” which refers to the capability of gold to hedge against the weaponization of the interdependence. A seminal study by Arslanalp, Eichengreen, and Simpson-Bell (2023), entitled Gold as International Reserves: A Barbarous Relic No More? reports a substantial growth in official gold reserves, especially on the central banks of the emerging markets and developing economies (EMDEs). These institutions are described as activist diversifiers who are buying gold as a strategic reserve to fiat. Importantly, this study separates economic risks and geopolitical risks and discovers that a verdict of economic sanctions is the main reasoning behind gold accumulation since 2008 and particularly since 2022. Their analysis shows that the gold hoarding is directly correlated to the sanctions by the US, UK, EU, and Japan to find outside money that will not be held by any one.

Such a tectonic drift redefined the Safe Asset of the unaligned sovereign, whereas a US Treasury might meet the Caballero-Farhi definition of economic safety, by being able to preserve its value during a crash, it does not meet the definition of political safety, by being able to be frozen during a diplomatic standoff. Gold is the only asset that offers real sovereign neutrality in that it is not affected by the panopticon effect of the dollar system; unlike other assets that fluctuate in dollar terms, gold will be unaffected by storing in a domestic vault. But there is an analog limit to physical gold, physical gold has skin that is hard to turn over, it is hard to authenticate, and it cannot be used to clear and settle high velocity transactions in a digital world. This is the strategic necessity of gold-backed stablecoins, which tries to reconcile the political safety of gold and the efficiency of blockchain technology in transactions.

2.3 Theoretical Pillar II: Digital Finance and Monetary Sovereignty

2.3.1 Digital Money Taxonomy: From the “Money Flower” to the “Tri-Polar” Framework

The associated technological shock of the Tripartite Shock model has triggered the so-called Cambrian explosion of digital assets of the International Monetary Fund (IMF). In order to strictly assess the effects of gold-backed stablecoins on the international monetary system (IMS), a powerful framework of taxonomic definitions is needed to draw the lines between multiple types of digital value. With blending of the lines between “money,” “assets,” and “commodities” becoming all the more blurred, the academic community has turned attention away on technological underpinnings like blockchain and towards the economy-wide promises and redemption dynamics of these tools.

The basis of this classification is the Money Flower model that was created by Bech and Garratt (2017) at the Bank of International Settlement (BIS). This taxonomy classifies currency into four overlapping characteristics, including the issuer (central bank or private), the form (digital or physical), the accessibility (widely available or restricted), and the transfer mechanism (peer-to-peer or intermediary-based). The more sophisticated classification of the IMF and Financial Stability Board (FSB) into systemic risk is the Tri-Polar, which includes three components of the market as explained by the rapid evolution of the market:

Central Bank Digital Currencies (CBDCs): As a direct digital liability of the state, CBDCs offer settlement finality with no credit risk, but are still subject to the foreign policy and jurisdiction penalties of their issuer.

Unsecured Crypto-assets (e.g. Bitcoin): these are not secured by some liability but by the forces of supply and demand. Although politically neutral, they are very volatile and hence poor money as a sovereign reserve management or trade settlement.

Stablecoins: This hybrid type, namely Asset-Referenced Tokens (ARTs) according to the MiCA regulation of the EU, aims at ensuring a fixed value relative to a reference asset.

In this taxonomy, gold-backed stablecoins are placed in a special category, as a Fourth State: technologically decentralized (as is the case with Bitcoin), they are economically stable (as is the case with fiat stablecoins), but they are politically neutral (as is the case with physical gold) because they are pegged to a non-sovereign commodity.

2.3.2 The Stablecoin Revolution: The Debate between "Digital Dollarization" and "Cryptoization"

The most significant phase of the digital finance era is the so-called Stablecoin Revolution. In contrast to early algorithmic experiments that are likely to enter death spirals, the market has moved to the convergence on the fully reserved model. Gorton and Zhang (2021) place modern issuers of stablecoins alongside 19 th -century private banks, where the non-public insurance system forces the stability of the reserve assets solely based on their transparency and liquidity.

Nevertheless, there is an ongoing ferocious debate within International Political Economy (IPE) on the geopolitical implications of these assets involving two divergent phenomena:

- Digital Dollarization This school of thought suggests that stablecoins strengthen the US dollar hegemony across the world. Because 99 percent of the market is currently USD-based, digital platforms are a new frictionless channel of demand of the dollar globally. Brunnermeier et al. (2019) warn that it would provide a way of outsourcing the monetary policy of a country to the US Federal Reserve by making it easier to replace national currencies with digital versions of the dollar.
- "Cryptoization": On the other hand, the IMF poses the technology per se as a menace on monetary sovereignty in emerging markets (EMDEs). Stablecoins offer the means to circumvent local banking and capital controls. In the case of domestic central bank, this macroeconomic disaster drains the national currency system and makes national monetary policy useless.

Gold-backed stablecoins solve this tension by providing a "Third Way" they apply the high-velocity evasion strategies of stablecoins to avoid capital controls without reducing hegemony problems by decoupling themselves to the peg against the US dollar.

2.3.3 Blockchain Settlement Infrastructure: The Pursuit of "Atomic Finality"

The gold-backed stablecoins have a structural advantage in the form of the blockchain infrastructure. The current model of correspondent banking, which focuses on SWIFT, is inefficient structurally, with each bank having a chain of "nostro" and vostro accounts that leads to the trapping of liquidity and high-costs of reconciliation. In the case of authorized actors, this infrastructure serves as a panoptical institution to monitor and prevent transactions.

Distributed Ledger Technology (DLT) is a structural departure of this legacy in the form of so-called Atomic Settlement. Traditional banking is probabilistic in settlement and has a T+2 or T+3 lag. This delay is what forms an interdiction window where the central authorities (such as OFAC) are able to detect and freeze transactions.

Blockchain, on the other hand, allows deterministic finality at T+0. The ownership transfer is the block validation. This finality of cash practically seals the window of interdiction. The blockchain enables gold-backed stablecoins to operate as an off-grid settlement rail enabling immediate transfer of value without the involvement of a central authority, maintains the political anonymity of physical gold and obtains the digital performance of the modern dollar system.

2.4 Theoretical Synthesis: Building the Geo-Technological Matrix

The above sections have examined the geopolitical forces behind the Tripartite Shock, namely, weaponization of finance and lack of safe assets, as well as the supply of blockchain-based payment rails and RWA tokenization by technology. In order to overthrow the interdisciplinary gap between International Political Economy (IPE) and digital finance, the proposed dissertation suggests the Geo-Technological Matrix. This matrix will be used as an analytical prism to conceptualize gold-backed stablecoins, not as a financial product, but as an intended synthetic solution to a fractured global order.

2.4.1 The Dual Dimensions: Monetary Utility vs. Geopolitical Control

The Geo-Technological Matrix assesses the monetary assets in two basic axes, which are the "Monetary Dimension" and the Control Dimension. This two-track policy embodies the contradiction between economic effectiveness and political security that characterizes the contemporary international monetary system (IMS) .

Currency Dimension (Monetary Utility): Value Store vs. Medium of Exchange This horizontal axis represents the axis of monetary functionality. At one extreme there is the Pure Store of Value - assets that are informationally insensitive and last centuries but which are subject to high logistical friction and low velocity. The archetype of this type is physical gold; the ultimate safe haven, but still, rather primitive, and illiquid to settle high-frequency trades. And at the other extreme the "Pure Medium of Exchange" - digital instruments with atomic settlement and high velocity. These assets address the utility issue, as they provide 24/7, near instant value transfer, but are not necessarily valuable or not sovereign as well.

Control Dimension (Geopolitical Resilience): Compliance vs. Resistance The vertical axis indicates the weaponized interdependence of the IMS. It scales the range of Compliant/On-Grid assets to Resistant/Off-Grid assets.

- Assets Compliant Assets operate within the US jurisdictional perimeter. They fall under the so-called Panopticon Effect, in which the hub state scans flows using SWIFT/CHIPS, and the so-called Choke-point Effect, where the assets can be frozen on issuer level using ex parte legal documentation (e.g., via OFAC sanctions).
- Resistant Assets bypass the checkpoints of the conventional banking system through the use of "jurisdictional arbitrage" or through cryptographic decentralization. They strive to deliver bearer finality where the circulation is not restricted by a central trusted authority managing or recording the transaction.

2.4.2 The Four Quadrants and the Positioning of the "Synthetic Solution"

The cross of these dimensions results in the Geo-Technological Matrix which defines four different types of assets that expose the strategic gap that tokenized gold can fill.

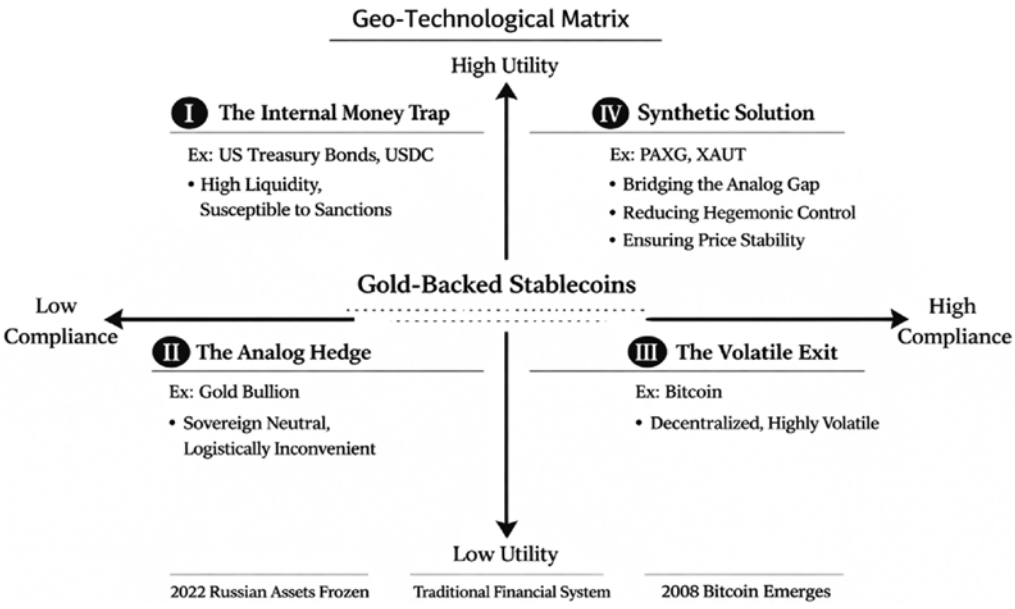

Figure 2.1 Geo-Technological Matrix (source: Drawn by the author)

Quadrant I The Internal Money Trap (High Utility / High Compliance) This quadrant consists of US Treasury bonds and large fiat-based stablecoins such as USDC. It is these resources that are the grease of the global economy, with the greatest liquidity and the best transactional ability. But they are inside money, claims on a political unit which can be forfeited by seizure. Quadrant I assets are systemically vulnerable to non-aligned sovereigns, which poses an existential threat to monetary autonomy.

Quadrant II: The Analog Hedge (Low Utility / High Resistance) Gold bullion stored in local vaults characterize this quadrant. It offers sovereign neutrality and it is not the liability of any one. Although it

perfectly addresses the geopolitical risk, its limit of analogy renders it inapplicable to the present-day trade. Gold in the real world is logistically unfriendly, with the high cost of transportation and with no ability to be digitally divided.

Quadrant III: The Volatile Exit (Moderate Utility / High Resistance) Unbacked crypto-assets, whose primary example is Bitcoin, are placed in this category. They provide political impartiality and electronic velocity, and manage to evade capital controls with success. Yet, according to Adrian and Mancini-Griffoli (2021), they are nevertheless poor money because the prices are too volatile. Such volatility makes them inappropriate as a unit of reserve of sovereigns or as a medium of trade or payment of international trade.

Quadrant IV: Synthetic Solution (High Utility / High Resistance)

This last quadrant is occupied by Gold-Backed Stablecoins (e.g., PAXG, XAUT) as the best of both worlds. These assets tokenize the unit of account (gold), disconnecting it to the medium of exchange (blockchain). They address the mutually exclusive failures of the other quadrants:

- Bridging the Analog Gap: They digitalize the analog resistance of Quadrant II, providing T+0 atomic settlement.
- Reducing Hegemony: They no longer tie the digital rail to the US dollar peg, as is the case in Quadrant I, to offer an off-grid asset that maintains the political anonymity of gold.
- Guaranteeing Stability: They keep prices stable unlike Quadrant III by having a 1:1 redemption of physical metal.

Findings in Synthesis The Geo-Technological Matrix reveals that the emergence of gold tokens is not a fringe crypto-phenomenon but a more advanced solution to the Weaponized Interdependence of the unipolar dollar system. Although the literature on IPE diagnosed the ailment (sanctions risk) and prescribed the classical solution (gold), it has not understood strategic approaches (stablecoins) that render the solution economically feasible. The tokenized gold is the deliberate, technologically-enabled implementation of an "Anti-Dollar Strategy," a process of closing the interdiction window, which enables sovereign actors to circumvent chokepoints controlled by the US. This theoretical framework preconditions the empirical analysis of the case of PAXG and XAUT in the next chapter.

Chapter 3: Operational Mechanics and Market Landscape of Tokenized Gold

3.1 Mainstream Gold Stablecoin Case Analysis: PAXG vs. XAUT

The process of operationalizing the Geo-Technological Matrix that was created in the foregoing chapter will entail a shift in the theoretical knowledge into the practical implications of the theory. To closely evaluate the hypothesis of Sovereign-Digital Nexus, the current paper applies a comparative case study of the two market leaders in the tokenized gold market, Paxos gold (PAXG), and Tether gold (XAUT). Although the market presence of these two assets is also applicable to the case, this factor does not make them the

first choice. They are an experiment of natural monetary rule. The fact that the assets can be analyzed is a privilege in itself, given that they are embodied in their economic promise of a gold-backed asset pegged on one troy ounce of London Good Delivery gold 1:1 and which is wholly different in its geopolitical and regulatory framework. The given difference makes it possible to evaluate the competing models of the Compliant/On-Grid and Offshore/Shadow tokenization, which were described by Gorton and Zhang (2021) and Arslanalp, Eichengreen and Simpson-Bell (2023).

3.1.1 Case Selection Justification and The Governance Taxonomy

This choice of PAXG and XAUT as the main subjects of this case study is statistically explained by the reason that these two subjects have the largest market share. By Q3 2025, the market of gold-tokens, dominated by PAXG and XAUT, will reach 84%. Market capitalization statistics in Coincentral (2025) and CoinGecko (2025) show that the adoption is experiencing a great upsurge with a total market capitalization of the tokenized gold hitting 2.88 billion due to the contradictory geopolitical factors and inflation globally. Tether Gold (XAUT) dominates the segment with a market value of 1.43 billion, then Paxos Gold (PAXG) comes close with 1.12 billion (Sandor, 2025). The other participants, like Kinesis Gold or Digix, do not have the necessary liquidity and deep asset backing to transact on material institutional flows and, therefore, do not have as much systemic relevance in this analysis.

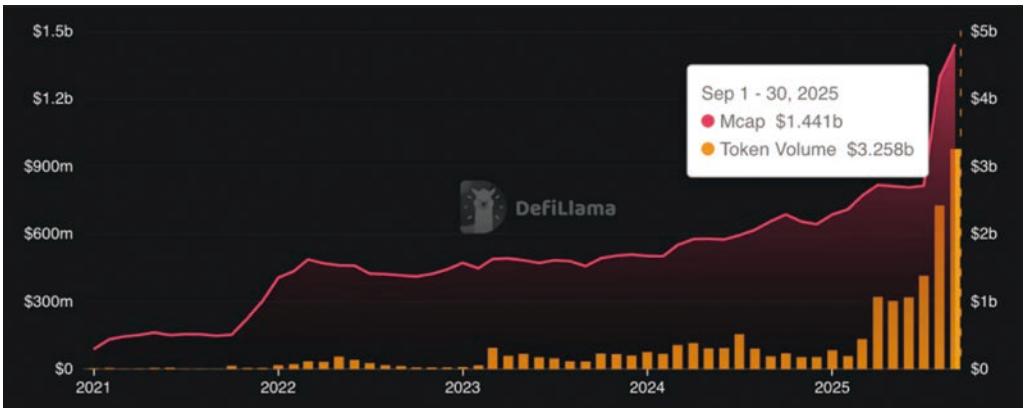

Figure 3.1 Tether Gold (XAUT) Market Cap and Trading Volume (source: DeFiLlama; Sandor, 2025)

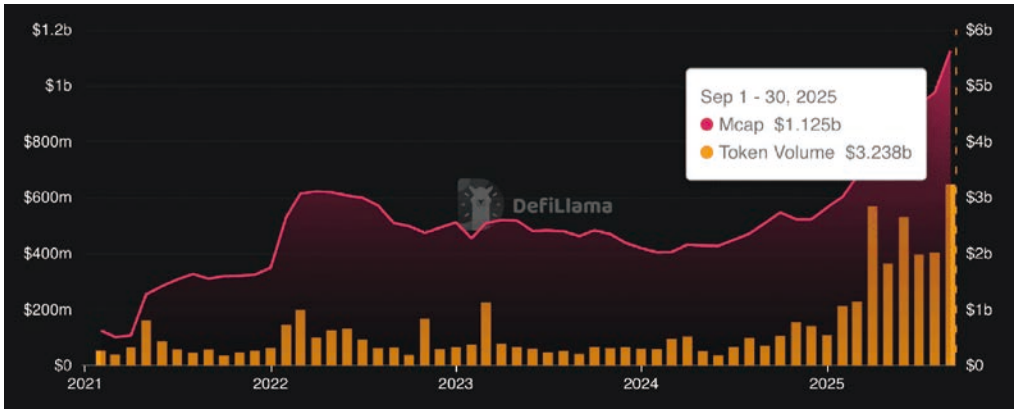

Figure 3.2 PAXG Market Cap and Token Volume (source: DeFiLlama; Sandor, 2025)

These two assets were chosen in addition to pure market metrics because they symbolize the duality of Compliance/Resistance of the paradigm of Sovereign-Digital Nexus. PAXG is an example of the Compliant/On-Grid model, which operates clearly within the jurisdiction of the US regulatory framework. It is a digital token of gold in the Westphalian sovereign system, issued by the Paxos Trust Company, and is legally safe, but significantly lacking in sovereign neutrality. XAUT, in its turn, is the best candidate to represent the model of offshore/shadow. XAUT is a regulatory void issued by TG Commodities (a subsidiary of Tether), which is strategically crafted to minimize touchpoints with the US banking system and shield users against weaponized interdependence.

In order to disconstruct these competing visions, this study uses five Analytical Verticals:
Status and Jurisdictional Risk: Compare the legal charters of the issuers (New York trust law and British Virgin Islands corporate law) and simulate the risk of seizability.

Asset Layer: The physical custody of the gold, providing a comparative analysis of the transparent LBMA vaulting network in London versus the strategically opaque custodial networks in Switzerland.

Technical Architecture: The inspection of smart contract code in the form of either a freeze or a blacklist functionality that facilitates protocol-level censorship.

Market Access and Primary Use Case: Mapping the token ecosystems, between White-Listed and DeFi integration and cross-border settlement that is grey market.

Redemption and Liquidity: This is to evaluate the friction of returning the digital token to physical metal.

3.1.2 Regulatory and Jurisdictional Structure: The Compliance-Arbitrage Dichotomy
The biggest difference between PAXG and XAUT is not in the choice of technology they use, both of them are based on the Ethereum ERC-20 standard, but in the nature of their legal organization. This divergence is an alternative strategic optimization: institutional legitimacy or sovereign opposition.

PAXG: Institutional Standard of the Compliant Model PAXG is a limited purpose trust company that is licensed under the New York Banking Law and regulated by the New York State Department of Financial Services (NYDFS). This fiduciary duty resides on the issuer in relation to this supervisory status. According to Section 2(b) in the NYDFS virtual currency rule (Part 200) Paxos will be obligated under the statutory safeguard of funds belonging to clients in the event of bankruptcy by holding capital in reserve not under its operating funds, but apart as a distinct bank account.

It is a high stability high seizure geopolitically, as far as law is concerned, and on the other hand, high seizure low stability. Being a US-level organization, Paxos will have to follow the US Treasury (OFAC) sanctions. The touchpoint is absolute: when shown a New York court order, Paxos must legally freeze the

smart contract system, and turn the so-called digital gold into a lost possession of the authorized party. Therefore, whereas PAXG will reduce commercial counterparty risk, it will increase political counterparty risk.

XAUT: Strategic the Offshore Model XAUT is a model of offshore, which is aimed at reducing the jurisdictional risk of the United States. The asset is issued in the British Virgin Islands (BVI) and the light-touch regulatory regime and high levels of corporate privacy (CryptoNews, 2025). By domiciling in a country other than the US and not servicing the US residents, Tether practices jurisdictional arbitrage.

Such a form of negative confirmation is offered by this structure to state actors in the state of sanctions: the issuer is not legally obliged to implement US foreign policy. Nonetheless, this opposition is at the expense of transparency in governance. The XAUT token holders rights are not yet proven like the New York trust law, and in case of insolvency, they will undergo a complicated, multi-jurisdictional bankruptcy in the lack of statutory protections. This is the trade-off that is the most attractive to the users who are more sensitive to US seizure risk than to issuer solvency.

Table 3.1: Comparative Analysis of Regulatory Architectures

Feature	Paxos Gold (PAXG)	Tether Gold (XAUT)
Issuer Entity	Paxos Trust Company, LLC	TG Commodities Limited
Primary Jurisdiction	New York, USA (On-Shore)	British Virgin Islands (Off-Shore)
Regulatory Body	NYDFS (New York State Dept of Financial Services)	BVI Financial Services Commission (Light Touch)
Legal Structure	Limited Purpose Trust (Fiduciary)	Business Company (Contractual)
Asset Segregation	Statutory Bankruptcy Remoteness	Contractual Segregation
US “Touchpoint”	Direct (Subject to OFAC & US Banking Law)	Indirect (Designed to avoid US jurisdiction)
Primary User Risk	Seizure Risk (Political)	Solvency Risk (Commercial)

3.1.3 Custodial and Auditing Mechanisms: The Transparency Dichotomy

The physical reality of the digital asset is ascertained by the custodial and auditing mechanisms. The reason is that this vertical solves the problem of the Trust Paradox defined by Gorton and Zhang (2021): to be a safe asset, a stablecoin must be information insensitive, but its collateral needs information production (audits) continuously to demonstrate that it is not insolvent.

PAXG: Radical transparency and the London Vault Network PAXG eliminates the Trust Paradox by means of Radical Transparency. It maintains its reserves in LBMA Good Delivery bars deposited in recognizable accounts at secure London depositories, operated by Brink and other LBMA listed custodians. Monthly attestations by well-known accounting firms (e.g. WithumSmith+Brown) confirming the overall supply of tokens against the ounces of tokens held in custody are published by Paxos. Also, Paxos offers a lookup service in which any address owner can verify the exact serial numbers of the gold bars that they are in possession of.

The token that is reported in this way turns into a verifiable right of property, but the location of custody, London, poses a high level of geopolitical risk. Being a part of the G7 and NATO, the UK has a record of supporting the US-imposed sanctions, as evidenced by the freezing of the Venezuelan gold reserves. Therefore, PAXG has the best assurance of support but has a definite target map on politically motivated asset freezing.

XAUT: Strategic Opacity and the Swiss Defense Tether Gold applies "Strategic Secrecy" to increase the resistance to seizure. Although it also states that it is being supported by LBMA sourced gold, its disclosure regime is much less granular (Tether, 2025). It lacks public bar serial number search, and issues quarterly rather than monthly detailed attestations in the form of a breakdown of reserves.

One of the distinguishing factors is the location of the vault: Switzerland. Being a haven of banking discretion and non-partisan stance, Switzerland poses an extremely greater evidential challenge to foreign asset confiscations than the UK or the US. Tether makes it considerably harder to confiscate certain places, and the serial numbers of bars by blocking them by making them incoherent to the authorities of the US. The reason is not the extended compliance lag in this model, but a deliberate design feature that obscures the panopticon effect of the dollar system.

Table 3.2: Comparative Analysis of Custodial and Auditing Mechanisms

Feature	Paxos Gold (PAXG)	Tether Gold (XAUT)
Underlying Asset	1 troy oz LBMA Good Delivery Gold	1 troy oz LBMA Good Delivery Gold
Custody Jurisdiction	London, UK (High Seizure Risk)	Switzerland (Neutral/Medium Seizure Risk)
Allocation Model	Allocated (Serial numbers mapped to tokens)	Allocated (Aggregated)
Transparency Tool	Public lookup of specific bar serial numbers	No public lookup of specific bars
Attestation Frequency	Monthly (Third-Party Accounting Firm)	Quarterly (General Reserve Report)
Geopolitical Function	Commercial Trust (Anti-Fraud)	Sovereign Resistance (Anti-Seizure)

3.2 Comparative Advantages and Regulatory Risks

3.2.1 Comparison I: Gold Tokens vs. Traditional Assets

The rise of gold-backed stablecoins is not just a technological version, but the re-engineering of the interaction of the oldest safe-haven asset in the world with the modern financial system. According to Meeusen and Liu (2024), gold-backed stablecoins have gained substantial importance to the constantly expanding financial engineering community because it has effectively merged the intrinsic monetary worth of a tangible asset with the technological effectiveness and unrestrictedness of a distributed registry. To invent this synthesis of the Best of Both Worlds as a consistent theory, a stern comparative game must be played to set this synthetic category of assets against the three established monetary and investment giants, namely, physical gold bullion (the analog store of value), gold exchange-traded funds (the financialized proxies) or fiat-backed stablecoins (the digital mediums of exchange). Applying this analytical prism it is clear that gold tokens are not simply hypothecated derivatives of an existing asset; instead they are novel

instruments in that they confront particular structural limitations of traditional assets in terms of their economic liquidity, transactional utility, and sovereignty over space and time.

The Analog vs. Digital Trade-off: Gold Tokens vs. Physical Bullion

The largest difference between tokenized gold and physical bullion is the resolution of the so-called logistical friction, the term which is inclusive of the costs of transport, storage, and verification. Although gold in its physical form is the ultimate sovereign-neutral asset and has demonstrated its effectiveness as a store of value during the entire history of humanity, it is naturally inefficient in the modern 24/7 digital economy by being deficient of utility. Physical bullion is associated with high transportation charges, the need to use high-security vaulting that is specialized, and very illiquid in small quantities.

Physical bullion is usually purchased with a considerable markup over the spot price, usually ranging between 3 and 5 per cent to cover fabrication and distribution as well as dealer markups. This is increased by the continued payments to insurance and storage that may eat up annual returns of 0.5 to 1 per cent dollar. Moreover, the procedure of the physical gold divestment is uncharacteristically lengthy and tedious. Sale of physical bars involves that the owner commences a chain of custody transfer and in most cases the bar must be authenticated by an assay master to ascertain its purity. Such a process excludes immediate settlement and may make the asset inaccessible in cases where it is necessary to get liquidity at once.

PAXG and XAUT are gold-backed tokens that fix this issue of analog frictions through the digitization of property rights, but retain a direct connection to the underlying gold. These assets can be traded on the Ethereum blockchain as ERC-20 tokens, which means that they can be sold and bought 24/7 worldwide regardless of the business hours of the London gold market or the presence of physical coin stores. This technical architecture facilitates T+0 settlement finality, which is a radical enhancement of T+2 settlement cycle of Legacy banking and brokerage systems (CoinGecko, 2025).

In addition, tokenization reduces the entry cost of ownership of gold to a great extent. A typical 400 oz London Good Delivery bar is worth about $1.5 million (at 2025 rates), and cannot be divided, but with digital tokens it is possible to have a micro-investment. An example of this is PAXG, which enables investors to acquire as low as 0.0001 troy ounces and democratize institutional grade gold to a new retail clientele that was formerly locked out due to the cost of a single unit. The cost model is changed as well; moving gold tokens on-chain often costs just network (gas) fees that do not depend on the amount transferred. This renders transportation of huge amounts of gold virtually free when compared to the transportation of bullion. Although physical gold offers protection against counterparty risk by allowing self-custody, market data indicates that more and more users are comfortable with giving up the absolute self-custody in favor of the ease and liquidity of the tokenized models offer.

The Financialization Trade-off: Gold Tokens vs. Gold ETFs

The analogy between gold tokens and gold Exchange-Traded Funds (ETFs), including GLD or IAU,

underscores the radical disparity between the exposure and ownership in the digital era. ETFs have become the instrument of choice in institutional gold allocation since the early 2000s because they are very liquid and have high bid-ask spread in the conventional brokerage environment. Nevertheless, the products are essentially financial instruments that are directed towards the legacy market, but not functional digital money.

Gold ETF is not a bearer instrument, but a claim on a trust. It is a complicated network of custody comprising of trustees, custodians and authorized participants. Most crucially, ETFs are stiflingly siloed assets; they cannot be bought and sold at any time except when trading is open at national stock exchanges and tied to the clearing system of the traditional banking system.

The primary disparity is what this research terms “DeFi Composability”. ETF shares are technically idle in the course of being deposited in a brokerage account; they cannot be put back into the market as collateral under the margin lending structure of that particular broker. By contrast, tokenized gold refers to a programmable asset that may be smoothly incorporated within the protocol of Decentralized Finance (DeFi) to yield yield. The tokens such as PAXG can be deposited to lending protocols, such as Aave, and used as high-quality collateral to borrow stablecoins so that the holder could retain his/her gold position and have access to liquidity (CoinGecko, 2025). This financial utility is what turns gold into a value-less safe-haven instrument into a viable instrument of working capital, which the traditional ETFs cannot do structurally.

The Sovereignty Trade-off: Gold Tokens vs. Fiat Stablecoins

The line by line analogy of gold tokens with fiat-based stablecoins (such as USDT or USDC) validates the essential Axis of Sovereignty of the Geo-Technological Matrix. Whereas fiat stablecoins resolve the transactional utility issue, giving it speed and a digital medium of exchange, it worsens the sovereignty issue. Nearly all of the market of stablecoins, 99% of it, is USD-denominated, which means that the owner of USDT has a digital claim on the US banking system, in its nominal form (CoinGecko, 2025). Such exposure brings about high inflation and debasement risk, and possible sanctions risk to the holder.

With the growing move towards dollar-weaponization, Arslanalp et al. (2023) state that it has generated a strategic demand of gold and other assets that are not a liability of the US government. A non-sovereign unit of account can be gold-backed stablecoins. In situations where a transaction is completed by using a token such as XAUT, the parties are not transferring fiat credit but a given amount of physical gold. This offers a political hedge not found with fiat stablecoins such as USDC which can be frozen on the issuer level since the underlying reserves (US Treasuries and bank deposits) are under the jurisdictional perimeter of the US.

Although such tokens as PAXG can also be used to offer freeze options in response to the requirements of the law, the underlying asset is gold and it does not depend on the fiscal health of the US or the neutrality of the US financial system. Thus, gold stablecoins are not only a niche coin in crypto but a systemic

insurance against a multipolar monetary order, or a digital version of hard currency, which has the same functionality as a stablecoin but which is not geopolitically vulnerable in the long-term as a fiat peg.

Table 3.3: Comparative Matrix of Gold Tokens vs. Traditional Assets (source: Compiled by the author based on Tsentsura (2025) and Arslanalp et al. (2023))

Feature	Physical Gold	Gold ETF (e.g., GLD)	Fiat Stablecoin (e.g., USDT)	Gold Token (e.g., PAXG)
Primary Utility	Ultimate Store of Value	Portfolio Exposure	Medium of Exchange	Hybrid (SoV + MoE)
Settlement Time	Days (Physical delivery)	T+2 (Banking days)	Instant (Block time)	Instant (Block time)
Trading Hours	Dealer Hours (9-5)	Market Hours (9-4)	24/7/365	24/7/365
Divisibility	Low (1g / 1oz bars)	Medium (1 Share)	High (0.01 cent)	High (18 decimals)
Custody Risk	Low (Self-Custody)	Low (Regulated Trust)	Medium (Bank Risk)	Medium (Issuer Risk)
Sovereignty	High (Neutral)	Low (USD Denominated)	Low (USD Denominated)	High (Neutral Asset)
Yield Potential	None (Costs storage)	None (Costs fees)	Moderate (DeFi/Lending)	High (DeFi Collateral)

3.2.2 Risk-Return Divergence: Gold Tokens vs. Alternative Real-World Assets (RWA)

There is a high degree of heterogeneity of asset classes in the broader Real-World Asset (RWA) market in 2025 providing a different profile of liquidity, yield and geopolitical risk. Although gold tokens (PAXG, XAUT) are the pioneer of commodity tokenization, they are in a competitive environment dominated more and more by tokenized cash equivalents, mostly US Treasury Bills, and tokenized private credit. By 2030, as Citi GPS (2023) estimates in its landmark document Money, Tokens, and Games, tokenization of financial assets will enter the market to be valued to about 4 trillion to 5 trillion dollars with the most powerful growth driver being risk-free sovereign debt. But to the sovereign reserve manager or the strategic institutional investor the decision to use a gold token or a tokenized Treasury is not the yield optimization of a choice; but the nature of the concept of Safety of a weaponized international monetary system. In this section, the radical divergence of the risk-return profile of the gold tokens and other mainstream RWAs is analyzed.

The “Inside Money” vs. “Outside Money” Divergence

The greatest risk difference between the gold tokens and other RWAs, namely tokenized Treasuries (e.g., BlackRock’s BUIDL or Franklin Templeton’s BENJI) is in the difference between the Inside Money and the Outside Money.

The US Treasuries that are tokenized are simply digital manifestations of a governmental US debt. They are the ideal place of “Inside Money”: a type of asset that is the liability of another person (the US government). Although tokenization introduces an element of 24/7 liquidity and fractional ownership of assets, it does not alter the nature of the underlying jurisdiction of the asset. Like the sources cited in Arslanalp et al. (2022) emphasized after the seizure of Russian foreign reserves, the security of the US debt depends on

the political orientation of the debt holder towards the issuer. When a more geopolitically aggressive situation occurs, an entity may be neutralized or even blacklisted at the smart contract level or the level of custodial with virtually no delay.

Instead, Gold tokens are the Out-of-Money. Its underlying physical bullion is not the liability of anybody and has no counterparty risk when it is audited appropriately. On the Geo-Technological Matrix, gold tokens are placed in Quadrant IV since they provide the transactional pace of a digital asset but still have the Sovereign Neutrality of a physical commodity. To an actor with Weaponized Interdependence, the gold token risk is market volatility; the tokenized Treasury risk is an overall, jurisdictional failure of principal through sanctions.

The Yield vs. Political Insurance Trade-off

The tokenized Treasuries in the high-interest-rate setting of 2024-2025 will be the yield engine of the RWA market with returns as high as 5%. Contrary to that, the PAXG and XAUT are non-yielding assets; in reality, such assets tend to be subject to nominal storage and administration fees (e.g., 0.02% of Paxos custody fee). This generates a large "Yield Gap" or "Opportunity Cost" to holding gold tokens as opposed to holding debt instruments.

This study, however, claims that to the sovereign and strategic players, the absence of gold tokens at zero-yield is not a bug, but a feature, a Political Insurance Premium. According to the traditional financial theory, the US Treasuries anchor the Risk-Free Rate. However, according to the postulates of Zoltan Pozsar (2022) in his Bretton Woods III model, in a great-power competition, the meaning of Risk-Free is dividing. A 5 percent yield is a secondary factor to a country that is not an aligned country but the absolute protection of principle during a geopolitical chokepoint situation. The Gold tokens offer a Return on Safety that can not be duplicated by tokenized Treasuries since the value of the token does not depend on the fiscal soundness or the sustained political goodwill of the United States.

Volatility and Price Discovery

The profile of the way the capital gains is returned in terms of the global market price of gold determines the profile of the returns of gold tokens, as opposed to the profile of the returns of tokenized Treasuries, which are predetermined. This causes a role division in them in a digital portfolio:

Minted Treasuries as Cash Equivalents: They serve as low-volatility, stable collateral of DeFi and trade settlement. Interest rate duration and jurisdictional interdiction is their main risk.

Gold Tokens as "Strategic Reserves": They have greater price volatility but have good returns in time of instability in the world. According to empirical evidence (Q3 2025), when the geopolitical tensions have spiked, gold tokens are often in a flight to quality, and they increase in value at the time when the assets under the label of Inside Money are under the greatest pressure.

Table 3.4: Risk-Return Divergence Matrix: Gold Tokens vs. Alternative RWAs (source: Synthesized from Citigroup RWA Report (2023) and Chapter 2 analysis)

Risk/Return Metric	Gold Tokens (e.g., PAXG/XAUT)	Tokenized Treasuries (e.g., BUIDL)	Tokenized Private Credit
Asset Type	Outside Money (Commodity)	Inside Money (Debt)	Private Debt (Credit)
Yield Profile	0% (Price Appreciation)	4% - 5.5% (Fixed Income)	8% - 15% (Floating)
Jurisdictional Risk	High Resilience (Neutral)	Low Resilience (Seizable)	Low (Legal Jurisdiction Dependent)
Price Volatility	Moderate to High	Low (Near-Stable)	Low (Stable until default)
Liquidity	High (Global 24/7 AMMs)	High (Institutional Rails)	Low (Lock-up periods)
Systemic Role	Sovereign Hedge	Efficiency Play	Yield Enhancement

Liquidity and Settlement Finality Divergence

The last point of divergence is in the “Liquidity Profile”. The tokenized Treasuries may only be equipped with whitelisted institutional investors and the redemption process still needs a traditional financial intermediary, which can also take several hours or days to go through. They are Semi-Permissionless at best.

The Tokens that are used, especially the offshore ones such as XAUT, are more permissionless. They can trade on Automated Market Makers (AMM) around the world such as Uniswap, which permits Atomic Settlement (T+0) any time. This “Transactional Speed” is a decisive return variable of the actors who have to transfer enormous volumes of value across borders in a crisis without an intercept window of the correspondent banking system. Although tokenized private credit has better returns, it does not have the standardization and instant secondary market liquidity that gold tokens have. The combination of standardization of a global commodity and the unblockability of decentralized payment rails make gold tokens the best RWA classes to use in case of an actor in need of Crisis Liquidity.

Overall, Economic Yield and Geopolitical Autonomy are two opposing ideas in the risk-return divergence between the gold tokens and other RWAs. The split of the IMS will continue to move the “Safety Discount” of tokenized Treasuries into more of the gold tokens, as the main “Political Premium” of digital-era synthetic Safe Assets.

3.3 Market Trends and Quantitative Feature Analysis

Gold-backed stablecoins developing into a systemic participant of the digital asset ecosystem cannot be discussed outside the context of the larger trend of Real-World Asset (RWA) tokenization. With the structural fragmentation of the international monetary system (IMS): the call of on-chain representations of physical value has shifted to a stage of speculation into the executions of strategic reserve management and institutional treasury. By the third quarter of 2025 the gold-token market will have shown itself to be not just following the path that the physical gold market is taking, but it is already forming its own growth pattern and structural features.

3.3.1 Market Size and Growth Trajectory: The "Twin Oligopoly" Structure

The rise of gold-backed stablecoins can not be discussed outside the context of other new digital markets, especially the boom of RWA tokenization. In a historic first in the history of the world, according to the Global RWA Protocol Report (Q3 2025), the Total Value Locked (TVL) in global protocols of real-world assets exceeded $30 billion (Jaupi, 2025). This achievement is an exponential growth- over ten times higher than the value was measured at the end of 2022.

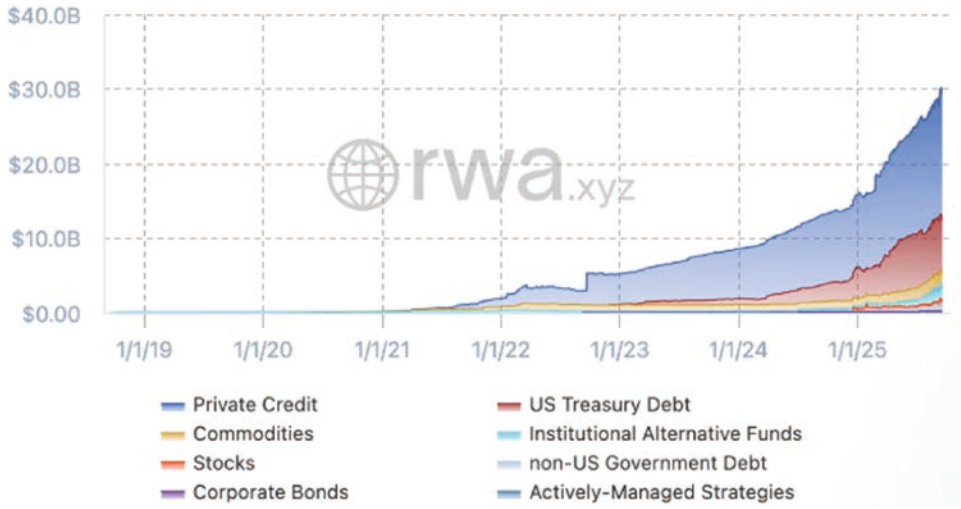

Figure 3.3 Total RWA Value (source: Jaupi, 2025)

Among these $30 billion-landscapes, there has arisen a pillar of the ecosystem in the vertical of Tokenized Commodities. Other commodities such as silver or base metal have started to undergo tokenization, however, gold tokens continue to lead the pack with over 85% of all the value in the portfolio of the commodity tokenization industry.

Quantitative Growth Dynamics and the Divergence of Value

The history of tokenized gold is rather non-linear. Statistics published by Phemex News (September 2025) check that the overall market value of gold-backed tokens had reached 2.88 billion dollars. In perspective, this is a 150 percent year to year growth rate. More importantly, this increase is much higher than the increase in the underlying physical asset. In 20242025, the market cap of the tokens increased by a significant percentage, but at a much lower price than the spot gold price, which was over 3,800 per ounce (Tekli 4).

This is statistically significant to our hypothesis of Sovereign-Digital Nexus. Assuming that the appreciation of the underlying asset only drives growth of tokenized gold, then the market capitalization would increase at a rate that is approximately proportional to the spot price of gold. Its 150 percent increase in token market capital over a diminished increase in the gold price points to the fact that the market is being stimulated by a huge influx of new capital and new entrants. This is not a movement of value that is

passively migrating, but an active movement of users who are pursuing the particular synthetic qualities of tokenized gold; the political safety of the metal, and the transactional efficiency of the blockchain.

In order to clearly understand the market dynamics of tokenized gold, it is essential to disconnect the meaning of the price transmission and demand feedback because there is a very asymmetrical relationship between the physical gold and the gold-backed stablecoins. When it comes to price, the correlation is purely unidirectional the value of the token is purely determined by the world spot price of the physical gold, but it is sustained by a strict system of 1:1 physical redemption and arbitrage of the market. The stablecoin is not a price-maker, it is a price-taker. But on the measures of market capitalization, and of the demand in the physical sense, the interrelationship is a strong two-way feedback loop. The increasing demand to purchase tokens such as XAUT or PAXG when they are motivated by geopolitical or macroeconomic reasons to move to digital safe havens causes the issuers to buy corresponding amounts of physical bullion in the open market to ensure that they remain fully reserved. The actual market data available at the beginning of 2026 is a perfect display of this phenomenon with Tether increasing its physical gold holdings to some 148 metric tons, worth more than 23 billion (Sandor, 2026). Fueled by the runaway growth in market cap of XAUT and the diversification of its reserves in strategic locations, Tether will become aggressive buyers in the market buying about 27 tons of physical gold in the fourth quarter of 2025 alone. This massive quarterly purchase amount was ahead of nearly all sovereign countries in the world with the central bank purchases in Poland and Brazil being the only two countries to have higher acquisitions in the same quarter. This data shows that even though a gold stablecoin is an inactive monitoring system of the metal price and analog, its active use on a large scale serves as a huge liquidity funnel at the institutional scale. The token market consumes world digital capital and transforms it into enormous physical purchasing pressure, so that it compresses the real above ground supply of gold and the traditional gold market is actually supported by the bottom up structural.

The “Twin Oligopoly” and Liquidity Moats

Although there are a number of new entrants into the gold tokenization market, the market is quite concentrated. Such a structural feature can be called a Twin Oligopoly, a tendency, which can be observed in the general stablecoin environment, where liquidity in the market naturally drains into known winners. Within the gold segment, Tether Gold (XAUT) and PAX Gold (PAXG) have preserved this duopoly that generates over 85 percent of the overall sector value.

Tether Gold (XAUT) will have established itself as the leading player in the market by the end of 2025 with its market capitalization standing at 1.43 billion. The second one was PAX Gold with a market value of 1.12 billion (Coincentral, 2025). This concentration is reflective of the fiat stablecoin market, in which Tether (USDT) and Circle (USDC) act as the major liquidity enforcers. To any potential new entrant, the technical capacity to issue a token or the physical presence of gold is not the barrier to entry, but the so-called liquidity moat created by these two players. Liquidity produces liquidity: institutional traders and sovereign reserve managers need to have access to deep secondary markets to buy and sell positions

without materially slipping the price. Consequently, XAUT and PAXG gain a network effect such that it will become harder and harder to be relevant as a system with smaller, regional, or unbacked tokens of gold.

Bifurcation of User Behavior: Collateral vs. Reserve

A closer analysis of the on-chain forensic metrics depicts an interesting difference in the use of these two most popular assets that further confirms the hypothesis of Sovereign-Digital Nexus. Whereas XAUT has a larger market capitalization, PAXG has a much greater and more extensive user base. It implies that XAUT is more preferred in the context of storing lump sums, whereas PAXG is more of a component of the transactional infrastructure of the decentralized finance (DeFi) ecosystem.

According to Table 3.5, PAXG has an impressive 74,000 active wallet addresses in comparison with 43,000 active wallet addresses of XAUT (News Feeder, 2025). What is even more indicative is perhaps the trading volume per day: PAXG has an average of almost 67 million in daily turnover, almost three times the 23 million that XAUT has. This difference in velocity refers to the fact that PAXG is a high-frequency financial instrument. Nowadays it is mainly used in the existing market as high-end collateral to lending systems such as Aave or to support the issuance of decentralized stablecoins such as DAI within the MakerDAO ecosystem.

Table 3.5: Comparative Market Metrics (Q3 2025) (source: This compilation is based on synthesized data from CoinGecko (2025), Coincentral (2025), and Tether Transparency Reports)

Metric	Tether Gold (XAUT)	Paxos Gold (PAXG)	Strategic Implication
Market Capitalization	$1.43 Billion	$1.12 Billion	XAUT is the preferred vehicle for large-scale wealth storage and “Outside Money” reserves.
Active Wallet Addresses	~43,000	~74,000+	PAXG has achieved deeper retail penetration and DeFi ecosystem integration.
Daily Trading Volume	~$23 Million	~$67 Million	PAXG functions as a high-velocity transactional tool; XAUT functions as a low-velocity reserve.
YoY Holder Growth	173%	Moderate Growth	Institutional and “Sovereign Whale” adoption is accelerating faster for the offshore model (XAUT).
Average Holding Size	High (~$33,250/wallet)	Low (~$15,135/wallet)	XAUT users are primarily “Whales” or Institutions; PAXG users represent a broader retail and fund base.

The Rise of the “Offshore Reserve” Participant

Table 3.5 can help to understand a key market segmentation. The extreme capitalization of XAUT, even though it has a lower speed and fewer applications of DeFi, implies the prevalence of buy and hold investment participants. These users, including both the high-net-worth individual and the sovereign-linked ones, seem to value the offshore and non-seizure-prone nature of XAUT more than the revenue-generating capabilities of PAXG.

The XAUT holders increased in 2025 alone by 173 percent. This spiral was in parallel with the growing geopolitical tensions and the ongoing weaponization of the USD-centric financial system. In this case, as Tsentsura (2025) writes, the less transparency and domicile offshore nature of Tether have not been a negative aspect to a user whose key choice would have been the long arm of US jurisdiction reach. XAUT has successfully turned into the digital shadow vault in the multipolar world, and PAXG has turned into the institutional gold standard in the regulated Western DeFi market. Such a bifurcation goes to show that the tokenized gold market is not a monolith; rather it is a multifaceted arena, in which various actors pursue different technical and jurisdictional solutions to the underlying issue of monetary safety in an era or global fragmentation.

3.3.2 Technical Evolution: L2 Migration, Zero-Knowledge Proofs (ZKP), and Privacy Protection

The technology of gold-backed stablecoins is shifting away at an alarming pace, leaving the original constraints of the early public blockchains behind. With the maturity of the Sovereign-Digital Nexus, the requests of such assets have changed with the basic level of digital representation, and the complex level of transactional resilience. The main factor behind this development is the necessity to address the problem of the Trilemma of Blockchain security, scalability and decentralization, and the need to meet the individual privacy and speed demands of sovereign and institutional users, at the same time. In this section, the three most significant technical trends that define the future of tokenized gold are broken down: Layer 2 (L2) ecosystems migration, Zero-Knowledge Proofs (ZKP), and the development of privacy-enhancing technologies (PETs).

The Migration to Layer 2 and Cross-Chain Interoperability

Although the Ethereum mainnet is currently the leading (so-called) settlement layer of both PAXG and XAUT, due to its unparalleled security and decentralization, its high transaction (gas) fees and poor throughput have posed a serious economic impediment to high-velocity trade. In order to keep such advantage over the traditional fiat systems, gold tokens are migrating more and more to the Layer 2 scaling solutions, including Optimism, Arbitrum, and Polygon.

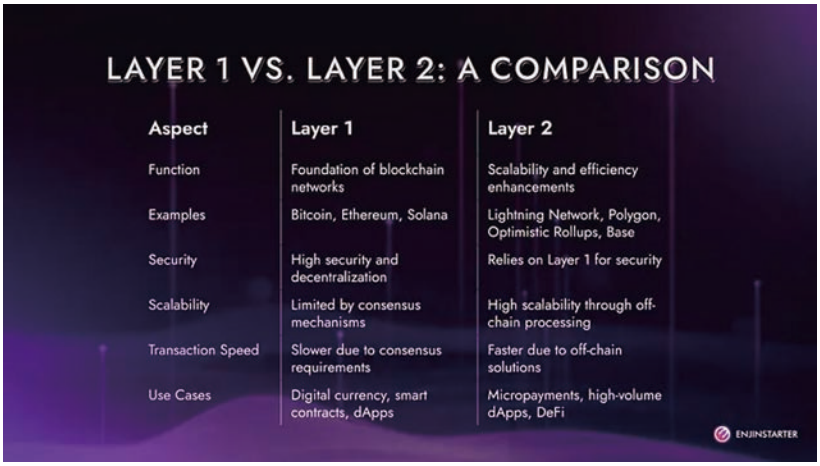

Figure 3.4 Comparison of Layer 1 and Layer 2 (source: ENJINSTARTER, 2024)

This movement is not simply an economy-saving step, it is an expansion of "Transactional Finality". L2 solutions build on top of Rollups to send thousands of transactions in one batch that is resolved in Ethereum mainnet. This enables gold backed tokens to have sub seconds confirmation times of transaction and fractional cent fees. In the case of a sovereign state, with gold tokens, cross-border payments would be made available by this infrastructure, and the High-Velocity Clearing can only be done with the centralized SWIFT/CHIPS system, but without the concomitant risk of being choked at a chokepoint. Additionally, with the implementation of Chainlink Cross-Chain Interoperability Protocol (CCIP), gold tokens can be transferred freely between various blockchain systems to avoid the situation of liquidity being confined to one blockchain.

Zero-Knowledge Proofs (ZKP) and the "Trustless" Verification

One of the issues that confront the "Sovereign-Digital Nexus" is the Audit-Privacy Paradox: how can an issuer verify that its gold reserves have been completely secured without revealing sensitive vault data or serial numbers to its opponents? The technical solution to this challenge is Zero-Knowledge Proofs (ZKPs).

ZKPs enable one party (the prover) to demonstrate something to another party (the verifier) that a statement is indeed true without telling them any information other than the statement itself is correct. When applied to gold stablecoins, zk-SNARKs and, in particular, ZKP technology are being utilized to construct PoR systems. With ZKPs, an issuer is able to produce a cryptographic proof that its vault balances correspond to the total amount of token on-chain. Most importantly, any person on the blockchain can authenticate this evidence without knowledge of the issuer as to the name of the custodians, the location of the vaults, or the exact numbers of the bars. This Privacy-Maintaining Transparency is essential to sovereign actors who are interventionally demanding and perceive exposing the locations of reserves to publicity as a threat to national security.

Privacy-Enhancing Technologies (PETs) and Sovereign Anonymity

One of the most delicate technical developments is, perhaps, the incorporation of privacy enhancing technologies. Although the public blockchain transparency of systems such as Ethereum is an advantage to regulators it is a weakness to sovereign states that want to avoid the Panopticon Effect of the dollar system. Unless all the transactions of gold coins are recorded on a public register, its enemies can do a form of Chain Analysis to track the trade patterns of a country and determine their important allies.

In response, the future of gold-backed stablecoins is investigating Shielded Transactions. With the assistance of technologies such as stealth addresses and the mixing logic of the Tornado Cash type (modified to a compliant institutional context) it is possible to offer gold tokens with the property of so-called Transactional Anonymity. As an illustration, a Shielded PAXG transaction would conceal both the sender and the recipient and the amount to be sent without letting the rest of the world ever learn about it, yet provable to any authorized auditors using Viewing Keys.

This technical design is in line with the geo-technological geo-technical needs in the Off-Grid. It establishes a digital analogy to Physical Cash Finality - a payment that when made leaves no trace of any kind that can be detected by an outside hegemon. The ZKPs to check the reserves and PETs to ensure the privacy of transactions make gold tokens attain the Holy Grail of digital finance, an asset that is simultaneously transparent and opaque, i.e. as transparent as an audit of a central bank and as secret as a gold bar.

Table 3.6: Technical Evolution Matrix: Foundations vs. Next-Generation Features (source: Synthesized from Scigala (2025) and Sherlock (2025))

Technical Vertical	Foundational Model (2020-2023)	Next-Gen Evolution (2025+)	Strategic Sovereign Benefit
Settlement Layer	Ethereum L1 (High Cost/ Slow)	L2 Rollups & Cross-Chain (Low Cost/Fast)	Enables high-velocity trade clearing.
Reserve Verification	Manual Audits / PDF Reports	ZK-Proofs / Real-time On-chain PoR	“Trustless” solvency without data leaks.
Privacy Model	Pseudo-anonymous (Public Ledger)	Shielded Transactions (PETs)	Bypasses the “Panopticon” of G7 surveillance.
Smart Contract	Static (Transfer only)	Programmable (DeFi Composability)	Gold becomes “productive” working capital.

Conclusion of Technical Analysis

The technical development of gold-backed stablecoins is a deliberate step to Technological Sovereignty. These assets are sealing the “interdiction window” on which the US-led financial system imposes sanctions by migrating to L2s because it is fast, using ZKPs to perform private verification, and using PETs to provide transactional anonymity. These technologies make sure that there is no longer any gold token, simply an electronic receipt on the gold in the metal, but a complex “geopolitical tool” that can operate as alternative, unblockable infrastructure of the global circulation of money.

Chapter 4: Role Analysis: “Synthetic Reserve Assets” in the Digital Age

4.1 The Unity of Gold Stablecoins as a Store of Value and Medium of Exchange

It was the theoretical synthesis of Chapter 2 which found a fundamental Analog Limit which has traditionally marginalized gold within the modern international monetary system (IMS). Even though gold, in its sovereign-neutral form, is unchallenged as a high-quality medium of exchange, it has been structurally incomplete as a high-velocity medium of exchange. This dissertation claims that gold-backed stablecoins have successfully solved this historical conflict, implementing what this study calls the Unity of Monetary Functions in a single, programmable digital tool, using the empirical evidence in the case studies of Chapter 3.

4.1.1 Bridging the “Inside-Outside Money” Gap

The IMS has historically imposed a binary decision on participants that an asset was an extremely liquid instrument of inside money (such as the US dollar or Treasuries) and is a liability of a political entity; or

it was a very safe but illiquid instrument of outside money (such as physical bullion) and is not a liability of any political entity. This dichotomy is abolished with gold-backed stablecoins, through shifting gold out of Quadrant II (the Analog Hedge) of the Geo-Technological Matrix to Quadrant IV (the Synthetic Solution).

The tokenized format in this quadrant is a format which retains the tokenized features of the underlying bullion, namely its ability to resist dollar debasement and its nature as a non-sovereign asset, along with giving it the tokenized feature of near-instant liquidity. This unification is not just an expediency; it is a unitary development. With the 24/7/365 availability and 18-decimal divisibility of PAXG and XAUT as discussed in Section 3.2, the degree of accuracy and speed of transfer of value is present that can never be matched by physical gold, which must be assayed and securely transported every time a significant change of ownership occurs.

4.1.2 The Political Economy of Atomic Settlement

The most radical thing about this unity is the attainment of the Atomic Finality in cross border trade settlement. In the old SWIFT/CHIPS network, this is a probabilistic form of settlement and is normally T+2 or T+3 lagged. This is not just a technical efficiency waste but a Geopolitical Window of Interdiction. In this window, as Farrell and Newman (2019) in their Weaponized Interdependence theory explain, a central clearing authority, operating at the directive by a hegemon, is able to determine, flag, and freeze a transaction before it is finalized on its destination.

Gold-backed stablecoins make use of a deterministic finality (T+0) of blockchain to seal this interdiction window. In case the transaction involving two sovereign or institutional bodies is settled by means of XAUT, the ownership transfer is the block validation. Such bearer finality resembles the irreversible and anonymous quality of physical currency except that the process is digital and global. As a combination of an apolitical nature of gold with the unblockable nature of decentralized payment rails, gold stablecoins are a practical substitute to the dollar-based Panopticon of contemporary banking.

4.2 Feasibility Assessment as Sovereign Reserve Assets

The fact that central bank reserve managers have decided to amass gold at unprecedented levels in 2023 and 2024 is a strong indicator that the world is in need of a Geopolitical Hedge against the dollar-based order. Nevertheless, the applicability of gold stablecoins as an institutionalized reserve asset to meet the traditional trinity of reserve management, Safety, Liquidity, and Return.

4.2.1 Redefining the Reserve Management Trinity

1. Safety: From Credit Risk to Jurisdictional Resilience

Conventionally, the creditworthiness (the likelihood of default) of a reserve asset was used as a measure of the Safety of the reserve asset. The US Treasuries became the gold standard under this paradigm. Nonetheless, as discussed in Chapter 2, the 2022 “Critical Turning Point” has shown that so-called safe assets

such as Treasuries can only be safe when the investor is politically on the same side as the issuer.

Gold tokens bring about a new level of security: Jurisdictional Resilience. As predetermined in the case analysis of XAUT, the "Offshore/Shadow" model is the one that maximizes protection against G7 jurisdictional overreach. The tokenization of the Treasury is a liability to the US government whereas the tokenization of a gold is a claim of a tangible commodity. Out of even the "Compliant/On-Grid" version of PAXG, although the digital rail can be frozen, the underlying asset is still a non-sovereign commodity, which serves as a structural buffer unavailable to fiat assets.

2. Liquidity: Standardized Fungibility vs. Legacy Friction

A reserve is required to be fungible such that it can be used in case of a balance-of-payments crisis. The Twin Oligopoly of XAUT and PAXG has been able to create the required Liquidity Moats to facilitate flows in institutions. Since every token is a London Good Delivery (LGD) troy ounce, gold tokens become hyper-fungible and can be exchanged on global Automated Market Makers (AMMs) such as Uniswap at the lowest slip with no loss at any time of the day. This is compared well with the "Analog Limit" of physical gold that will take a slow and expensive re-assay to be reinstated into international clearing.

3. Return: The Yield-Resilience Trade-off

The historical criticism of gold is that it is a dead asset producing no income. The opportunity cost of holding gold tokens in a high-interest-rate environment, as compared to holding tokenized Treasuries (paying 5% or more) is high. Nevertheless, there has been a "Stablecoin Revolution" that has presented a Return on Utility. With the concept of DeFi known as Composability, gold can be deposited in lending protocols (e.g., Aave) as a high-quality collateral, so that a central bank can retain its gold exposure but borrow at market rates. This in effect turns gold into a productive reserve asset at the first instance in history.

Table 4.1: Comparative Analysis of Reserve Assets (2025 Context)

Characteristic	US Treasuries (Inside Money)	Physical Gold (Analog Outside)	Gold Tokens (Synthetic Outside)
Counterparty Risk	Sovereign Credit Risk	Zero (No one's liability)	Low (Issuer/Vault Risk)
Seizure Risk	High (Jurisdictional)	Low (if domestically stored)	Moderate to Low (Resilient)
Transactional Velocity	High (but monitored)	Low (Physical logistics)	High (Atomic Settlement)
Audit Transparency	Absolute (Fiat Record)	Physical (Slow/Costly)	Real-time (On-chain/ZKP)
Yield potential	Fixed (Coupon)	Negative (Storage costs)	Moderate (DeFi Collateral)

4.2.2 Resolving the "Custody Paradox" through Technical Evolution

The greatest obstacle to the institutional implementation of gold stablecoins has been the "Custody Paradox" the digital token is as safe as the physical vault it symbolizes. By the token being an Outside Money, we are neutralized in the case that the vault is under the jurisdiction of a hostile power.

The synthesis of blockchain and cryptography provides a multi-layered solution of this paradox (as it was analyzed in the section of technical evolution 3.3.2):

1. ZK-Proofs for "Trustless" Transparency

Zero-Knowledge Proofs (ZKP) are an issuer demonstrating to a central bank that 100 percent of its gold is covered without exposing an adversary to vultures to sensitive information like geographic coordinates of its vaults or bar serial numbers. The result of this "Privacy-Preserving Transparency" is that a reserve manager can ensure the presence of the gold with cryptographic confidence and at the same time keep it a secret (especially its strategy).

2. Distributed Vaulting and Jurisdictional Arbitrage

The example of XAUT Swiss vaults informs about the possibility of the so-called Jurisdictional Resistance. Dematerializing the right to property as a token allows a sovereign to have its reserves in various neutral jurisdictions at the same time. The token is the "Global Key to these various physical stocks. Should a given jurisdiction be politically unstable, then the entity can effectively burn its tokens in one vault and re-mint its tokens in a different vault possibly attaining some sort of "Reserve Mobility" that could not have been previously achieved.

3. Solving the "Analog Gap" of Settlement

Lastly, gold stablecoins address the problem of the Analog Gap by enabling the sovereign to hold physical gold in a neutral offshore vault and utilize the digital version to settle at high frequencies. The token offers Bearer Finality which states that, a transaction that has been verified to the on-chain server is regarded as an ownership transfer by the digital law, despite the physical transfer of the bars not taking place. The following decoupling of Physical Security and Digital Utility is the key to the importance of the mild gold stablecoin as a synthetic reserve asset.

4.3 Conclusion of Role Analysis

To conclude, it is not just that gold-backed stablecoins are just a digital incarceration of a barbarous relic. They are an advanced, technologically-made reaction to the structural collapse of the unipolar dollar system. They offer a Synthetic Safe Asset, which helps replace the US dollar by weaponizing, by merging the store-of-value capabilities of gold with the transactional capabilities of the blockchain. To a world which is heading toward a multipolar order, gold tokens provide the sole possible means of having Digital De-dollarization without compromising on the liquidity and speed that modern finance demands. These assets are no longer a theoretical discussion about the viability of sovereign reserves but a reality of operation, as evidenced by similar growth in the PAXG and XAUT ecosystems accelerating.

Chapter 5: Impact Assessment: Opportunities and Systemic Challenges

5.1 Opportunities: The "Digital De-dollarization" Path for Emerging Markets

The emergence of gold backed stable coins is a critical off-ramp to Emerging Markets and Developing Economies (EMDEs) to reduce the risk of the Tripartite Shock. These assets, as developed in the Sovereign-Digital Nexus hypothesis, include a special purpose to act as the means of de-dollarizing the domestic financial system of sovereign states without degrading the transactional efficiency demanded by the global economy.

The currency board of most of the emerging markets has led to a macroeconomic double-bind caused by the traditional dependence on the US dollar. On the one hand, the dollar is the source of the required liquidity to trade; on the other, it is the means of cryptoization and capital flight, which empties the domestic monetary policy. The stablecoins are backed by gold so that they represent a Third Way. In contrast to USD-based stable coins (USDT/USDC) that strengthens Digital Dollarization, gold tokens enable EMDEs to embrace a digital and high-velocity asset, which is pegged on a non-sovereign commodity. With the help of PAXG or XAUT as a unit of account of the local trading, these countries can avoid the "Exorbitant Privilege" of the dollar and retain the "Atomic Finality" of blockchain settlement.

This trend can be supported by the empirical data of the Q3 2025. the 173 percent increase in XAUT holders, especially between "Whale" addresses in non-Western jurisdictions, indicates that sovereign-related entities are moving capital into non-Western forms of so-called Outside Money (CEX.IO, 2025).

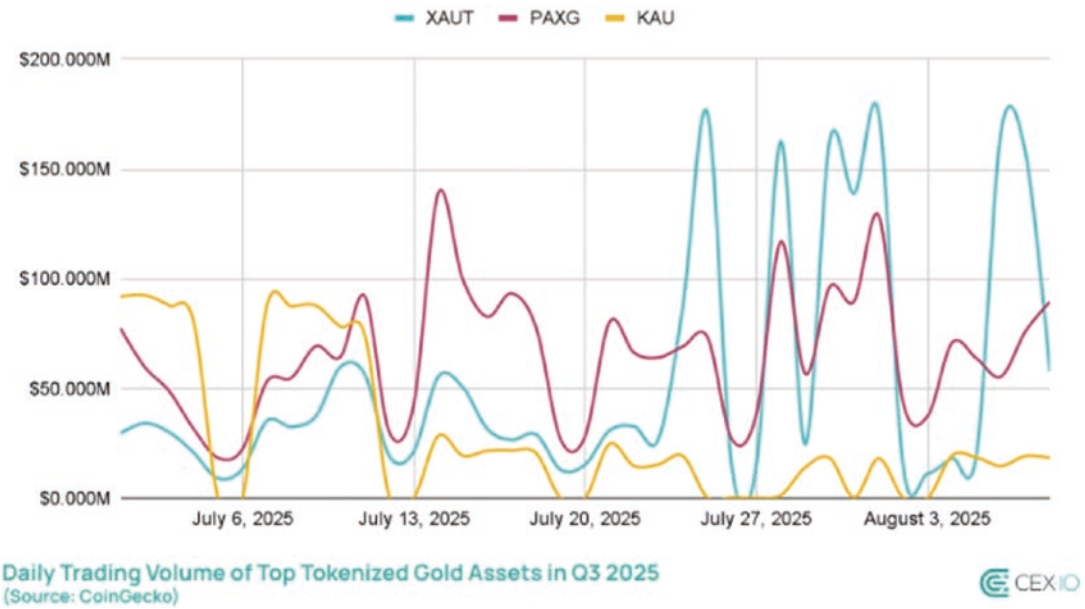

Figure 5.1 Daily Trading Volume of Top Tokenized Gold Assets in Q3 2025 (source: CEX.IO, 2025)

This migration is a kind of Geopolitical Hedge against a Long-arm Jurisdiction of the US Treasury of the national reserves. In the case of the emerging economies, gold tokens are no longer so much the stuff of

speculation, but the very fabric and structure of a more autonomous, multipolar financial order valuing "Sovereign Neutrality" rather than the Panopticon of the old dollar system.

5.1.1 The Asian Pivot: Regulatory Corridors and Institutional Adoption in Hong Kong and Japan

Although stablecoins are mostly used as a defensive tool on currency debasement and dollar weaponization in the emerging markets, developed Asian markets, namely Hong Kong and Japan, actively build their own regulatory corridors. These jurisdictions are effectively taking substantial institutional trading volumes out of the window, transforming the stablecoin narrative out of offshore avoidance to regulated financial infrastructure by developing transparent legal structures.

As a thorough report conducted by McKinsey and Company and Artemis Analytics and based on the data presented in December 2025, it turned out that the amount of stablecoin payments in the world grew significantly, and now approximately 390 billion a year (Higginson et al., 2026). As Figure 5.2 indicates, Asia has become the epicentre of the business with 60 percent of the total world volume (245 billion) taking place in Asia, with payments made by Hong Kong, Japan and Singapore being the major drivers of this activity.

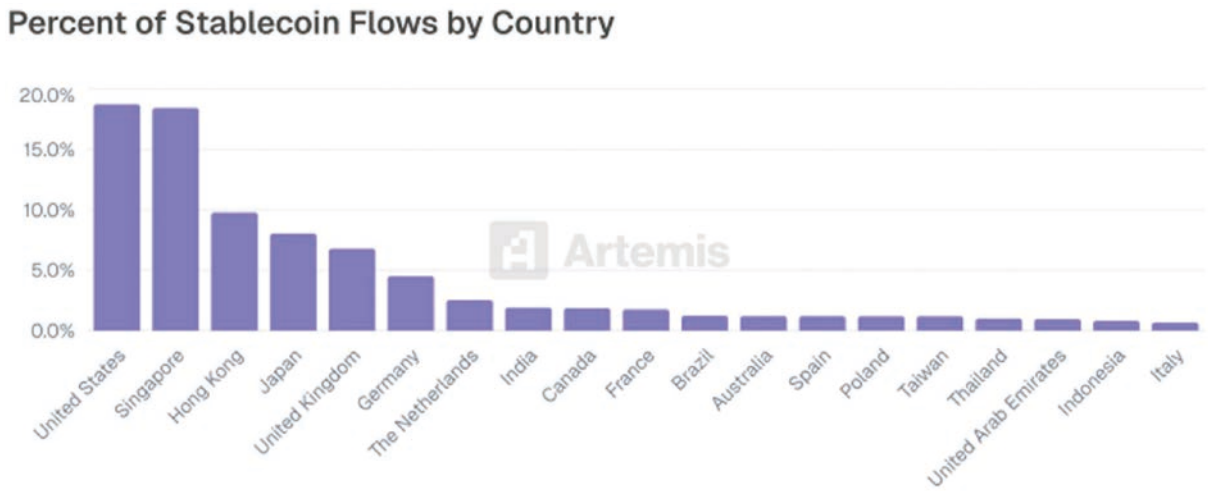

Figure 5.2 Percent of Stablecoin Flows by Country (source: Artemis et al., 2025)

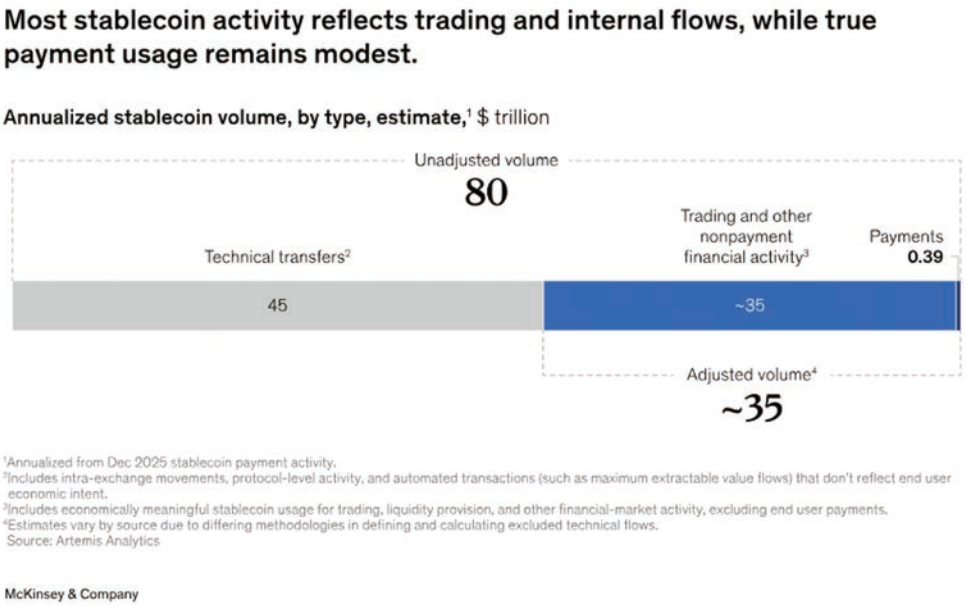

Figure 5.3 Annualized Stablecoin Volume, by Type, Estimate (source: Higginson et al., 2026)

Hong Kong: "Controlled Innovation" and the RWA Hub

Macro-policy Hong Kong passed the Stablecoins Ordinance on August 1, 2025, after the Stablecoins Bill was passed by the Legislative Council on May 21, 2025 (HKMA, 2025). This strict legal framework requires the stablecoin issuers to have 100 per cent backing in the form of high-quality and high liquidity reserve assets that are segregated and custodied by an approved institution in Hong Kong. Additionally, issuers should ensure that users can redeem their stablecoins in a timely manner at their face value without unreasonable charges or pathologically taxing conditions. On the micro-data level, the larger Asia-Pacific (APAC) area has proven its massive consumption of digital resources, which supports more than 185 billion of on-chain values every month up until the middle of 2025 (Chainalysis Team, 2025).

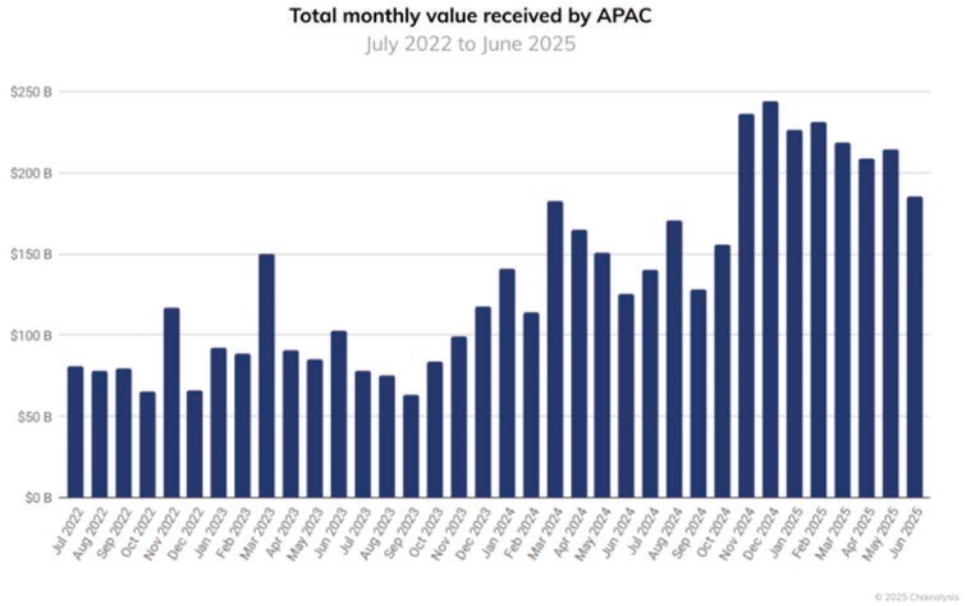

Figure 5.4 Total Monthly Value Received by APAC (July 2022 – June 2025) (source: Chainalysis Team, 2025)

In order to ensure that this large influx of capital is safely captured and controlled, the new Hong Kong regime effectively limits the provision of fiat-referenced stablecoins to retail purchasers by authorized persons only, and in effect, bans offshore issuers to actively promote non-approved stablecoins to people in Hong Kong. On the other hand, compliant innovation is actively encouraged; the Hong Kong Monetary Authority (HKMA) used a stablecoin issuer sandbox initiative before the law to enable participants to pilot the issuance in a risk-managed setting. This is a strategic attempt of macro-policy to shift enormous trading volumes, in the attempt to secure a portion of the discovered global consistent volume of $27.6 trillion in stablecoin trading volume in 2024 (see Figure 1.1), out of the Shadow/Offshore model (Quadrant IV) and into viable, institutionally established ecosystems (Otychenko, 2025).

Japan: Regulatory Shifts and the Institutional "Progmat" Infrastructure

Japan is a very institutionalized, top-down method of digital asset integration, which recently became the most rapidly expanding market among the top five of APAC market. With the help of specific macro-policy developments, such as regulatory reforms to better ensure that crypto is treated as investment instruments, tax regime changes, and the historic licensing of the first yen-backed stablecoin issuer, the market in Japan is undergoing a structural renaissance. This regulatory transparency triggered an impressive 120 percent increase in on-chain value received within the 12 months prior to June 2025, compared to regional counterparts (including Indonesia 103 percent, South Korea 100 percent and India 99 percent) (Chainalysis Team, 2025).

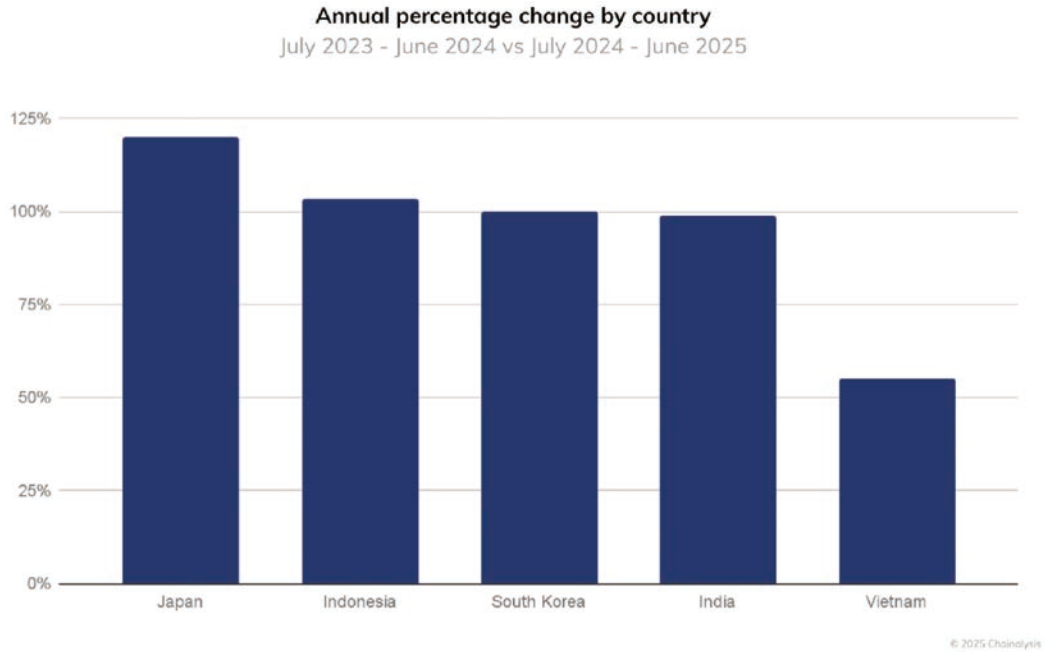

Figure 5.5 Annual Percentage Change by Country (source: Chainalysis Team, 2025)

The issue had been an issue of strict regulatory restrictions in the past, which limited the listing of stablecoins on the domestic Japanese exchanges. Therefore, the fiat-to-crypto movement was mainly concentrated in other resources; during the 12 months to June 2025, JPY cryptocurrency acquisitions were as

follows: 21.7 billion XRP and 4.7 billion BTC (Chainalysis Team, 2025). But this paradigm is taking a different turn. As the market expects the massive take-off of stablecoins such as USDC and national variants such as JPYC, the macro-policy of Japan is working hard to ensure that the traditional banking infrastructure is available to harness this newly opened liquidity. To address these regulatory changes, the megabank consortiums in Japan are hastening to roll out institutional grade infrastructure most prominently the Progmat Coin platform. Progmat, created by an affiliate of Mitsubishi UFJ (MUFG), is a compliant, modular blockchain network, which is expected to issue bank-backed stablecoins and process cross-border settlements. This empirical trend is an ideal case study of how proactive regulation not just boosts a depressed market (it is growing by 120 percent annually), but is able to also redirect capital flows out of retail speculation and into an institutionally anchored stablecoin ecosystem.

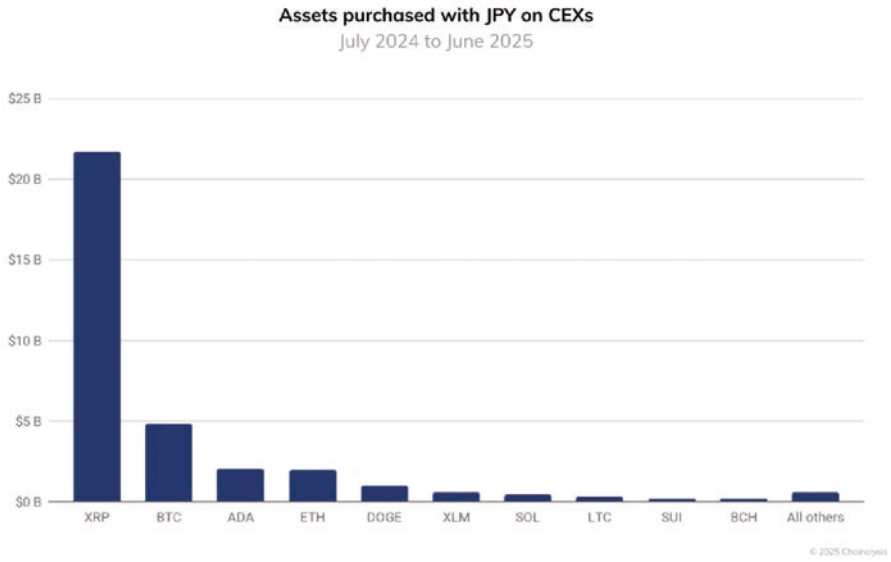

Figure 5.6 Assets Purchased with JPY on CEXs (July 2024 – June 2025) (source: Chainalysis Team, 2025)

Synthesis of the Asian Model

With the help of the empirical evidence in these Asian financial centers, one can get a clear division of the international financial system into two parts. Whilst unsupported crypto-assets and completely offshore tokens remain their only way out or geopolitical risk cushions, regulators such as Hong Kong and Japan demonstrate that when the ultimate regulatory transparency is rolled out, billions of dollars of daily trading will voluntarily step onto institutional tracks that are compliant. This successfully confirms the "Compliant/On-Grid" model, a viable roadmap to how to integrate gold-backed and fiat-backed synthetic assets into the conventional world economy without creating systemic illicit finance risks.

5.2 Challenges: Systemic Sanctions Evasion and Illicit Finance Risks

Although the gold tokens have some prospects of providing chances of autonomy, they equally present a great challenge to the stability and enforcement structure of the current global currency system. It is these same features which offer some level of resistance that ease the systematic circumventions of world financial standards.

5.2.1 Analysis of the "Offshore Black Hole": How XAUT Bypasses Western Clearing Bottlenecks

The most urgent issue is the appearance of so-called by this research the Offshore Black Hole. The Tether Gold (XAUT) example of the so-called Offshore/Shadow model, the specific structure designed to avoid the interdiction window of Western regulators, as examined in Section 3.1.

XAUT circumvents the Western clearance bottlenecks with a three-layered approach of Strategy Opacity:

Jurisdictional Arbitrage: XAUT takes advantage of a regulatory vacuum by residing in the British Virgin Islands (BVI) and keeping their assets in Switzerland as physical custody. This is to make sure the property is not liable to the real-time control of the NYDFS or the direct enforcement requirements of the OFAC.

Atomic Bearer Finality: XAUT transactions are able to offer such finality deterministic at T + 0 on decentralized ledgers that they do not necessitate correspondent banks. This eliminates the chokepoint in which the US-led financial system is usually exerted to sanctioned actors.

Shielded Technical Flows: Since, as we have seen in the technical evolution analysis, the use of multi-chain strategies (e.g., TRON) and perhaps even Shielded Transactions (ZKP) render the transfer of gold value practically invisible to the financial surveillance system of the G7, this can be called shielded technical flows.

This effect of a Black Hole implies that a sanctioned state can have a liquidation of significant quantities of real gold into XAUT and utilize it to pay off oil or weapons transactions around the globe, all with the overall flow of the value going off-grid. This is a systemic malfunction of the Panopticon Effect in that the hegemon is no longer able to trace and to interdict the monetary lifeblood of its enemies.

5.2.2 Regulatory Competition and the Failure of "Compliance Firewalls"

The presence of a so-called Resistant/Offshore (XAUT) and a so-called Compliant/On-shore (PAXG) model has stoked a vicious cycle of Regulatory Race to the Bottom. This effect negates the outcome of the use of compliance firewalls that are meant to defend the global financial system against illegal flows.

The Failure of Protocol-Level Censorship As discussed in Section 3.1.4, PAXG has a Freeze operation to meet the US law, XAUT offshore governance and multi-chain fragmentation make freezing in a comparable way even more challenging. This has a bipolar market with bad actors being naturally drawn to the "Shadow" model. The compliance firewall of the NYDFS can be successfully implemented only in cases where most of the market remains on-grid; until a large portion of liquidity is a flight to the off-grid asset like XAUT, Western regulations (including MiCA or the Clarity for Payment Stablecoins Act) are rendered toothless on an international basis.

The Wildcat Paradox of systemic risk The non-transparency of the Offshore/Shadow model - the so-called Swiss Shadow Vaults - returns the so-called Wildcat risk of banking described by Gorton and Zhang (2021). In the event of a liquidity crisis involving an offshore issuer such as Tether or the physical gold backing were damaged, the resulting “De-peg” would have a systemic effect on the larger RWA and DeFi ecosystems. Nevertheless, since these issuers are engaged in a regulatory vacuum, it has no Lender of Last Resort to soothe the system.

To sum up, the effects of gold-backed stablecoins have a two-sided nature. On the one hand, they give EMDEs a route to the process of de-dollarization and monetary self-sufficiency, on the other hand, they establish an infrastructure that cannot be blocked in terms of sanctions violations and money laundering. The “Geo-Technological Matrix” affirms the fact that the old world is experiencing a structural failure in the traditional “Compliance Firewalls” of the dollar-centric order as the world shifts to Quadrant IV (Synthetic Solutions). This conflict between the notions of Institutional Transparency (PAXG) and Sovereign Resistance (XAUT) will determine the future of the international monetary system.

Chapter 6: Conclusion and Policy Recommendations

6.1 Summary of Core Research Findings

The dissertation has examined how the international monetary system (IMS) has undergone structural change using the prism of the gold-backed stablecoins. The study confirms that we are entering the era of the Sovereign-Digital Nexus in which geopolitical need is coupled with technological change to yield a new genus of Synthetic Safe Asset. The subsequent fundamental conclusions summarize the process of translation of theoretical conceptualization to the empirical validation.

The study has first determined that the IMS is in a Tripartite Shock the combination of extreme geopolitical fragmentation (weaponized interdependence), re-institutionalizing gold as a non-liability asset, and a technological paradigm shift toward decentralized finance. This shock has nullified the post 1973 and neutrality assumption of dollar-centric order. The Russian reserves freeze in 2022, as discussed in Chapter 2, came as a critical turning point, and it fundamentally altered the demand of an Inside Money (claims on the hegemon) to an Outside Money (assets which are not the liability of anyone).

Second, this paper discovered gold-backed stablecoins as the inaugural occupant of Quadrant IV, which are highly utilitarian in terms of transactional nature and highly geopolitically resilient in terms of geopolitical resilience by developing the so-called Geo-Technological Matrix. These instruments overcome the Analog Limit of physical gold, which is politically safe but logistically illiquid, and at the same time overcome the Hegemony Risk of fiat-based stablecoins. The study has shown that tokenized gold is not just another financial instrument to be retail-speculated on but a geopolitical instrument that enables connecting the perennial worth of gold and the Atomic Finality of blockchain settlement.

Third, comparison of the cases of PAX Gold (PAXG) and Tether Gold (XAUT) demonstrated an important market bifurcation between the so-called Compliant/On-Grid and Offshore/Shadow models. PAXG is the institutionalized, which is its high legal safety, but subject to jurisdictional interdiction since it is located in New York and inherently features internalized freeze capabilities. Conversely, XAUT employs "Strategic Opacity" and jurisdictional arbitrage to provide a haven of seizure-resistance to actors interested in an off-grid settlement rail. This observation indicates that the Sovereign-Digital Nexus is not a singular place; it is a competitive space in which an assortment of different technical and legal structures have different geopolitical interests.

Lastly, the research was able to assess the viability of gold stablecoins as "Synthetic Reserve Assets." It concluded that using cryptographic verification (like ZK-Proofs) and allowing the use of gold as an item of productive use in DeFi, provided the solution to the Custody Paradox, these tokens represented a possible way of Digitally De-dollarizing.

6.2 Policy Recommendations

Due to the rise of gold-backed stablecoins in terms of systemic significance, current regulatory frameworks are becoming inadequate. To resolve the significant research gap that was identified in Chapter 1, this study suggests a set of specific policy interventions that would enable closing the gap between geopolitical stability and digital innovation.

6.2.1 Amendments for MiCA and the GENIUS Act: Bridging the Commodity Token Blind Spot

Recent laws, including the Markets in Crypto-Assets (MiCA) regulation by the European Union and the proposed Clarity for Payment Stablecoins Act (which is often linked to the GENIUS Act projects in the US) are more concerned with fiat-backed tokens, namely, Asset-Referenced Tokens (ARTs). Nevertheless, such frameworks do not pay much attention to the geopolitical peculiarities of commodity-backed assets.

1. Scaffolding the Definition of "Systemic" ARTs Regulators need to narrow down the definition of Asset-Referenced Tokens under MiCA. Nowadays ARTs have become the products of retail investment. This dissertation suggests that any commodity-based token that has attained a particular level of market capitalization (e.g. 1 billion dollars) should be re-characterized as a "Strategic monetary Instrument". This would oblige issuers to in addition to disclosing their financial reserves, to disclose the so-called Geopolitical Risk Profile of their custodial sites. As an illustration, when an issuer possesses gold in a non-extradition jurisdiction, this must be brought out as a systemic risk to the stability of the Western clearing system.

2. Dealing with the Freeze Logic Requirement The GENIUS Act and other US laws ought to require that any commodity sold in the form of a token in the US also have protocol-level censorship functionality (such as the blacklist feature of PAXG) on it. This is so that the On-Grid assets do not move past the "Compliance Firewall" of the US Treasury. Nevertheless, according to this study, these requirements

can line the liquidity into the so-called Off-Grid models such as XAUT. Thus the law should also cover provisions of "Secondary Market Interdiction" whereby regulating bodies can impose sanctions on decentralized exchanges (DEXs) that offer high-velocity trading of the so called Off-Grid gold tokens.

3. Strengthening Redemption and Vaulting Standards To avert the risks of "Wildcat Banking" as put forward by Gorton and Zhang (2021), regulators ought to add the so-called "Direct Redemption" standards. The issuers must be made to offer physical redemption options to all institutional to holders so that the digital token does not derail in the underlying hard asset value in the event of a crisis.

6.2.2 International Cooperation Framework: Strategies for Countering "Offshore Regulatory Arbitrage"

The presence of such things as Offshore Black Holes as XAUT shows that national regulation is not sufficient to oversee the systemic risks of tokenized gold. Sovereign-Digital Nexus must be dealt with at a global and coordinated level.

1. Since the creation of a Global Gold Token Standard through the FATF The Financial Action Task Force (FATF) should come up with particular standards of Travel Rule of commodity-backed token. This would involve making all the transfer of a token of gold be accompanied by verified data on identity effectively breaking the Anonymity Loophole used by offshore models. International collaboration must aim at compelling the existence of a so-called Safe Haven jurisdiction (such as the BVI or Switzerland) to implement these standards of transparency or risk being locked out of the international SWIFT and CHIPS systems.

2. The Multilateral Auditing To resolve the Custody Paradox Multilateral auditing Multilateral auditing might be established as a global clearing house of digital gold. Zero-Knowledge Proof (ZKP) technology would be used to offer a Neutral Verification Layer by this body. Instead, issuers would present cryptographic evidence of the amount of physical gold they hold to this house, and the world regulators would be able to check the solvency of the issuer without the issuer being forced to reveal any sensitive strategic information to a single hegemon. This would make the Synthetic Safe Asset an established feature of the international financial system.

3. Dealing with the Multipolar order eventually, the G7 and BRICS countries must enter into a Digital Monetary Dialogue on how the gold will be used in the multi-currency world. Any effort to ban gold tokens will probably not succeed, given the Network Externalities of the blockchain technology. Rather, the policy must be based on establishing "Regulated Corridors" of the digital trading of gold, and the transition to the next stage of the digital process of De-dollarization to the digital is also necessary to be organized by transparent, rule-based mechanisms instead of directed by the "Shadow Infrastructures" of the offshore black hole.

To sum up, the monetary landscape of the 21 st century includes the presence of gold-backed stablecoins. The policymakers are not supposed to eradicate them, but rather to make the Geo-Technological order more refined so that it can be used as a catalyst to a stable multipolar world instead of a weapon of systemic turmoil.

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 167–179

Article

Overseas Expansion Strategies for Green High-End Building Materials Companies:

An Exploratory Comparison of China's Tianan New Materials and Japan's Daiken Corporation with Malaysia as a Focal Setting

グリーン・ハイエンド建材企業の海外展開戦略
―マレーシアを事例とした中国天安新材料とDAIKEN株式会社の探索的比較―

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Abstract

This article examines the overseas expansion strategies of China's Tianan New Materials and Japan's Daiken Corporation, using Malaysia as a focal setting for an exploratory and asymmetric comparison. The study uses official corporate materials, annual and group reports, investor-relations disclosures, and related public materials published through 2025. Supplementary management-reported contextual information was obtained in July 2026 solely to clarify Tianan's reported Malaysia-linked OEM relationship.

The comparison uses Porter's Diamond Model, Dunning's OLI paradigm, the Uppsala internationalization model, and complementary resource-based and dynamic-capabilities perspectives. It considers competitive positioning, entry mode, localization depth, sustainability orientation, and organizational commitment. Daiken's Malaysian operating presence is more directly documented, whereas Tianan is assessed through documented corporate capabilities, management-reported Malaysia-linked information, and the requirements for developing a stable host-market presence. The article argues that product capability alone does not establish strategic fit: durable overseas engagement depends on localization, organizational commitment, credible environmental positioning, and service support.

Keywords: green building materials; market-entry strategy; localization; certification; ESG credibility; comparative case study; Malaysia

1. Introduction

The building-materials sector is being reshaped by decarbonization, green regulation, rising factor costs, and demand for more resource-efficient production. Firms are evaluated not only by price and technical performance, but also by product-system compatibility, environmental performance, certification, service support, and life-cycle relevance. The scale of this shift is substantial: the Asia-Pacific green buildings market was valued at approximately USD 138.71 billion in 2025 and is projected to reach USD 254.87 billion by 2031, a compound annual growth rate of roughly 10.7 percent (Mordor Intelligence, 2026). Regulatory tightening, corporate ESG disclosure requirements, and public procurement preferences for certified materials are together converting sustainability from a marketing attribute into a market-access requirement across the region.

Malaysia illustrates this shift concretely. The Green Building Index (GBI), developed by the Malaysian Institute of Architects and the Association of Consulting Engineers Malaysia, has become the country's principal green-rating tool since its 2009 launch, and by December 2023 more than 300 million square feet of space across 671 projects had been certified nationwide (Malaysian Investment Development Authority, 2025). This growing certification infrastructure creates both an opportunity and a filter for foreign material suppliers: participation in Malaysia's green-building supply chains increasingly depends on demonstrable certification, verifiable material provenance, and consistent local technical support rather than product price alone.

At the same time, both of the home markets examined in this study face domestic pressure to look outward. Japan's housing starts fell to 740,667 units in 2025, a 6.5 percent year-on-year decline and the lowest level in 62 years (Nippon.com, 2026), continuing a multi-year contraction driven by demographic decline and rising construction costs. China's domestic property sector has contracted even more sharply: property construction area fell 9.4 percent year-on-year and new construction starts dropped 18.9 percent in the first three quarters of 2025 (iTiger, 2025), a slump that industry observers describe as pushing Chinese building-materials producers toward overseas markets as domestic demand weakens (CemNet, 2025). These asymmetric domestic conditions form part of the structural backdrop against which Tianan's and Daiken's overseas strategies should be read, even though this study does not treat domestic-market pressure as a determinant of overseas outcomes.

In this article, *green high-end building materials* refers to products positioned through a combination of technical quality, environmental performance, product-system integration, certification relevance, and customer upgrading rather than through low price alone. This study does not assume that Tianan and Daiken are equally evidenced Malaysian cases. It asks: How does Daiken's more clearly documented Malaysian embedding compare with Tianan's documented capabilities, reported Malaysia-linked activity, and the market-entry requirements Tianan would need to satisfy to establish a stable Malaysian presence?

The comparison is exploratory, not causal. Statements are distinguished as documented operational evidence, corporate self-description, management-reported information, or authorial interpretation. This approach avoids treating indirect supply activity as equivalent to independently documented local embeddedness. The remainder of the article proceeds as follows. Section 2 develops the theoretical framework, Section 3 describes the data corpus and evidence hierarchy, Section 4 presents the comparative analysis, Section 5 draws out two sector-specific interpretive propositions, and Section 6 concludes with limitations and directions for future research.

2. Theoretical Framework

2.1 Internationalization Frameworks

Porter's Diamond Model is used to interpret how observable firm capabilities relate to competitive environments and pre-internationalization resources (Porter, 1990). The model identifies four interacting determinants of national competitive advantage — factor conditions, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry — through which home-market conditions shape the capabilities firms carry into overseas markets. In this study, the model is applied through firm-level evidence rather than generalized claims about Chinese or Japanese firms. The analysis therefore considers Tianan's documented material, product, and manufacturing orientation and Daiken's documented production and organizational orientation, treating each firm's home-market conditions as a source of firm-specific capability rather than as a proxy for national competitiveness.

Dunning's OLI paradigm clarifies why firms use different internationalization modes (Dunning, 1980, 1988, 2001). Ownership advantages include product know-how, certification competence, and organizational capability; location advantages concern host-market conditions, including regulatory environment, distribution infrastructure, and demand growth in Malaysia's certified-building segment; and internalization advantages help explain the difference between arm's-length supply arrangements, such as OEM contracts, and production-linked local presence, such as wholly or majority owned manufacturing subsidiaries. The framework is useful because the evidence supports discussion of Daiken's production-linked Malaysian position more directly than Tianan's management-reported OEM relationship, allowing the comparison to distinguish ownership-advantage claims from internalization-advantage claims rather than treating all forms of market presence as equivalent.

The Uppsala model treats internationalization as a process of learning, commitment, and network development (Johanson & Vahlne, 1977, 1990, 2009). Its establishment-chain logic — moving from irregular export activity, to export via agents, to sales subsidiaries, and eventually to local production — is directly relevant to a sector where sales through a channel do not necessarily establish organizational depth. In building materials, local knowledge, technical response, after-sales support, and ties with distributors, contractors, and developers deepen over time rather than arriving with the first shipment or the first OEM contract. Psychic distance, understood as the accumulated unfamiliarity with a host market's institutions,

language, and business practice, also helps explain why firms with strong product capability may nonetheless remain at an early stage of the establishment chain in a specific country.

2.2 Complementary Perspectives: Resource-Based View and Dynamic Capabilities

The three internationalization frameworks above explain how and why firms expand abroad, but they say comparatively little about which underlying firm attributes make overseas performance durable once entry has occurred. Two complementary strategic-management perspectives fill this gap. Barney's (1991) resource-based view holds that sustained competitive advantage depends on resources that are valuable, rare, imperfectly imitable, and non-substitutable (the VRIN criteria). Applied here, product certifications, manufacturing know-how, and environmental credentials are valuable resources, but they generate durable advantage in a host market only when competitors cannot easily replicate the combination of certification, local relationships, and service infrastructure that a firm has assembled. Teece, Pisano, and Shuen's (1997) dynamic-capabilities perspective extends this logic by focusing on the organizational capacity to integrate, build, and reconfigure internal and external competences in response to changing environments. For an overseas building-materials supplier, this includes the capacity to adapt certification strategy to a new regulatory regime, to reconfigure supply and raw-material sourcing to meet host-market sustainability requirements, and to build local technical-service capability over time. Together, the resource-based view and the dynamic-capabilities perspective clarify why the same underlying product capability can translate into markedly different overseas outcomes: durable performance depends less on possessing a valuable resource at a single point in time than on the organizational capability to reconfigure that resource for a specific host-market context. This complements the "capability bundle" proposition developed in Section 5.2.

Table 1. Summary of Theoretical Frameworks

Framework	Main analytical use	Comparative indicator focus
Porter's Diamond Model	Interprets observable firm capabilities before overseas expansion	Competitive positioning; capability origin; strategic strengths
OLI Paradigm	Explains different internationalization modes	Entry mode; production localization; internalization depth
Uppsala Model	Explains deepening overseas engagement	Localization; network building; organizational commitment
RBV / Dynamic Capabilities	Explains conditions for sustained advantage and capability reconfiguration	Capability bundle; resource durability; adaptive reconfiguration

Note: Compiled by the author from Porter (1990), Dunning (1980, 1988, 2001), Johanson and Vahlne (1977, 1990, 2009), Barney (1991), and Teece, Pisano, and Shuen (1997).

3. Data and Method

3.1 Research Design

The study uses an exploratory document-based comparative design. Malaysia is a focal setting because it is relevant to Daiken's documented regional production orientation and provides a common context for

assessing Tianan's reported Malaysia-linked activity and prospective entry requirements. Daiken is analyzed through more directly documented Malaysia-related evidence; Tianan is assessed through official corporate documents, management-reported contextual information, and an explicit account of what the available evidence cannot establish. The design follows a small-N, asymmetric comparative logic rather than a matched-pair design: rather than treating Tianan and Daiken as equivalent cases to be scored on identical metrics, the study deliberately preserves and reports the unevenness of the available evidence, since collapsing that unevenness would itself be a threat to the study's validity.

3.2 Document Corpus and Evidence Hierarchy

The core corpus consists of official corporate documents available through 2025: *DAIKEN Group Report 2024*, *DAIKEN Group Report 2025*, Guangdong Tianan New Material Co., Ltd.'s 2024 Annual Report, and Tianan investor-relations materials. Official corporate sources are given greater evidential weight than media or analyst materials.

The Tianan 2024 Annual Report documents the company's business in building ceramics, automotive interior-facing materials, home decorative-facing materials, building fireproof decorative panels, films, and integrated interior-delivery services (Guangdong Tianan New Material Co., Ltd., 2025, pp. 15-18). It also describes the company's high-polymer composite-facing-material product categories and its research, environmental, quality-management, and certification-related capabilities (pp. 17-22). The report records foreign revenue but does not provide independently verifiable details of a Malaysian operating base (p. 25). Accordingly, it supports capability-level claims, not claims of established Malaysian embeddedness.

The *DAIKEN Group Report 2024* provides a considerably more granular Malaysia-specific record. It identifies two Malaysian manufacturing subsidiaries — DAIKEN SARAWAK SDN. BHD., established in 1994, and DAIKEN MIRI SDN. BHD., established in 1996 and consolidated into the group in 2005 — each with an annual medium-density fiberboard (MDF) production capacity of approximately 120,000 cubic meters and each certified to JIS A 5905, PEFC Chain-of-Custody, CARB, and EPA TSCA Title VI standards (Daiken Corporation, 2024, pp. 33-34). The report further documents that Daiken began cultivating acacia plantations in Sarawak in 2002 to secure stable wood-fiber supply, that cumulative plantation area has exceeded 10,500 hectares, and that the plantation-tree ratio of Malaysian MDF raw material rose from 16 percent in fiscal 2015 to 40 percent in fiscal 2023, with a fiscal 2025 target of 100 percent; commercial production of PEFC-certified MDF in Malaysia began in 2024 (Daiken Corporation, 2024). This is a materially richer evidentiary record than is available for Tianan's Malaysia-linked activity, and it is treated accordingly in the evidence matrix below.

Supplementary management-reported information was collected after the public-document cutoff solely to clarify a Malaysia-linked relationship. An interview with Mr. Wu, Chairman of Tianan New Materials, took place on 23 July 2026, followed by a message communication with Mr. Timmy Wu, a Director of Tianan on 31 July 2026. Both communications were cited with permission, and the interview notes and

message record are retained by the author. They reported an OEM-type HPL supply relationship with Topmix Berhad in Malaysia, in which products were marketed through Topmix Berhad's own brand and distribution channels. Because these communications have not been independently corroborated through public operational records, they are treated as management-reported contextual evidence rather than verification of Tianan's fully established Malaysian operations. No compensation was provided for either communication, and both interviewees were informed that the material would be used for academic research purposes only.

Documents were included when they provided attributable evidence about product capability, market entry, localization, sustainability orientation, or organizational commitment. Evidence was classified as documented operational evidence, corporate self-description, management-reported information, or authorial interpretation.

3.3 Document Corpus and Evidence Matrix

Table 2. Document Corpus and Evidence Matrix

Source	Issuer/date	Evidence type	Relevant locator	Comparison dimension
DAIKEN Group Report 2024	Daiken Corporation, 2024	Official corporate report	pp. 33-34, global industrial-materials discussion including MDF produced in Malaysia and New Zealand; Malaysia plantation and certification detail	Production presence; localization; organizational commitment
DAIKEN Group Report 2025	Daiken Corporation, 2025	Official corporate report	pp. 29-32, global-markets discussion	Global operating orientation; sustainability orientation
2024 Annual Report	Guangdong Tianan New Material Co., Ltd., 2025	Official corporate report	pp. 15-18, business and product categories; pp. 21-22, research, environmental, and quality-management capability; p. 25, foreign revenue	Product/manufacturing capability; sustainability orientation
Investor Relations Activity Record TA2024-007	Tianan New Materials, 28 October 2024	Official corporate disclosure	Company statements on business development and overseas-market orientation	Competitive positioning; prospective entry requirements
Personal interview with Mr. Wu, Chairman of Tianan	23 July 2026	Management-reported information	Interview notes retained by author	Reported OEM relationship; entry mode
Personal message communication with Mr. Timmy Wu, Director of Tianan	31 July 2026	Management-reported information	Message record retained by author	Reported OEM relationship; entry mode

Source: Compiled by the author from the sources listed in the table. The two management communications were cited with permission, and records are retained by the author.

Note: Management-reported information is contextual evidence and is not treated as independently verified evidence of Tianan's Malaysian operations.

3.4 Comparison Procedure and Limits

The comparison proceeds across competitive positioning, entry mode, localization depth, sustainability orientation, and organizational commitment. It does not make causal claims. Instead, it uses the evidence matrix to indicate whether each statement is directly documented, management-reported, or interpretive. Public corporate documents may reveal strategic orientation and formal product capability more readily than distributor performance, project execution, or after-sales capability; this limitation is particularly significant for Tianan's Malaysia-specific evidence. A further limit follows from the single-informant nature of the Tianan interviews: because both communications originate from within Tianan's own management, they are useful for clarifying what the company reports about its Malaysia-linked relationship, but they cannot substitute for independent verification from Topmix Berhad, from Malaysian regulatory records, or from project-level documentation. The asymmetry in evidentiary depth between the two firms is therefore treated as a finding in itself, not merely as a methodological caveat to be minimized.

4. Comparative Analysis

4.1 Tianan New Materials

Tianan is a Chinese company whose 2024 Annual Report documents a portfolio including automotive interior-facing materials, home decorative-facing materials, films, building fireproof decorative panels, building ceramics, and integrated interior-delivery services (Guangdong Tianan New Material Co., Ltd., 2025, pp. 15-18). The report also describes research, product, environmental, and quality-management capabilities relevant to overseas entry, including ISO 9001 and IATF 16949 management-system certifications and product testing against EN-71, RoHS, and REACH standards (pp. 21-22). These certifications are not interchangeable in significance: IATF 16949 signals the quality discipline expected by automotive-sector customers and is transferable to global automotive-interior supply chains, while EN-71, RoHS, and REACH compliance addresses European chemical-safety and toy-safety requirements that are increasingly referenced by regulators and procurement standards beyond the European Union, including in parts of Southeast Asia. Taken together, they document a firm with a diversified, certifiable technical base across ceramics, polymer composites, and automotive-grade materials — capability that is a necessary but not sufficient condition for Malaysian market embeddedness. These materials support discussion of documented capabilities; they do not document a Malaysian production base or direct local service system.

Management-reported information indicates an OEM-type HPL supply relationship with Topmix Berhad since 2022 (Mr. Wu, Chairman of Tianan personal interview, 23 July 2026; Mr. Timmy Wu, Director of Tianan New Materials, personal message communication, 31 July 2026). This indicates reported indirect Malaysia-linked participation through Topmix Berhad's brand and distribution channels. In Uppsala terms, an OEM arrangement of this kind sits early in the establishment chain: it allows a manufacturer's product to reach a host market with limited capital commitment and limited direct market learning, since the partner firm absorbs distribution, branding, and much of the customer-facing service relationship. It

does not establish independently verified local production, direct distribution, local personnel, or full after-sales infrastructure, and it does not by itself generate the host-market network ties that the Uppsala model treats as the basis for deeper commitment.

Tianan should therefore be treated as a capability-bearing firm with reported indirect participation and prospective entry requirements. A stable Malaysian presence would require stronger certification alignment with Malaysian and regional green-building standards, channel development that reduces reliance on a single OEM partner, local technical support capable of responding to project-level specification changes, and service-backed organizational continuity that survives beyond any single contractual relationship.

4.2 Daiken Corporation

Daiken provides a considerably more directly documented case of overseas production orientation. Its 2024 Group Report identifies sales of MDF produced in Malaysia and New Zealand in its global industrial-materials business (Daiken Corporation, 2024, pp. 33-34), and it details two wholly integrated Malaysian manufacturing subsidiaries: DAIKEN SARAWAK SDN. BHD. (established, 1994) and DAIKEN MIRI SDN. BHD. (established 1996; consolidated into the group in 2005), each with roughly 120,000 cubic meters of annual MDF capacity and each holding JIS A 5905, PEFC Chain-of-Custody, CARB, and EPA TSCA Title VI certification (Daiken Corporation, 2024). This certification profile is notable for spanning Japanese domestic standards (JIS), European forestry-chain standards (PEFC), and United States formaldehyde-emission standards (CARB and EPA TSCA Title VI) simultaneously, evidencing a single Malaysian production base engineered to serve multiple regulatory regimes rather than one export market alone.

The report also documents a two-decade localization trajectory that is difficult to characterize as anything but organizational commitment. Daiken began establishing acacia plantations in Sarawak in 2002 to secure stable, lower-risk wood-fiber supply; cumulative plantation area has since exceeded 10,500 hectares, and the plantation-tree ratio used in Malaysian MDF production rose from 16 percent in fiscal 2015 to 40 percent in fiscal 2023, with a stated fiscal 2025 target of 100 percent (Daiken Corporation, 2024). In 2024, Daiken began commercial production of PEFC-certified MDF in Malaysia for the first time, extending the forest-certification approach already used at its New Zealand operations. This is a directly documented instance of the dynamic-capabilities logic introduced in Section 2.2: Daiken did not simply acquire a valuable raw-material resource, it reconfigured its raw-material sourcing system in Malaysia over more than twenty years in response to sustainability expectations and regulatory change, in a way that would be costly and slow for a new entrant to replicate.

Its 2025 Group Report describes global-market orientation and corporate sustainability-related strategy at the group level, including the GP25 strategic program, under which overseas markets are treated as a priority and the company states an intention to transform itself from a domestic housing building-materials manufacturer into what it describes as a comprehensive building-materials company, partly by leveraging

its major shareholder Itochu Corporation's global trading network (Daiken Corporation, 2025, pp. 29-32). Consolidated figures reported in the same period indicate that overseas sales have represented between roughly a fifth and a third of total sales in recent fiscal years, a substantial but not dominant share that is consistent with a company that treats overseas growth as strategically important without having fully recentered its business model away from the domestic Japanese market (Daiken Corporation, 2025).

The analysis nonetheless distinguishes documented operations from corporate self-description and authorial interpretation. Broad claims about customer trust, premium reputation, or specific Malaysia-level sustainability outcomes are not treated as independently verified simply because they are compatible with company-wide strategy statements. The plantation-ratio and certification data are treated as documented operational evidence because they are reported as measured operating statistics rather than as marketing description; broader claims about brand equity or customer perception in Malaysia specifically are treated with greater caution.

4.3 Competitive Positioning and Localization

The key contrast is not between national business stereotypes. It is between a more directly documented production-linked presence and a more cautiously assessed capability-plus-entry position. Daiken has a firmer evidential basis for discussion of production-linked overseas continuity. Tianan's official documents demonstrate diversified materials capability and quality-management resources, while the management communications support only a reported indirect Malaysia-linked OEM relationship.

Localization in building materials includes regulatory familiarity, channel coordination, technical response, after-sales support, local talent development, and adaptation to project requirements. A product may be technically competitive while the supplying organization remains locally thin. This distinction makes it necessary to separate early entry from stable presence. Viewed through the resource-based and dynamic-capabilities lens introduced in Section 2.4, Tianan's certifications and manufacturing know-how are valuable resources in the Barney (1991) sense, but the available evidence does not show that they have yet been organized into a rare or difficult-to-imitate Malaysian configuration; Daiken's plantation program and multi-standard certification base, by contrast, illustrate the kind of long-horizon capability reconfiguration that Teece, Pisano, and Shuen (1997) identify as the source of durable competitive positioning in changing environments.

Table 3. Comparison of Tianan and Daiken Overseas Expansion Strategies

Strategic dimension	Tianan New Materials	Daiken Corporation
Competitive positioning	Documented diversified capability across ceramics, polymer composites, films, and automotive-interior materials, with ISO 9001, IATF 16949, EN-71, RoHS, and REACH certification; positioning is capability-based rather than Malaysia-specific	Documented multi-standard certification (JIS, PEFC, CARB, EPA TSCA Title VI) attached to an established Malaysian production base; positioning is directly linked to Malaysia-based operations
Entry mode	Management-reported OEM-type HPL supply relationship with Topmix Berhad since 2022; an early-stage, partner-dependent entry mode in Uppsala terms	Wholly consolidated manufacturing subsidiaries (DAIKEN SARAWAK, established 1994; DAIKEN MIRI, established 1996/2005); a production-linked entry mode representing advanced establishment-chain commitment
Localization depth	Not independently documented; stable presence would require local technical support, certification alignment, and channel development beyond the single reported OEM tie	Directly documented through two decades of Sarawak plantation development (from 16% to a targeted 100% plantation-tree ratio) and 2024 PEFC-certified local MDF production
Sustainability orientation	Corporate environmental and quality-management capability is documented at the group level; Malaysia-specific sustainability claims require case-by-case caution	Corporate sustainability strategy (GP25, Earth Environmental Vision 2050) is documented and is directly evidenced in Malaysia through measured plantation-ratio and certification data
Organizational commitment	Reported indirect participation only; no independently verified local personnel, subsidiary, or long-run investment specific to Malaysia	Multi-decade, capital- and resource-committed presence evidenced by consolidated subsidiaries, continuous plantation investment since 2002, and group strategy naming overseas markets a priority

Source: Compiled by the author from the evidence identified in Table 2.

Note: Entries distinguish documented operational evidence, corporate self-description, management-reported information, and authorial interpretation. Management-reported information concerning Tianan's OEM-type relationship with Topmix Berhad is not independently verified evidence of production-based local embeddedness.

5. Strategic Implications

The comparison suggests that structural pressure to expand overseas does not itself produce durable host-market performance. Product capability must be aligned with certification readiness, local service, distribution relationships, and organizational commitment. This has practical relevance beyond the two firms studied here: Chinese building-materials producers facing a contracting domestic property sector (iTiger, 2025; CemNet, 2025) may be tempted to treat OEM-type overseas agreements as a sufficient response to weak home demand, when the Daiken case suggests that such agreements are, at best, an early step toward a stable position rather than a substitute for one.

5.1 Entry and Stable Presence

The first sector-specific interpretive proposition is the distinction between *market entry* and *stable presence*. Entry may be supported by competitive products, distributor access, or an OEM-type relationship.

Stable presence requires deeper localization, host-market learning, recurring project participation, service capacity, and durable organizational commitment.

This is not offered as a separate theory. It is an applied clarification of commitment deepening and internalization in the Uppsala and OLI traditions (Dunning, 1980, 1988, 2001; Johanson & Vahlne, 1977, 1990, 2009). Tianan illustrates documented capability and management-reported indirect participation; Daiken provides a more directly documented example of production-linked continuity, visible in the near-doubling of Malaysian plantation-tree usage over roughly a decade and the 2005 consolidation of a Malaysian subsidiary that had operated since 1996. The contrast indicates that the transition from entry to stable presence is not simply a matter of elapsed time, but of accumulating verifiable, Malaysia-specific commitments — production assets, certified raw-material sourcing, and organizational integration — that an OEM relationship alone does not generate.

5.2 Capability Bundle

The second sector-specific interpretive proposition is the *capability bundle*. Durable overseas performance is likely to depend on mutually reinforcing product performance, environmental credibility, service support, host-market understanding, and organizational commitment. This is an analytical synthesis, not an independent theory replacing established resource-based (Barney, 1991) and dynamic-capabilities (Teece, Pisano, & Shuen, 1997) perspectives, but rather an attempt to translate those perspectives into sector-specific indicators that fit the green building-materials context: certification breadth as a proxy for resource value, plantation or supply-chain investment as a proxy for capability reconfiguration, and consolidated local subsidiaries as a proxy for organizational commitment.

The available evidence does not measure the bundle quantitatively. It instead indicates why Tianan's documented product and manufacturing strengths may not by themselves establish stable Malaysian presence, whereas Daiken's documented production-linked orientation, plantation investment, and multi-standard certification supply a stronger basis for discussing continuity. The comparison also suggests a practical sequencing implication for capability-bearing but locally thin firms such as Tianan: certification alignment and channel diversification are likely lower-cost, faster steps than production investment, and may represent a more realistic near-term priority than attempting to replicate Daiken's multi-decade plantation strategy directly.

6. Conclusion

This study provides an exploratory, document-based comparison of Tianan New Materials and Daiken Corporation with Malaysia as a focal setting. Its principal finding is not that both firms are symmetrically established Malaysian cases. Daiken provides a more directly documented case of production-linked local embedding — evidenced by two consolidated Malaysian manufacturing subsidiaries, a two-decade plantation-development program, and multi-standard certification spanning Japanese, European, and United

States regulatory regimes — whereas Tianan demonstrates documented corporate capability and management-reported indirect Malaysia-linked participation, along with the additional requirements for stable presence.

The study offers two sector-specific analytical propositions: market entry and stable presence should be treated as distinct phases of overseas engagement, and durable overseas performance is best considered as a capability bundle integrating resource-based and dynamic-capabilities logic rather than a single advantage. These propositions build on the existing internationalization frameworks used in the paper rather than claiming independent theoretical novelty, and they are offered as sector-specific interpretive heuristics rather than as generalizable laws.

The study remains limited by reliance on corporate documents, the management-reported nature of the Tianan–Topmix relationship, the single-informant character of the Tianan interviews, and unequal evidence depth between the two firms. It is also limited to a single host-market setting, which constrains generalization to other Southeast Asian markets with different regulatory and competitive conditions. Future research should use project-level evidence and interviews with distributors, contractors, and local managers — including parties independent of Tianan's own management — to examine how capability-based entry may develop into durable presence, and comparative work across additional ASEAN markets would help clarify whether the entry–stable-presence distinction proposed here generalizes beyond the Malaysian setting.

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 181–215

Article

Alpha Generation in Asset-Intensive Reinsurance:

A Comparative Institutional Analysis of Japan and Hong Kong, with the Japan–Bermuda Corridor as the Primary Case

資産集約型再保険におけるアルファ収益の創出
―日本・香港の比較制度分析―

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Abstract

Asset-intensive reinsurance (AIR) has grown unevenly across Asia, with Japan emerging as the region's most active market while Hong Kong has seen limited adoption. This paper examines this divergence through a comparative institutional analysis of the Japan–Bermuda AIR corridor, using Hong Kong as a contrasting case. Rather than presenting a primary empirical dataset, the analysis synthesizes publicly available regulatory frameworks, market reports, and disclosed transaction structures to identify the conditions that distinguish the two jurisdictions. Bermuda is examined as the destination jurisdiction for Japanese AIR, not as a direct comparator to Hong Kong.

This paper develops three interconnected contributions.

First, it identifies six distinct sources of alpha in AIR: illiquidity premium capture, asset origination advantage, duration transformation, liability structure optimization, tax and legal arbitrage, and scale diversification. Each source varies in persistence and jurisdictional relevance, with Japan exhibiting high alpha potential across five of the six sources and Hong Kong exhibiting low potential across all.

Second, it proposes the complementarity hypothesis: that regulatory arbitrage and alpha generation may be complements, not substitutes. The regulatory wedge between Japan's J-ICS and Bermuda's LTIR lowers the cost of capital, enabling alpha-seeking investments in illiquid assets that cedants cannot access domestically.

Third, it develops a three-condition decision framework—liability suitability, asset capability, and regulatory wedge—identifying when AIR creates genuine economic value. The Japan–Bermuda corridor satisfies all three conditions; Hong Kong satisfies none. The evidence, drawn from observable market structures, is consistent with the complementarity hypothesis, but causal identification requires future research with proprietary transaction data. All quantitative claims are illustrative, not empirical.

Keywords: Asset-intensive reinsurance; alpha generation; regulatory arbitrage; value creation

1. Introduction

1.1 Research problem and motivation

Publicly available regulatory frameworks and disclosed transaction structures indicate that AIR in Japan can generate material capital relief. This evidence is indicative of a regulatory wedge between Japan's J-ICS regime and Bermuda's LTIR regime, though precise empirical estimates are not available. This pattern is consistent with regulatory arbitrage. While this observation helps explain why AIR transactions occur, it leaves a more fundamental question unanswered: does AIR create genuine economic value beyond regulatory arbitrage?

This paper shifts the analytical focus from arbitrage to value creation, introducing the concept of 'alpha'—excess risk-adjusted returns—as a framework for assessing whether AIR generates new economic value rather than merely redistributing surplus across jurisdictions. Alpha is the appropriate lens because it is the standard metric in financial economics for distinguishing genuine value creation from redistribution (Jensen, 1968; Fama & French, 2010). Positive alpha indicates returns exceeding those predicted by market risk alone—suggesting real economic activity, not merely risk-taking.

The central motivation is this: if AIR produces only regulatory arbitrage, its social value is ambiguous at best—surplus is redistributed without new economic output. If it also generates alpha through real investment in productive assets, the case for AIR is substantially stronger. This distinction matters for insurers, reinsurers, and regulators alike.

The analysis is organized around a single research question: Under what conditions does AIR generate genuine economic value rather than regulatory arbitrage alone?

This question has practical significance. If AIR is primarily arbitrage, it may be vulnerable to regulatory closure and may not serve policyholder interests. If AIR can generate alpha through real investment in illiquid, productivity-enhancing assets, it may create sustainable value for all parties. The answer also informs regulatory policy: a framework that enables alpha-generating AIR may be worth preserving, whereas pure arbitrage may warrant restriction.

1.2 Scope and case selection

This paper focuses on the Japan–Bermuda AIR corridor as the primary case, where transactions are concentrated and alpha potential is highest. Hong Kong is analyzed as a contrasting case—a developed Asian insurance market where AIR has not flourished despite comparable economic conditions. Bermuda's role is examined as the destination jurisdiction that provides the regulatory (LTIR) and asset management infrastructure enabling Japanese AIR. Bermuda is not a direct comparator to Hong Kong; the two jurisdictions serve fundamentally different roles in the global reinsurance ecosystem. The comparison between Japan (high AIR) and Hong Kong (low AIR) helps identify the conditions under which alpha-generating

AIR is likely to emerge, rather than empirically demonstrating that such alpha has been earned.

1.3 The Arbitrage-Alpha Distinction

This paper distinguishes between two conceptually different ways AIR creates value.

Regulatory arbitrage involves exploiting differences in capital calibration across jurisdictions to reduce required capital. In the Japan-Bermuda corridor, this takes the form of transferring liabilities from Japan's J-ICS regime (which imposes high capital charges on long-duration guarantees) to Bermuda's LTIR regime (which provides more flexible capital treatment). This is primarily a redistribution of surplus—value is extracted from the regulatory system and transferred to the transacting parties—rather than new economic output.

Alpha generation involves earning excess risk-adjusted returns through genuine economic activity: illiquidity premium capture, asset origination, duration transformation, liability structure optimization, and operational efficiencies. Alpha represents new value creation—returns that did not exist before the transaction.

The relationship between these two is this paper's central theoretical question. Are they substitutes (such that regulatory relief reduces the need for genuine investment skill, and insurers pursue one or the other depending on which is more valuable)? Or are they complements (such that regulatory relief enables alpha-seeking investment that would otherwise be marginal or infeasible)? This question is examined in Section 5 through the complementarity hypothesis (H1).

1.4 Regulatory wedge premise: Status of evidence

The complementarity hypothesis (H1, previewed in Section 1.3 and developed in Section 5) relies on a premise: that a regulatory wedge exists between Japan's J-ICS regime and Bermuda's LTIR regime, such that the cost of capital for identical liabilities is lower in Bermuda than in Japan.

It is important for readers to understand the evidentiary status of this premise.

First, the *existence* of a regulatory wedge is well-established in public regulatory documents. The J-ICS framework (JFSA, 2019) imposes explicit capital charges on interest rate risk and equity risk that are calibrated differently from Bermuda's LTIR rules (BMA, 2020). The two regimes also diverge in their treatment of long-duration guarantees, with J-ICS applying higher risk factors to policies with minimum guarantees. These differences are publicly observable and verifiable from the respective regulatory texts.

Second, the *magnitude* of the wedge—that is, the precise percentage reduction in capital that a specific Japanese life insurer achieves by reinsuring to Bermuda—is not empirically established in this paper. Appendix A provides directional illustrations of the wedge using stylized assumptions drawn from

publicly disclosed transaction structures and regulatory calibration parameters. These illustrations are intended to demonstrate the *mechanism* and *approximate scale* of the capital relief, not to provide precise point estimates. All such calculations are explicitly identified as stylized, not empirical (see Section 1.5 below).

Third, for the purposes of this paper, the complementarity hypothesis (H1) does not require a precise empirical estimate of the wedge's magnitude. It requires only that (a) a wedge exists, (b) it is large enough to materially affect transaction economics, and (c) it varies across jurisdictions in a predictable way. H1 is therefore a qualitative proposition: it predicts a directional relationship (complementarity vs. substitutability) rather than a precise elasticity. Testing it does not require knowing the exact size of the wedge, only that the wedge is non-trivial. The directional illustrations in Appendix A are consistent with these conditions. The hypothesis then tests a *qualitative* proposition—whether regulatory relief and alpha-seeking are complements—which is logically distinct from the quantitative size of the wedge.

Readers need not rely on the illustrations in Appendix A to follow the theoretical argument of this paper. The key premise—that a regulatory wedge exists between J-ICS and LTIR—is independently verifiable from the public regulatory sources cited above. The directional illustrations in Appendix A are supplementary; they are not required for the conceptual framework developed here.

In summary, readers should treat the regulatory wedge as a stylized premise for the theoretical analysis in this paper, not as an empirically demonstrated fact. The public regulatory sources cited above (JFSA, 2019; BMA, 2020) allow independent verification of the wedge's existence; its precise magnitude is left for future research with proprietary transaction-level data. The precise magnitude of the wedge illustrated in Appendix A is not required for H1—only the existence of a material wedge, which is independently verifiable from public regulatory sources. The framework developed in this paper is designed to be empirically testable once such data become available.

1.5 Status of Claims

This paper makes claims of four distinct types. Readers should interpret each claim according to its stated type.

Table 1: Status of claims

Type	Definition	Example from This Paper
Established	Claims supported by prior research or publicly observable data	Japan has high AIR activity; Hong Kong has limited activity; Bermuda is the primary destination for Japanese AIR
Conceptual	New frameworks or categories proposed by the author	Six sources of alpha (Section 3); three-condition decision framework (Section 8)
Stylized	Illustrative calculations based on the author's professional experience; not empirical estimates	Alpha decomposition (Table A.3); capital relief percentages (Table A.2)
Hypotheses	Propositions for future research; not demonstrated findings	Complementarity hypothesis (H1, Section 5); the hypotheses listed in Section 9 for future testing

Key principle: Stylized examples illustrate mechanisms, not empirical evidence; hypotheses are for future testing, not conclusions. Numerical ranges (e.g., Appendix A) are not empirical estimates—they are plausible, intentionally broad parameters derived from professional experience. Endpoints are illustrative boundaries, not precise estimates; interpret as direction and relative magnitude only.

1.6 Structure of the Paper

Section 2 reviews the literature on alpha in financial markets, insurance investment constraints, and the gap in AIR-specific analysis. Section 3 presents a conceptual framework identifying six sources of alpha in AIR. Section 4 analyzes alpha distribution between cedants and reinsurers. Section 5 examines the interaction between regulatory arbitrage and alpha, advancing the complementarity hypothesis first previewed in the introduction. Section 6 provides a stylized decomposition of AIR returns. Section 7 discusses risks specific to alpha-oriented AIR. Section 8 synthesizes findings into a decision framework for when AIR creates genuine value. Section 9 concludes.

2. Literature Review: Alpha Generation in Insurance and Reinsurance

2.1 The Concept of Alpha in Financial Markets

Alpha, in the traditional finance literature, refers to excess risk-adjusted returns beyond a benchmark. Jensen (1968) formalized the concept in the context of mutual fund performance, defining alpha as the intercept in a regression of portfolio returns against market returns:

$$\alpha = R_p - [R_f + \beta(R_m - R_f)]$$

where R_p is portfolio return, R_f is the risk-free rate, β is market sensitivity, and R_m is market return. A positive alpha indicates that a manager has generated returns exceeding those predicted by market risk alone (Fama & French, 2010).

The persistence of alpha has been extensively debated. While early studies suggested that mutual funds do not consistently generate positive alpha after fees (Jensen, 1968; Fama & French, 2010), more recent research has identified specific contexts where alpha persists. In private equity, alpha arises from

illiquidity premiums and active management (Kaplan & Schoar, 2005). In hedge funds, skill-based strategies generate alpha (Fung & Hsieh, 2004). Infrastructure debt provides alpha through long-term contractual cash flows (Inderst, 2010). In private credit, origination advantage and active monitoring are key sources of alpha (Lerner et al., 2016).

This literature establishes that alpha can exist outside public equity markets, particularly in illiquid asset classes where manager skill and access to proprietary deal flow matter. AIR provides a vehicle to access these alpha sources, a connection central to this paper's analysis.

2.2 Insurance Investment Returns and Liability Constraints

Insurance companies face unique constraints on investment returns due to liability characteristics. The literature on insurance investment management emphasizes that insurers are not unconstrained asset allocators; they must match liability cash flows, maintain liquidity, and satisfy regulatory capital requirements (Brennan & Schwartz, 1982; Briys & de Varenne, 1994).

These constraints create a distinction between gross investment returns (what markets offer) and net returns available to insurers (after liability and regulatory costs). Berdin (2016) shows that life insurers with long-duration guaranteed liabilities face significant challenges in achieving adequate risk-adjusted returns in a low interest rate environment.

How this gap informs this paper: This paper argues that AIR overcomes these constraints by transferring liabilities to reinsurers with different regulatory treatment and investment capabilities. The "alpha" available to reinsurers is precisely the return that cedants cannot access due to these constraints.

2.3 Illiquidity Premium and Private Asset Returns

A substantial literature documents the existence of an illiquidity premium—excess returns earned by investors who hold assets that cannot be quickly or easily sold. Amihud and Mendelson (1986) provide the theoretical foundation, showing that investors demand compensation for bearing illiquidity risk. The magnitude of this premium varies by asset class:

- BBB corporate bonds earn 0.5–1.0% over liquid benchmarks (Chen et al., 2007)
- Private equity earns 3–5% over public equity (Kaplan & Schoar, 2005)
- Infrastructure debt yields 1–2% over government bonds (Inderst, 2010)
- Direct lending carries interest rates approximately 190 basis points above comparable bank loans (Chernenko et al., 2022)
- Real estate debt provides 1–2% over corporate bonds (Pagliari, 2017)

However, illiquidity premiums are not static—they vary with market conditions, capital flows, and credit cycles, and spreads may compress as institutional capital flows into private markets (Lerner et al., 2008).

The illiquidity premium is a key source of alpha in AIR, and this paper estimates that 1.0–1.5% of AIR returns come from illiquidity premium capture.

2.4 Origination Advantage and Private Credit

A growing literature examines the **origination advantage**—the ability to generate excess returns by originating loans directly rather than purchasing them in secondary markets. Chernenko, Erel, and Prilmeier (2022) find that loans extended directly by nonbank lenders carry interest rates approximately 190 basis points higher than comparable bank loans, and Block, Jang, Kaplan, and Schulze (2024) report that direct lending funds target unlevered returns implying substantial premiums over BB-rated bonds. The sources of this advantage include:

Table 2: Sources of Origination Advantage in Private Credit

Mechanism	Persistence	Description
Information advantage	Moderate	Access to non-public borrower information; erodes as markets become more efficient
Control over terms	High	Customizing covenants, collateral, and maturity—a structural advantage
Fee capture	Depends on deal flow	Origination fees of 1-2%
Monitoring and restructuring	High	Active monitoring reducing default losses; requires expertise

This paper identifies asset origination advantage as a key source of alpha in AIR, particularly for Bermuda reinsurers affiliated with large alternative asset managers (e.g., Apollo, KKR, Blackstone).

2.5 Scale and Diversification Benefits in Reinsurance

The literature on economies of scale in reinsurance suggests that larger reinsurers achieve better risk pooling, lower unit costs, and access to higher-quality investment opportunities (Doherty & Richter, 2002; Cummins & Weiss, 2009). These benefits manifest through four mechanisms:

- Risk pooling - Aggregating uncorrelated risks reduces required capital, a principle supported by standard portfolio theory.
- Fixed cost spreading - Actuarial, legal, and compliance costs can be spread across a larger asset base.
- Deal flow access - Larger reinsurers receive first look at proprietary transactions.
- Diversification - Access to a broader range of asset classes and geographies.

This paper identifies scale diversification as an emerging source of alpha in AIR, noting that few reinsurers have achieved sufficient scale across multiple Japanese cedants.

2.6 Gap: Alpha Not Previously Analyzed in AIR Context

The closest prior work is the shadow insurance literature. Koijen and Yogo (2016) show that life insurers cede liabilities to affiliated reinsurers subject to weaker capital regulation, and that the primary motive is

the relaxation of regulatory capital constraints rather than genuine risk transfer. That literature, however, treats the assets backing the ceded liabilities as a consequence of the capital motive rather than as a source of return in their own right, and it does not examine cross-border, third-party asset-intensive transactions of the kind analyzed here. Accordingly, while the regulatory-arbitrage motive for affiliated reinsurance is well documented, alpha generation in AIR transactions has not been systematically analyzed. Specifically:

- No framework for alpha sources in AIR exists
- No analysis of alpha distribution between cedant and reinsurer
- No examination of the interaction between arbitrage and alpha

Industry reports may describe AIR practices and returns qualitatively, but peer-reviewed academic analysis of alpha in AIR remains absent. How this gap informs this paper: This paper addresses this gap by (i) identifying six distinct sources of alpha in AIR in section 3 (ii) analyzing how alpha is distributed between cedants and reinsurers in section 4 (iii) developing the complementarity hypothesis that arbitrage enables alpha generation in section 5.

2.7 Literature Search Approach

The literature review in Sections 2.1–2.6 reflects the author's reading of the relevant academic and industry literature accumulated over the course of this research. It is not based on a systematic review or a formal search protocol. The review was developed through iterative reading of key journals in finance and insurance, working papers and industry publications. The purpose of the review is to situate this paper's conceptual framework within the existing literature, not to provide a comprehensive or exhaustive survey.

The claim that no existing study has systematically analyzed alpha generation in AIR (Section 2.6) is made to the author's knowledge based on this reading. It is possible that relevant work has been published in sources not covered by this review.

3. Conceptual Framework – Sources of Alpha in AIR

Building on the literature reviewed in Section 2, this section develops a conceptual framework for understanding value creation in AIR. The framework consists of two components: (1) a conceptual typology distinguishing genuine alpha from other forms of value, and (2) six specific sources of value in AIR transactions, classified according to the typology.

3.1 Conceptual typology: what is and is not Alpha

3.1.1 Defining Alpha in AIR

Following the standard definition established in Section 2.1, Alpha in the context of AIR refers to risk-adjusted excess returns generated through the reinsurance structure that would not be available to the cedant through direct asset management or domestic investment alone. Unlike regulatory arbitrage, which

redistributes surplus across jurisdictions through differences in capital calibration, alpha represents genuine economic value creation—new output that did not exist before the transaction.

3.1.2 The typology

Not all sources of positive return in AIR satisfy the strict definition. The term "alpha" is often used loosely in industry practice to encompass returns to risk, regulatory transfers, tax benefits, and operational efficiencies. Table 3 establishes a strict conceptual boundary.

Table 3: Typology of Value Sources in AIR

Category	Definition	Examples in AIR	Is This Alpha?
1. Genuine Alpha (Skill/Structural)	Excess risk-adjusted returns from managerial skill, structural advantages, or proprietary access that cannot be replicated by market participants	Asset origination advantage; active portfolio management; proprietary deal flow access	**YES**
2. Risk Premium	Compensation for bearing systematic, priced risks that are predictable and compensated by markets	Illiquidity premium; credit risk premium; term premium from duration transformation	**NO**—returns to risk, not excess returns
3. Regulatory Benefit	Cost reduction from differential capital treatment across jurisdictions	J-ICS → LTIR capital relief	**NO**—regulatory transfer, not investment return
4. Tax Benefit	Reduction in tax drag on investment returns	Bermuda zero corporate income tax; tax-efficient structuring	**NO**—tax avoidance, not investment return
5. Financial/ Structural Optimization	Redesigning liabilities to reduce hedging costs, optionality, or capital charges	Liability structure optimization	**NO**—balance sheet efficiency
6. Operational Efficiency	Cost reduction through scale or structural optimization	Scale diversification; fixed cost spreading	**NO**—efficiency gain, not investment return

3.1.3 Why "Alpha" is used broadly in this paper

This paper uses the term **"sources of alpha"** broadly to encompass all six sources of value generation in AIR (Section 3.2), for two reasons:

- **Industry convention:** Practitioners commonly refer to any excess spread in AIR transactions as "alpha," regardless of its economic classification.
- **Analytical utility:** Even sources that are not alpha in the strict Jensen sense (e.g., illiquidity premium capture, regulatory relief) are essential to understanding why AIR transactions occur and how value is created. Excluding them from the framework would leave important drivers unexamined.

The strict conceptual distinction in Table 3 is maintained throughout. The "Classification" column in Table 4 maps each source to its typology category.

3.1.4 Implications for the Complementarity Hypothesis (H1)

This classification has important implications for the complementarity hypothesis developed in Section 5:

- **Only genuine alpha** (origination advantage) and **persistent risk premiums** (illiquidity premium) represent sustainable economic value creation that can be expected to persist over time.
- **Regulatory and tax benefits** are less durable; they are subject to regulatory change (e.g., global minimum tax, BEPS, potential changes to J-ICS recognition standards).
- **Operational efficiencies** are real but one-time or diminishing; they do not compound.

The complementarity hypothesis (H1) therefore has the strongest theoretical foundation for genuine alpha and persistent risk premiums—sources where the regulatory wedge enables access to returns that would otherwise be inaccessible.

3.2 Six Sources of Alpha

Building on the typology (Table 3), this section identifies six specific sources of value in AIR transactions. As explained in Section 3.1.3, the term "sources of alpha" is used broadly here as a shorthand for "sources of economic value"—only **asset origination advantage** qualifies as genuine alpha in the strict Jensen (1968) sense; the remaining five are risk premiums, regulatory/tax benefits, financial/structural optimization, or operational efficiencies (see "Classification" column in Table 4).

The assessments in Table 4 are qualitative (High, Moderate, Low)—they indicate **direction** and **relative magnitude**, not precise empirical estimates. Detailed stylized illustrations are provided in Appendix A.

Table 4: Six Sources of Alpha in AIR

Source of Alpha	Mechanism	Classification (from Table 3)	Persistence	Relevance to Japan	Relevance to Hong Kong
Illiquidity premium capture	Reinsurer invests in private credit, infrastructure debt, and direct lending – assets typically unavailable to cedants due to regulatory liquidity constraints or internal risk limits.	Risk premium	Moderate – spreads can compress as capital flows into private assets, but structural illiquidity premium persists.	High – Japanese insurers face strict liquidity regulations and conservative ALM limits that constrain private asset allocation.	Low – HK insurers already have flexibility to allocate to private assets directly; no structural barrier to overcome.
Asset origination advantage	Reinsurer (or its private equity or alternative asset manager affiliate) originates loans directly, capturing origination fees, control over terms, and access to proprietary deal flow.	Genuine alpha	Higher – depends on maintaining origination platform and relationships; not easily replicable by cedants.	High – Bermuda-based reinsurers have built dedicated origination platforms for Asia-Pacific private credit; Japanese insurers lack comparable capabilities.	Low – No Bermuda reinsurer has established a dedicated HK origination platform for life insurance assets; intra-group structures dominate.
Duration transformation	Reinsurer issues long-duration liabilities (e.g., 20-30 year annuities) and invests in shorter-duration but higher-yielding assets, earning term premium when the yield curve is upward-sloping.	Risk premium	Lower – sensitive to yield curve shape; inverted curves erase or reverse this alpha source.	Moderate – Historically relevant during normal yield curves; currently constrained but may return.	Low – HK liabilities are shorter duration (5-15 years), limiting transformation potential.
Liability structure optimization	Reinsurer designs or assumes liabilities with lower optionality than the original block (e.g., removing surrender options, simplifying bonus structures), reducing hedging costs and capital requirements.	Financial/ Structural Optimization	Moderate – competitive response reduces advantage over time as multiple reinsurers offer similar features.	High – Japanese non-par policies already have low optionality; further optimization is possible but marginal.	Low – HK participating products have complex, path-dependent optionality that is difficult to optimize away.
Tax and legal arbitrage	Cross-border structures reduce effective tax drag on investment returns, most notably Bermuda's zero corporate income tax compared to onshore rates (Japan ~ 30%, Hong Kong ~16.5%).	Tax/regulatory benefit	Lower – subject to regulatory closure risk and international tax coordination (e.g., BEPS, global minimum tax proposals).	Moderate – Contributes to alpha but is well-understood and potentially eroding.	Limited – HK already has low tax rate; Bermuda advantage is smaller.
Scale and diversification	Reinsurer aggregates blocks from multiple cedants (across Japan, and potentially other Asian markets), achieving better risk pooling, lower unit costs, and access to larger, higher-quality private investment opportunities.	Operational efficiency	Higher – network effects and first-mover advantages; incumbent aggregators have cost advantages.	Emerging – Early stage; few reinsurers have achieved scale across multiple Japanese cedants.	Not applicable – Insufficient transaction volume to aggregate.

Note on Terminology: This table uses "sources of alpha" broadly, consistent with industry convention (see Section 3.1.3). The "Classification" column indicates which sources satisfy the strict Jensen (1968) definition. Only asset origination advantage qualifies as genuine alpha in the strict sense; the remaining sources are risk premiums, regulatory/tax benefits, financial/structural optimization, or operational efficiencies. All six are included because they contribute to economic value creation in AIR.

3.2.1 Relationship to Typology

The classification below reiterates, in summary form, the distinction established in Table 3:

- Only one of the six sources—asset origination advantage—satisfies the strict Jensen (1968) definition of alpha as excess risk-adjusted returns from skill or structural advantage.
- Two sources—illiquidity premium capture and duration transformation—are risk premiums: compensation for bearing systematic, priced risks. They are not alpha in the strict sense, but they represent genuine economic returns that are accessible via the reinsurance structure.
- One source—liability structure optimization—is a financial/structural optimization: redesigning liabilities to reduce hedging costs and capital charges. This is a form of balance sheet efficiency, not an investment return.
- One source—tax and legal arbitrage—is a tax/regulatory benefit: a reduction in tax drag, not an investment return.
- One source—scale and diversification—is an operational efficiency: cost reduction through scale and risk pooling, not an investment return.

All six sources are included because they contribute to economic value creation in AIR, even if not all qualify as alpha in the strict sense. This distinction is maintained throughout the analysis.

3.2.2 Key Observations

Several observations follow from Table 4.

(1) Japan exhibits high potential across five of the six sources, with only duration transformation currently constrained by yield curve conditions.

(2) Hong Kong exhibits low potential across all sources, consistent with the marginal role of AIR. The absence of a structural barrier to private asset allocation, the lack of a dedicated origination platform, and the shorter duration of liabilities collectively explain why AIR has not flourished.

(3) The most persistent alpha sources—asset origination advantage and scale diversification—are precisely those that require long-term investment in platforms and relationships, not merely transactional structuring. This suggests that value-generating AIR is not easily replicable by new entrants, supporting the institutionalization of the Japan–Bermuda corridor.

(4) Four sources represent genuine economic activity (illiquidity premium, origination advantage, duration transformation, scale diversification)—they involve risk transformation, skill, or operational efficiency. The remaining two (liability optimization and tax arbitrage) primarily involve financial engineering or regulatory/tax transfers, blurring the line between value creation and redistribution.

(5) The sources vary in durability. Risk premiums (illiquidity, duration) are subject to market cycles. Tax and regulatory benefits are subject to political and regulatory change. Genuine alpha (origination advantage) and operational efficiencies (scale) are the most defensible over time.

4. Who Captures Alpha? Cedant vs. Reinsurer

4.1 Forms of Alpha Capture by Each Party

The identification of alpha sources raises a further question: how is the alpha generated in an AIR transaction distributed between the ceding insurer (cedant) and the reinsurer? The answer depends on bargaining power, transaction structure, and market competition.

Alpha can accrue to each party in different forms:

Table 5: Forms of Alpha Capture by Each Party

Party	Form of Alpha Capture	Mechanism
Cedant	Upfront ceding commission	A lump-sum payment from reinsurer to cedant at transaction closing, reflecting the present value of expected future spread
	Reduced regulatory capital	Lower capital requirements under J-ICS after transferring liabilities offshore (illustrated in Appendix A, Table A.2)
	Profit commission	A share of the reinsurer's excess spread above a contractual hurdle, typically 10-30%
	Expense savings	Reduced administrative and hedging costs from offloading legacy blocks
Reinsurer	Net investment spread	The difference between asset returns and liability crediting rates, net of costs and capital charges
	Fee income from affiliated asset manager	A reinsurer affiliated with an asset manager earns management fees on the reinsured asset portfolio
	Scale economies	Spreading fixed costs (actuarial, legal, compliance) across multiple cedant blocks
	Optionality value	Ability to participate in future flow transactions or additional blocks from same cedant

4.2 Bargaining Framework

The division of alpha between cedant and reinsurer is determined by four factors:

(1) **Competition among reinsurers.** When multiple Bermuda-based reinsurers bid for the same Japanese block, competition drives up the ceding commission and improves terms for the cedant. The Japanese market has seen increasing competition, particularly following the entry of new reinsurers backed by private equity and alternative asset managers. This competition has likely shifted alpha toward cedants over time.

(2) **Cedant sophistication and repeat business.** Cedants that have executed multiple AIR transactions (e.g., Dai-ichi Life, Japan Post, Anshin Life) develop internal expertise in negotiating and structuring

deals. Repeat business reduces information asymmetry, allowing cedants to capture a larger share of alpha. First-time cedants or those with smaller blocks typically capture less.

(3) **Transaction scale and complexity.** Larger blocks (e.g., the $7 billion Prudential/Prismic transaction) attract more reinsurer interest and support dedicated structuring teams, benefiting both parties. Highly complex blocks (e.g., those with embedded options or unusual policyholder behavior) may favor reinsurers with specialized modeling capabilities.

(4) **Strategic relationship value.** Cedants may accept lower immediate alpha in exchange for long-term relationships that support future flow reinsurance, access to reinsurer investment expertise, or co-investment opportunities.

4.3 Stylized Alpha Allocation

The identification of alpha sources raises a further question: how is the alpha generated in an AIR transaction distributed between the ceding insurer (cedant) and the reinsurer? This question matters for two reasons. First, if cedants capture little or no alpha, the case for AIR as a value-creating activity for policyholders is weak. Second, the distribution pattern reveals how bargaining power and market competition shape outcomes. Table 6 compares stylized allocations across transaction types to examine the proposition that larger, more competitive transactions favor cedants.

The percentages in Table 6 are illustrative and based on the author's professional experience, not on systematic data collection. They are intended to show directional patterns consistent with industry practice—specifically, that larger blocks and competitive bidding favor cedants. Precise allocations vary significantly by transaction and are rarely disclosed publicly. These figures should not be cited as empirical estimates.

Table 6: Stylized Alpha Allocation by Transaction Type

Transaction Type	Cedant Share	Reinsurer Share	Rationale
Large block (>$5B), competitive bidding	45-50%	50-55%	Multiple reinsurers; cedant has negotiating leverage
Medium block ($1-5B), single reinsurer	30-40%	60-70%	Less competition; reinsurer provides structuring
Small block (<$1B), first-time cedant	20-30%	70-80%	Information asymmetry; reinsurer incurs fixed costs
Flow reinsurance (ongoing new business)	35-45%	55-65%	Cedant provides recurring premium volume
Intra-group (no third-party)	n/a	n/a	Alpha remains within corporate group

Note: Directional patterns only. Actual allocations vary by transaction and are rarely disclosed publicly.

This comparison yields two observations relevant to the complementarity hypothesis. First, cedants in competitive large-block transactions may capture up to half of the alpha, suggesting that AIR is not inherently exploitative of cedants or policyholders. Second, the reinsurer's share is greatest in small or

first-time transactions, where information asymmetry and fixed costs favor the reinsurer—a pattern that reinforces the importance of cedant sophistication and repeat business. These patterns are directional; precise allocations vary by transaction and are rarely disclosed publicly.

5. Interaction Between Regulatory Arbitrage and Alpha

5.1 The Complementarity Hypothesis

Section 1.4 set out the premise that AIR in Japan is associated with substantial regulatory capital relief under J-ICS relative to economic risk transfer. Section 3 identified six potential sources of alpha, and Section 4 examined how alpha may be distributed. This section asks a logically prior question: how might regulatory arbitrage and alpha interact? Are they substitutes (such that arbitrage reduces the need for genuine investment skill) or complements (such that arbitrage enables alpha generation)?

Two implications from the distribution analysis inform this inquiry. First, the substantial capital relief illustrated in Appendix A enables reinsurers to offer meaningful cedant compensation while still earning positive alpha. Absent the regulatory wedge between J-ICS and LTIR, the same investment spread would yield lower alpha or require less attractive cedant terms. Second, under the bargaining framework developed in Section 4.2, cedants are likely to capture a material share of alpha in competitive, large-block transactions through ceding commissions and capital relief. If this holds in practice, AIR may be mutually beneficial rather than extracting value from Japanese policyholders.

This paper advances the following hypothesis, offered for future empirical testing:

H1 (Complementarity Hypothesis): Regulatory arbitrage and alpha may be complements in the Japan–Bermuda AIR corridor. The regulatory wedge created by the divergence between J-ICS and Bermuda's LTIR lowers the cost of capital for holding long-duration guaranteed liabilities, which may make positive-alpha investments viable that would otherwise be marginal or infeasible for cedants operating under domestic constraints alone.

Critical Caveat: This is a hypothesis for future research, not a finding of this paper. With the available data (public transactions only; no proprietary access), causal identification is not possible. Alternative interpretations—selection bias (only transactions with both features are pursued) or reverse causality (alpha-seeking drives arbitrage, not vice versa)—cannot be ruled out. The evidence presented is consistent with the complementarity hypothesis but does not demonstrate it.

5.2 Evidence Consistent with the Hypothesis

The logic proceeds in three steps, each supported by evidence consistent with the hypothesis:

Step 1: Without regulatory arbitrage, alpha may be constrained. Consider a Japanese insurer retaining a block of long-duration annuities on its own balance sheet. Under J-ICS, the required capital is high (see Appendix A, Table A.2). The insurer can only invest in assets that are admissible under Japanese regulatory rules and its own risk limits. Private credit, infrastructure debt, and other illiquid assets typically carry higher capital charges or are restricted. As a result, the feasible investment universe is limited, and alpha opportunities may be correspondingly constrained.

Step 2: The regulatory wedge lowers the effective cost of capital (stylized). When the same liabilities are reinsured to a Bermuda-based reinsurer operating under LTIR, the capital requirement falls substantially in the stylized calculation (Appendix A, Table A.2). The reinsurer faces a lower regulatory cost of holding the liabilities. This does not eliminate risk, but it reclassifies it into a regime where capital is calibrated more flexibly for long-duration spread business.

Step 3: Lower cost of capital may enable alpha-seeking investment. Freed from the high capital charges of J-ICS, the reinsurer may allocate the asset portfolio to higher-yielding, less liquid investments—private credit, infrastructure debt, direct lending, structured finance—that could generate positive alpha through the mechanisms identified in Section 3. The regulatory wedge does not create alpha directly, but it creates balance sheet capacity that may enable alpha-seeking strategies.

5.3 Testing the Complementarity Hypothesis: A Comparative Thought Experiment

The complementarity hypothesis (H1) predicts that AIR flourishes only where both a regulatory wedge AND alpha potential are present. Table 7 tests this prediction by comparing four scenarios: the actual Japan-Bermuda case, a hypothetical Japan onshore case, a hypothetical Bermuda domestic case, and the actual Hong Kong case. The comparison serves two purposes: (a) to show that the pattern of observed AIR adoption is consistent with H1, and (b) to demonstrate that the absence of either condition coincides with limited or no AIR, which would not be predicted under a substitution hypothesis.

Table 7: Complementarity of Arbitrage and Alpha – Scenario Comparison

Scenario	Jurisdiction role	Regulatory Wedge	ALPHA Potential	Observed AIR	Support for Complementarity?
Japan → Bermuda (actual)	Primary case	High (J-ICS vs. LTIR)	High (illiquidity capture, origination advantage)	High	Consistent with complementarity hypothesis
Japan onshore only (hypothetical)	Counterfactual	None (retained under J-ICS)	Low (constrained domestic assets, high capital charges)	None	Complementarity would predict no AIR – consistent
Bermuda without regulatory wedge (hypothetical)	Counterfactual	None (both under LTIR)	Moderate (illiquidity capture only, no cross-border advantage)	Low	Complementarity would predict limited AIR – consistent
Hong Kong (actual)	Counterfactual	Low (HK RBC vs. LTIR wedge smaller)	Low (no illiquidity need, no origination platform)	Low	Complementarity would predict limited AIR – consistent

Interpretation: The scenario in which AIR actually thrives (Japan to Bermuda) is precisely the one where both a regulatory wedge AND alpha potential are present. The absence of either condition coincides with limited or no AIR. This pattern is consistent with complementarity, but alternative explanations (e.g., selection bias) cannot be ruled out. The comparison thus supports H1 as a plausible hypothesis while acknowledging its limitations.

5.4 Why Not Substitutes? An Alternative Hypothesis

An alternative view might hold that regulatory arbitrage and alpha are substitutes: insurers pursue AIR either for capital relief OR for investment returns, depending on which is more valuable. Under this view, we might expect to see AIR in markets with high alpha potential even without a regulatory wedge (e.g., a Bermuda reinsurer reinsuring a Hong Kong block to access private credit). This is not observed. Conversely, we might expect AIR in markets with a large regulatory wedge even without alpha potential (e.g., a Japanese cedant reinsuring to a Bermuda reinsurer that invests only in JGBs). This is also not observed—Bermuda reinsurers actively market their investment capabilities, not just their capital treatment.

The observed pattern is therefore more consistent with complementarity than substitution, but this is a qualitative judgment, not a statistical finding.

5.5 Causal Mechanism: How Arbitrage Enables Alpha

Figure 1 illustrates the causal mechanism (conceptual, not empirically estimated).

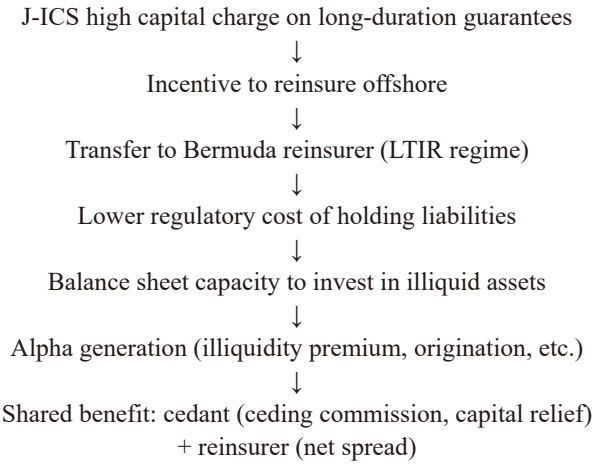

Figure 1: Causal Mechanism – How Arbitrage Enables Alpha

Critically, each step is necessary. Without the initial capital charge under J-ICS, there is no incentive to reinsure. Without Bermuda's more flexible LTIR, the capital relief is not realized. Without the reinsurer's asset origination capabilities, the balance sheet capacity cannot be deployed to generate alpha. The complementarity is therefore institutional as well as economic.

5.6 Potential Implications for the Regulatory Arbitrage Debate

If complementarity exists, it would reframe how we assess regulatory arbitrage in insurance. In the banking literature, regulatory arbitrage is typically viewed as a zero-sum transfer—value extracted from the regulatory system without real economic benefit. The complementarity hypothesis suggests a different interpretation for AIR: regulatory arbitrage lowers the cost of capital, which may enable real investment in illiquid, productivity-enhancing assets (private credit, infrastructure) that might otherwise be starved of long-term funding.

This is not to say all AIR transactions are welfare-improving. The framework implies that AIR would create net economic value when (a) the regulatory wedge is genuine (not a loophole), (b) the reinsurer has genuine asset origination capabilities, and (c) the resulting investments are in economically productive assets. Where any of these conditions is absent—for example, a transaction motivated solely by capital relief with no alpha potential—the case for AIR would be weaker.

6. Stylized Decomposition of AIR Returns

6.1 Transaction Assumptions

Building on the stylized example in Appendix A, consider a Japanese cedant transferring a block of long-duration fixed annuities to a Bermuda-based reinsurer. Key assumptions are summarized in Appendix A, Table A.1.

6.2 Key Qualitative Findings

The stylized decomposition (Appendix A) illustrates the mechanism through which the regulatory wedge may enable alpha generation. The following qualitative findings emerge from this illustration:

First, total expected asset returns include components (illiquidity premium, credit risk premium, and origination alpha) that are not fully accessible to the cedant through domestic investment alone. AIR thus enables access to otherwise unavailable returns.

Second, after accounting for operating costs, cost of capital, and ceding commissions, the reinsurer earns a positive net alpha under the stylized assumptions.

Third, the cedant receives both an upfront ceding commission and substantial regulatory capital relief. Both represent positive value for the cedant.

Fourth, the regulatory wedge—the substantial capital relief—reduces the reinsurer's cost of capital, making positive net alpha possible in the stylized framework. Without the wedge, the same asset returns would yield a compressed or negative net spread, insufficient to sustain the transaction on a risk-adjusted basis. This finding is qualitative; the precise magnitude would depend on actual transaction parameters.

Key takeaway: The wedge lowers the cost of capital, making alpha-seeking investments viable. Both parties capture positive value, though the precise division varies with transaction characteristics and bargaining power.

For detailed calculations, see Appendix A, Section A.5.

7. Risks and Limitations Specific to Alpha Generation

While the previous sections have focused on the potential for alpha generation in AIR, it is essential to acknowledge that these returns are not risk-free. Alpha-oriented AIR structures introduce specific risks that differ from—and in some cases exceed—those associated with regulatory arbitrage alone.

The analysis below is presented primarily from the reinsurer's perspective, as the reinsurer directly bears the asset allocation and liquidity risks of the alpha-oriented strategy. However, cedants should also evaluate these risks, as a reinsurer's inability to manage illiquidity, reinvestment, or model risk could affect the cedant's capital relief, claims payment, or long-term benefits from the transaction. Where relevant, cedant considerations are noted alongside reinsurer risks.

7.1 Contrasting Risk Profiles: Arbitrage vs. Alpha

The complementarity hypothesis (H1) does not imply that alpha-oriented AIR is risk-free. On the contrary, the risks associated with alpha generation define the **boundary conditions** of H1—the circumstances under which complementarity may fail or alpha may turn negative. Table 8 compares the risk profiles of arbitrage-oriented versus alpha-oriented AIR to identify which risks are specific to alpha generation and how they might constrain the complementarity mechanism.

Table 8: Risk Profile Comparison – Arbitrage vs. Alpha Orientation

Risk Type	Arbitrage-Oriented AIR	Alpha-Oriented AIR	Differential
Counterparty risk	Moderate (reinsurer default)	Moderate to High (reinsurer default + asset manager performance risk)	Alpha orientation adds reliance on asset manager skill
Illiquidity risk	Low (assets are liquid bonds)	High (private credit, infrastructure cannot be sold quickly)	Most significant differential
Mark-to-market volatility	Low (bonds held to match liabilities)	High (private assets valued less frequently; valuation gaps can emerge)	Alpha orientation introduces valuation uncertainty
Reinvestment risk	Low (matched maturities)	High (private assets mature or prepay unpredictably)	Alpha orientation requires continuous origination pipeline
Model risk	Low (actuarial models for liabilities are well-understood)	High (private asset return models rely on historical data that may not persist)	Alpha orientation depends on unverifiable assumptions
Regulatory risk	High (recognition changes could eliminate relief)	High (same)	No differential
Operational risk	Moderate (legal, collateral, reporting)	High (origination, monitoring, valuation of private assets)	Alpha orientation requires specialized capabilities

Counterparty risk in alpha-oriented AIR: While counterparty risk exists in any reinsurance transaction (reinsurer default), alpha-oriented AIR introduces an additional layer: reliance on the asset manager's skill, track record, and operational integrity. If the affiliated asset manager underperforms, loses key personnel, or suffers operational failures, alpha generation may suffer even if the reinsurer remains solvent. This risk is distinct from reinsurer credit risk and requires separate due diligence.

Credit risk—the risk of default or downgrade in the underlying bond portfolio—is present in both arbitrage-oriented and alpha-oriented AIR. However, alpha-oriented AIR typically assumes higher credit risk exposure through its allocation to private credit and below-investment-grade assets. This risk is captured in the credit risk premium (0.5–1.0% in Table A.4) and is addressed through the model risk discussion.

Cedant considerations: Cedants should evaluate a reinsurer's risk profile before entering an AIR transaction. A reinsurer with high exposure to illiquid assets or complex valuation models may pose greater counterparty risk, particularly during market stress.

The comparison reveals that alpha orientation introduces or amplifies five specific risks: illiquidity, counterparty (asset manager) risk, mark-to-market mismatch, reinvestment risk, and origination dependency. These risks are not present—or are substantially lower—in pure arbitrage structures. This has two implications for H1. First, alpha generation is not automatic; it requires active risk management and specialized capabilities. Second, cedants should evaluate a reinsurer's risk management capabilities, not just its capital treatment, before entering an alpha-oriented AIR transaction.

7.2 The Illiquidity Trap

The most significant risk specific to alpha-oriented AIR is illiquidity risk. Private credit, infrastructure debt, and direct loans cannot be sold quickly in times of stress. If the reinsurer faces a sudden need for liquidity—for example, due to a rating downgrade triggering collateral requirement, or a mass-lapse event on the reinsured liabilities—it may be unable to liquidate assets at reasonable prices.

This risk is particularly acute for long-duration liabilities with low optionality (the Japanese context). Policyholder behavior is stable in normal times, but during financial crises, lapse rates can spike. A reinsurer holding illiquid private assets may be forced to sell at distressed prices, crystallizing losses and potentially impairing its ability to meet policyholder obligations.

Mitigation (Reinsurer): Reinsurers typically hold liquidity buffers (e.g., government bonds, cash) and match asset cash flows to liability outflows. However, these buffers reduce alpha by requiring some allocation to lower-yielding liquid assets.

Cedant considerations: Cedants should assess whether their reinsurer maintains adequate liquidity buffers relative to the illiquidity of its asset portfolio. A reinsurer with insufficient liquidity could face payment

delays or default during a stress event, forcing the cedant to take back liabilities or absorb losses.

7.3 Mark-to-Market Mismatch

A second risk arises from valuation mismatches. Liabilities are typically valued using actuarial models that smooth market fluctuations. Illiquid assets, by contrast, may be valued infrequently (e.g., quarterly) using models that rely on unobservable inputs. In periods of market stress, the gap between modeled asset values and actual liquidation values can widen materially.

This mismatch creates earnings volatility that may not reflect underlying economic reality but nonetheless affects reported solvency ratios and may trigger regulatory or rating agency scrutiny.

Mitigation (Reinsurer): Reinsurers use conservative valuation methodologies, independent price verification, and stress testing. For reinsurers that are Bermuda domiciled, the BMA's Scenario-Based Approach (SBA) incorporates additional conservative features that address valuation mismatch risk.

Under the SBA, the Best Estimate Liability (BEL) is determined by projecting asset and liability cash flows across eight prescribed interest rate stress scenarios in addition to the base scenario. The SBA BEL is defined as the maximum BEL across all scenarios. This "worst-of" approach explicitly penalizes cash flow mismatches: if assets and liabilities are imperfectly matched, one scenario will produce a higher BEL that becomes the binding capital requirement.

For illiquid assets, transaction cost assumptions must reflect full price impacts, including effective bid-ask spreads that are no less than those for comparable liquid assets. Where current market spreads are below long-term averages, a grading-in period applies, preventing opportunistic timing assumptions. Default and downgrade cost floors further constrain valuations where BMA-published data is unavailable. These features—the worst-of scenario selection, conservative transaction cost assumptions, and cost floors—effectively impose a conservative penalty on net yield for assets with valuation uncertainty or liquidity mismatches.

However, model risk cannot be eliminated entirely.

Cedant considerations: Cedants should monitor their reinsurer's solvency ratios and valuation practices. A reinsurer that reports volatile or opaque valuations may face rating agency downgrades, which could trigger collateral requirements or affect the cedant's own regulatory capital treatment.

7.4 Reinvestment Risk and Origination Dependency

Private credit and infrastructure investments have finite terms. As they mature or are prepaid, the reinsurer must reinvest the proceeds in new assets. If market conditions have changed—spreads have compressed, or attractive deals are scarce—the reinsurer may be unable to maintain the same alpha level.

This creates **origination dependency**. Unlike public bonds, which can be purchased in secondary markets, private assets require ongoing deal origination. Reinsurers without dedicated origination platforms (or without access to an affiliated asset manager's platform) face significant execution risk.

Mitigation (Reinsurer): Leading Bermuda reinsurers are affiliated with large alternative asset managers (e.g., Apollo, KKR, Blackstone) that provide dedicated origination capacity. Independent reinsurers must build or acquire such capabilities.

Cedant considerations: Cedants evaluating AIR transactions should assess whether their reinsurer has dedicated origination capabilities or an affiliated asset manager. A reinsurer without such capabilities may struggle to sustain alpha over the life of the transaction, potentially affecting the cedant's long-term benefits, including ceding commissions and capital relief.

7.5 Model Risk and Return Persistence

The illustrative alpha figures in Table A.3 (0.5-1.0% from origination and active management) rely on historical return data for private credit and other illiquid assets. These historical returns may not persist for three reasons:

1. **Capital inflows:** As more institutional capital (including from other reinsurers, pension funds, and sovereign wealth funds) flows into private credit, spreads compress and alpha erodes.

2. **Selection bias:** Historical private credit returns are based on deals that were originated and survived. Failed deals are often not included in track records.

3. **Cycle dependence:** Private credit performs differently across interest rate and credit cycles. The current environment may be unusually favorable.

Mitigation (Reinsurer and Cedant): Reinsurers and cedants should stress investment return assumptions and avoid over-reliance on historical track records.

Cedant considerations: Cedants should request transparency on a reinsurer's alpha track record, including how underperforming deals are accounted for. Over-optimistic return assumptions by the reinsurer could lead to mispriced transactions or future recapture negotiations.

7.6 Summary of Alpha-Specific Risks

Table 9: Summary of Alpha-Specific Risks

Risk	Description	Severity	Mitigation
Illiquidity trap	Cannot sell private assets in stress	High	Liquidity buffers; cash flow matching
Counterparty risk	Reinsurer default or asset manager underperformance	Moderate to High	Diversify reinsurers; monitor asset manager track record
Mark-to-market mismatch	Valuation gaps between assets and liabilities	Moderate	Conservative valuation; independent verification
Reinvestment risk	Cannot maintain alpha as assets mature	Moderate	Continuous origination pipeline
Model risk	Historical returns may not persist	Moderate	Stress testing; conservative assumptions
Origination dependency	Alpha requires ongoing deal flow	High for independents; low for affiliates	Affiliate with asset manager or build platform

Cedant summary: While these risks are borne directly by the reinsurer, cedants should evaluate a reinsurer's capabilities across each dimension—liquidity management, valuation practices, origination capacity, and return assumptions—before entering an alpha-oriented AIR transaction. A reinsurer that fails to manage these risks effectively could jeopardize the cedant's expected benefits, including capital relief and claims payment reliability.

8. Synthesis – When Does AIR Truly Add Value?

8.1 A Three-Condition Framework for Value-Creating AIR

This paper proposes that AIR creates genuine economic value—positive net alpha after accounting for all risks—when three conditions hold simultaneously.

First, liability suitability. The liabilities transferred must be long-duration, non-participating, with predictable cash flows and low optionality. Such liabilities—typically fixed annuities or whole-life policies with embedded guarantees—are highly suitable for funded reinsurance structures because they enable precise hedging and regulatory capital relief. This condition can be assessed by examining the cedant's liability profile. In the Japanese context, suitable blocks are typically characterized by a high proportion of non-participating liabilities (illustratively, >60%) and long durations (illustratively, >15 years). These benchmarks are based on the author's professional experience and are intended as indicative guides, not rigid thresholds. Actual suitability depends on the specific characteristics of each block.

Second, asset capability. The reinsurer must have genuine, demonstrable asset origination capabilities in illiquid, higher-yielding asset classes such as private credit, infrastructure debt, and direct lending. Reinsurers affiliated with large alternative asset managers (e.g., Apollo, KKR, Blackstone) typically possess such capabilities. Independent reinsurers without dedicated origination platforms face significant

execution risk and are unlikely to sustain alpha over time. This condition can be assessed by examining the reinsurer's affiliation with an asset manager and its track record in private credit origination.

Third, a material regulatory wedge. The capital relief from cross-border reinsurance must be substantial and sustainable. In the stylized framework, the Japan–Bermuda corridor exhibits material relief (illustratively, >30% in the stylized calculations in Appendix A). This benchmark is intended to indicate the **direction** and **relative magnitude** of the wedge, not a precise empirical cut-off. Actual materiality depends on the specific transaction and regulatory environment. The Japan–Bermuda corridor exemplifies this condition: J-ICS imposes high capital charges on long-duration guaranteed liabilities, while Bermuda's LTIR provides more flexible capital calibration, creating a persistent wedge that enables alpha-seeking investment.

The preceding analyses—of alpha sources, distribution, complementarity, and risks—converge on a single question: under what conditions does AIR generate genuine economic value rather than merely redistributing surplus or exposing parties to unmanaged risk?

Table 10 synthesizes this paper's findings into a three-condition framework. These conditions are jointly necessary for H1 to hold: liability suitability provides the raw material for alpha, asset capability provides the mechanism, and the regulatory wedge provides the enabling condition.

Table 10: Three Conditions for Value-Creating AIR

Condition	Definition	How to Assess (illustrative)
1. Liability suitability	Long-duration, non-par, predictable cash flows, low optionality	High share of non-par (e.g., >60%); long duration (e.g., >15 years) — **illustrative benchmarks only**
2. Asset capability	Genuine origination capabilities in illiquid, higher-yielding assets	Affiliated with alternative asset manager; track record in private credit
3. Regulatory wedge	Material and sustainable capital relief from cross-border reinsurance	Material solvency regime differential (e.g., >30% capital relief in stylized framework); recognition stable — **illustrative benchmarks only**

Note: The illustrative benchmarks (e.g., >60% non-par, >15 years duration, >30% capital relief) are based on the author's professional experience and are intended to indicate direction and relative magnitude, not precise empirical cut-offs. Actual suitability depends on transaction-specific characteristics and regulatory context.

The three conditions are jointly necessary for sustainable, value-creating AIR. Where all three hold, the complementarity hypothesis predicts positive alpha for both parties. Where one or more conditions are weak or absent, AIR may still occur (for example, as pure regulatory arbitrage), but the case for genuine value creation is substantially weaker. The framework thus provides a practical tool for evaluating AIR transactions while also specifying the conditions under which H1 should hold.

8.2 Decision Matrix

The three-condition framework has implications for predicting where AIR will thrive. Table 11 applies the framework to the scenarios examined in this paper, with two purposes. First, it tests whether the

framework correctly predicts actual AIR adoption patterns (Japan-Bermuda high, Hong Kong low). Second, it examines hypothetical counterfactuals to show that all three conditions are jointly necessary. The comparison thus serves both descriptive (pattern-matching) and analytical (counterfactual testing) purposes.

Table 11 applies the three-condition framework to the scenarios examined in this paper. The scenarios include actual observed cases (Japan → Bermuda, Hong Kong) and hypothetical counterfactuals designed to test the framework's logic.

Table 11: Decision Matrix – When Does AIR Truly Add Value?

Scenario	Liability Suitability	Asset Capability	Regulatory Wedge	Value Creation	Observed AIR
Japan → Bermuda (actual)	High (non-par, 20+ years)	High (Bermuda reinsurers with AM affiliates)	High (material, see Appendix A)	**Strong**	High
Hong Kong (actual)	Low (participating, short duration)	Low (no dedicated AIR origination)	Low (limited, see Appendix A)	None to weak	Low
Japan onshore only (hypothetical)	High	Low (domestic constraints)	None	Weak	None
Bermuda → Bermuda (hypothetical)	Moderate	High	None (no cross-border)	Moderate	Low
Japan → Bermuda (weak origination) (hypothetical)	High	Low (reinsurer lacks asset capabilities)	High	Weak (illusory alpha)	Possibly, but unsustainable
Mature market with public assets only (hypothetical)	High	Low (only public bonds)	High	Weak (arbitrage only)	Possibly, but lower

Interpretation: The Japan→Bermuda case is the only scenario where all three conditions are simultaneously satisfied. This explains why AIR has flourished in this corridor while remaining marginal elsewhere—and why the value creation (alpha) is likely genuine rather than illusory.

Several observations emerge from the matrix.

First, the **Japan→Bermuda corridor satisfies all three conditions:** liability suitability (long-duration, non-par guarantees), asset capability (Bermuda reinsurers affiliated with alternative asset managers), and a material regulatory wedge. Consistent with the framework, this corridor exhibits high AIR adoption and strong value creation.

Second, **Hong Kong satisfies none of the three conditions.** Liability suitability is low (participating products, shorter durations), asset capability is limited (no dedicated AIR origination platform), and the regulatory wedge is small. The framework correctly predicts low AIR adoption and weak value creation.

Third, **the hypothetical scenarios provide counterfactual tests.** Where only one or two conditions are present—for example, Japan onshore only (liability suitability without asset capability or regulatory

wedge) or Bermuda→Bermuda (asset capability without cross-border wedge)—AIR adoption remains low or non-existent. This pattern supports the framework's implication that all three conditions are jointly necessary for sustained, value-creating AIR.

8.3 Implications for Different Stakeholders

The decision matrix yields distinct implications for insurers, reinsurers, and regulators.

For insurers (cedants):

Cedants should pursue AIR for long-duration, non-par blocks where the reinsurer has demonstrated asset origination capabilities. They should request transparency on the reinsurer's investment strategy and alpha track record. Conversely, cedants should not pursue AIR solely for regulatory capital relief without verifying the reinsurer's ability to generate sustainable alpha; pure arbitrage transactions may face regulatory closure or adverse selection. The key question cedants should ask is: "Does this reinsurer have affiliated asset management capabilities that I cannot access directly?"

For reinsurers:

Reinsurers should invest in building or partnering with asset origination platforms in private credit, infrastructure, and direct lending. The complementarity argument suggests that regulatory arbitrage alone is not a sustainable business model. Reinsurers should not over-promise alpha based on back-tested historical returns; instead, they should be transparent about liquidity buffers, valuation practices, and the persistence of illiquidity premiums. The key question reinsurers should ask is: "Can we maintain our origination advantage as more capital flows into private credit?"

For regulators:

The implications vary by jurisdiction.

Japan FSA: The complementarity framework suggests that J-ICS is not being "gamed" but is enabling genuine cross-border investment. However, the FSA should monitor whether reinsurers are holding adequate liquidity buffers against tail risks.

Hong Kong IA: The absence of AIR in Hong Kong is not a problem to be solved; it reflects a rational market equilibrium given the jurisdiction's liability structure and capital regime. Forcing AIR through regulatory changes would create risks without offsetting benefits.

Bermuda BMA: The LTIR framework enables alpha generation by providing flexible capital treatment. The BMA should ensure that reinsurers' asset-liability management practices are robust, particularly for illiquid assets.

8.4 Boundary Conditions of the Framework

The three-condition framework applies under several boundary conditions, each of which defines the scope of its claims.

Mature insurance markets. The framework assumes sophisticated cedants with robust ALM capabilities. It may not apply to emerging markets where cedants lack the expertise to evaluate complex reinsurance structures.

Stable regulatory environment. The analysis assumes current J-ICS and LTIR calibrations. Regulatory changes—for example, if Japan tightened recognition standards for offshore reinsurance or Bermuda increased capital charges for illiquid assets—would alter the conditions under which AIR creates value.

Public data availability. Asset capability is difficult to assess without proprietary information. The framework therefore relies on observable proxies, such as affiliation with an alternative asset manager and publicly available track records in private credit.

Normal market conditions. The analysis assumes normal credit and liquidity conditions. Under stress—such as a financial crisis or a sharp credit spread widening—alpha may turn negative as illiquid assets become difficult to value or sell, and liquidity buffers may prove insufficient.

9. Conclusion

This paper has developed a conceptual framework for understanding alpha generation in asset-intensive reinsurance and proposed a hypothesis about its relationship with regulatory arbitrage. The analysis yields four core contributions that advance the understanding of AIR as a value-creating activity.

First, the paper identifies six distinct sources of alpha in AIR: illiquidity premium capture, asset origination advantage, duration transformation, liability structure optimization, tax and legal arbitrage, and scale diversification. These sources vary in persistence and jurisdictional relevance. Japan exhibits high alpha potential across five of the six sources, while Hong Kong exhibits low potential across all. This framework provides a systematic lens for evaluating whether AIR transactions generate genuine economic value or merely redistribute surplus through regulatory arbitrage.

Second, the paper proposes the complementarity hypothesis (H1): that regulatory arbitrage and alpha generation may be complements rather than substitutes in the Japan–Bermuda AIR corridor. The regulatory wedge between J-ICS and LTIR lowers the cost of capital, potentially enabling alpha-seeking investments in illiquid assets that cedants cannot access domestically. The evidence—transaction patterns, the comparative Japan–Hong Kong analysis, and stylized calculations—is consistent with this hypothesis. However, H1 is offered as a hypothesis for future empirical testing, not as a demonstrated finding. Causal

identification would require proprietary transaction data not available for this study.

Third, the paper develops a three-condition decision framework for identifying when AIR creates genuine economic value: (1) liability suitability—long-duration, non-par liabilities with predictable cash flows; (2) asset capability—genuine origination capabilities in illiquid, higher-yielding assets; and (3) a material regulatory wedge—substantial and sustainable capital relief from cross-border reinsurance. The Japan–Bermuda corridor satisfies all three conditions; Hong Kong satisfies none. This framework provides a practical tool for insurers, reinsurers, and regulators to evaluate AIR transactions.

Fourth, the paper identifies the specific risks associated with alpha-oriented AIR—illiquidity risk, counterparty risk, mark-to-market mismatch, reinvestment risk, model risk, and origination dependency—and shows how these risks differ from those in arbitrage-oriented structures. This risk framework defines the boundary conditions of the complementarity hypothesis and provides guidance for due diligence.

Policy implications vary by jurisdiction. Japan's FSA should monitor whether reinsurers hold adequate liquidity buffers against tail risks, as alpha-oriented AIR involves greater exposure to illiquid assets. Hong Kong's IA should recognize that the absence of AIR in Hong Kong reflects rational market equilibrium given the jurisdiction's liability structure and capital regime—forcing AIR through regulatory changes would create risks without offsetting benefits. Bermuda's BMA should ensure that reinsurers' asset-liability management practices are robust, particularly for illiquid assets, while preserving the LTIR framework that enables alpha generation.

Future research should test H1 empirically with proprietary transaction data, extend the analysis to other Asian markets, examine the persistence of alpha sources over time, and investigate optimal risk management practices for alpha-oriented AIR structures.

Key takeaway: AIR is most likely to create genuine economic value when liability suitability, asset capability, and a regulatory wedge are jointly present. Within this conceptual framework, the Japan–Bermuda corridor satisfies all three conditions; Hong Kong does not clearly satisfy any of them in the present analysis. The frameworks developed in this paper provide a foundation for future empirical testing and practical evaluation of AIR transactions.

Appendix A: Stylized Capital Modeling Framework

A.1 Important notes on Appendix A

This appendix presents a stylized, illustrative modeling framework only. It is not an empirical analysis.

Purpose:

- To demonstrate the mechanism by which regulatory capital relief enables alpha generation (Section 5.5)
- To provide transparent assumptions for the stylized alpha decomposition
- To show directional differences across jurisdictions (Japan vs. Hong Kong) that underpin the complementarity hypothesis

Limitations:

- No proprietary transaction data was used
- All parameters are the author's estimates based on public information and professional experience
- The numerical ranges (e.g., 1.0–1.5%) represent **plausible illustrative parameters**, not empirical estimates of actual transactions
- Readers should not cite these percentages as empirical findings
- Precision of illustrative ranges: The numerical ranges presented in this appendix are not calculated or empirically estimated. They are plausible illustrative parameters based on the author's professional experience and publicly available data. The specific endpoints of the ranges are illustrative boundaries, not precise estimates. The ranges are intentionally broad to reflect the inherent uncertainty of relying on public data. Readers should not interpret these ranges as indicating precision or empirical estimation.
- Throughout this appendix, all numerical ranges—whether with or without decimals—serve the same illustrative purpose and should be interpreted as indicating direction and relative magnitude only

Presentation convention: Throughout this appendix, qualitative categories (High / Moderate / Low) are used alongside indicative quantitative ranges. These categories and ranges are intended to show the direction and relative magnitude of effects—not to estimate actual transaction returns. For example, "High (50–60%)" means the capital relief is substantial in the stylized framework, not that actual transactions achieve precisely 53%.

What these calculations CAN show:

- That the regulatory wedge **could** enable alpha generation under plausible assumptions
- That the **direction** of the difference (Japan > Hong Kong) is robust to parameter variation
- How the complementarity hypothesis (Section 5.1) would operate if true

What these calculations CANNOT show:

- The actual magnitude of alpha in any specific transaction

- That the illustrative percentages represent market norms or averages

The qualitative conclusion—that the regulatory wedge reduces the cost of capital, enabling alpha-seeking investments that would otherwise be marginal—is robust to reasonable parameter variation. The specific ranges are illustrative and should not be treated as empirical findings.

A.2 Assumptions and Methodology

Table A.1 presents the assumptions underpinning the stylized decomposition. These assumptions are illustrative only—they represent plausible parameters based on public information and the author's professional experience, not empirical estimates of any specific transaction. Their purpose is to demonstrate the mechanism by which the regulatory wedge could enable alpha generation under plausible conditions, not to estimate actual returns.

Table A.1: The following assumptions underpin the stylized alpha decomposition presented in this paper:

Parameter	Value	Justification / Source
Liability present value	USD 7.0 billion	Comparable to major Japanese transactions
Liability duration	20 years	Representative of Japanese annuity blocks
Guaranteed interest rate	1.5%	Reflects legacy Japanese product guarantees
Reinsurance cession	90% quota-share	Illustration of block reinsurance transactions only
Assets portfolio	Mix of public and private credit	Enables illiquidity premium capture

A.3 Summary of Regulatory Capital Relief

Table A.2 summarizes the stylized regulatory capital relief assumed in this paper. This relief is the foundation of the complementarity hypothesis: the **High** relief under J-ICS (relative to Bermuda's LTIR) reduces the reinsurer's cost of capital, potentially making alpha-seeking investments viable that would otherwise be marginal. The **Low** relief in Hong Kong (relative to Bermuda) is insufficient to justify the operational complexity of offshore AIR structures. These figures are stylized and illustrative—they show direction, not precise magnitudes

Table A.2: Summary of Stylized Regulatory Capital Relief (illustrative)

Jurisdiction	Pre-AIR Capital (% of liabilities)	Post-AIR Capital (% of liabilities)	Capital Relief
Japan (J-ICS)	High (15%)	Low (7%)	High (~53%)
Hong Kong (HK RBC)	Moderate (7%)	Low (6%)	Low (~14%)

Note: The percentages in this table are stylized illustrations. They are not empirical estimates. The "~" symbol indicates these are directional approximations, not precise point estimates. The purpose of these figures is to illustrate the relative magnitude of the regulatory wedge across jurisdictions, not to estimate actual transaction outcomes. All figures are explicitly identified as stylized, not empirical, consistent with Section 1.5 ("Status of Claims").

Key Insight for Alpha Generation:

The **High** capital relief under J-ICS (illustrated as 53%) reduces the reinsurer's cost of capital materially in the stylized framework—from **High** to **Low** relative to the onshore regime. This reduction makes positive net alpha possible: investments that would be marginal or infeasible for a cedant operating under

domestic constraints become viable when the liabilities are held in a lower-capital regime.

In Hong Kong, the **Low** relief (illustrated as 14%) is insufficient to justify the operational complexity of offshore AIR structures.

A.4 Alpha Decomposition

Table A.3 presents a stylized decomposition of alpha in a Japan-Bermuda AIR transaction. This decomposition serves a specific purpose: to illustrate how the regulatory wedge could enable alpha generation under the complementarity hypothesis (H1). The figures are illustrative only—they represent plausible ranges based on the author's professional experience, not empirical estimates of actual transactions. Readers should not cite these percentages as empirical findings. The table is structured to show the progression from asset returns to net alpha, with each step linked to the regulatory wedge analysis.

Table A.3: Stylized Alpha Decomposition for Japan→Bermuda AIR Transaction (illustrative)

Component	Illustrative Return	Source / Assumption	Link to Capital Calculation
Risk-free rate (20-year JGB equivalent)	**Low** (1.5%)	Market benchmark	Matches guaranteed liability rate (1.5%)
Illiquidity premium	**Low-to-Moderate** (1.0–1.5%)	Private credit spread over public bonds	Enabled by lower capital charge post-AIR
Credit risk premium	**Low-to-Moderate** (0.5–1.0%)	BBB over AA spread	Enabled by reinsurer's flexible capital calibration
Alpha (origination, structuring, active management)	**Low-to-Moderate** (0.5–1.0%)	Reinsurer proprietary capabilities	Dependent on reinsurer's asset origination platform
Total expected asset return	**Moderate (3.5–5.0%)**		
Less: Liability crediting rate	**Low-to-Moderate** (1.5–2.0%)	Guaranteed + discretionary	
Gross spread	**Low-to-Moderate 2.0–3.0%**		
Less: Reinsurer operating costs	Low (0.3–0.5%)	Actuarial, legal, administration	
Less: Reinsurer cost of capital	**Low** (0.5–1.0%)	10–15% target on ~5–10% capital	Directly reduced by 53% capital relief
Net spread (pre-ceding commission)	**Low-to-Moderate 0.7%-2.7%**		
Less: Ceding commission to cedant	**Low** (0.5%–1.0%)	Distributed from net spread	Cedant's share of alpha
Net alpha to reinsurer	**Low 0.2%–1.7%**	Derived from spread less ceding commission	No specific percentage is reliable given public data limitations
Cedant benefits	**High capital relief (53%) + Low ceding commission (0.5-1% annualized equivalent)**		

Note: This table is a conceptual illustration of the alpha decomposition mechanism. The numerical ranges (e.g., 0.2–1.7%) are not calculated or empirically estimated—they are plausible illustrative parameters derived from academic literature (see

Sections 2.3–2.4), stylized assumptions in Table A.1, and the author's professional experience. The specific endpoints of the ranges are illustrative boundaries, not precise estimates. The ranges are intentionally broad to reflect the inherent uncertainty of relying on public data. They are intended to demonstrate direction and relative magnitude, not actual returns. Consistent with Section 1.5 ("Status of Claims"), these figures are classified as Stylized (illustrative parameters; not empirical estimates) and should not be cited as empirical findings. Actual returns vary significantly by transaction and are rarely disclosed publicly.

The decomposition illustrates the complementarity mechanism. The illiquidity premium, credit risk premium, and origination alpha components (each Low to Moderate) are not fully accessible to the cedant domestically. The regulatory wedge reduces the reinsurer's cost of capital from Moderate to Low. Without this reduction, the transaction would yield a compressed or negative net spread. The decomposition thus shows how H1 would operate if true, without claiming to demonstrate it empirically.

A.5 Interpretation: How the Regulatory Wedge Enables Alpha

The decomposition above illustrates the complementarity hypothesis numerically. The interpretation proceeds in five steps.

Step 1: Asset Returns Reflect Multiple Premiums

Table A.4: Asset Return Components and Cedant Accessibility

Component	Return	Accessibility to Cedant
Risk-free rate	Low (1.5%)	Fully accessible
Illiquidity premium	Low-to-Moderate (1.0–1.5%)	**Limited** — regulatory liquidity constraints
Credit risk premium	Low-to-Moderate 0.5–1.0%	**Limited** — capital charges on below-investment-grade assets
Origination alpha	Low-to-Moderate 0.5–1.0%	**Not accessible** — lack origination capabilities

The illiquidity premium, credit risk premium, and origination alpha components (each **Low to Moderate**) are not fully accessible to the Japanese cedant through domestic investment alone due to regulatory liquidity constraints, investment restrictions, and lack of origination capabilities. AIR thus enables access to otherwise unavailable return sources.

Step 2: Gross Spread Reflects the Difference Between Asset Returns and Liability Costs

After subtracting the liability crediting rate (**Low-to-Moderate**, 1.5–2.0%), the gross spread is **Low-to-Moderate** (1.5–3.5%). This represents the raw return available to compensate the reinsurer for costs, capital, and profit.

Step 3: The Regulatory Wedge Reduces the Reinsurer's Cost of Capital

The reinsurer's cost of capital is estimated at **Low** (0.5–1.0%) annually, assuming a 10–15% target return on 5–10% of assets held as regulatory capital. The **High** capital relief (53%) directly reduces this cost.

Table A.5: Effect of the Regulatory Wedge on the Reinsurer's Cost of Capital (illustrative)

Scenario	Cost of Capital	Impact
With regulatory wedge (J-ICS → LTIR)	**Low** (0.5–1.0%)	Capital cost reduced by ~50%
Without regulatory wedge (onshore only)	Moderate (1.0–2.0%)	Capital cost approximately double

Step 4: The Wedge Makes Positive Net Alpha Possible

After deducting operating costs (Low, 0.3–0.5%) and the reduced cost of capital (Low, 0.5–1.0%), the net spread pre-ceding commission is Low-to-Moderate (0.7–2.7%).

Table A.6: Impact of Regulatory Wedge on Net Spread

Scenario	Cost of Capital	Net Spread (Illustrative)	Outcome
With regulatory wedge (actual)	**Low** (0.5–1.0%)	**Low-to-Moderate** (0.7–2.7%)	**Positive net alpha possible**
Without regulatory wedge (counterfactual)	**Moderate** 1.0–2.0%	**Low-to-None** 0.2–0.5% (or negative)	Transaction marginally viable or unsustainable

Without the wedge, the same asset returns would yield a net spread that is **Low-to-None** (0.2–0.5%), insufficient to sustain the transaction on a risk-adjusted basis.

Step 5: Alpha is Shared Between Cedant and Reinsurer

The net spread is split between:

- **Cedant:** Upfront ceding commission (**Low**, 0.5–1.0% annualized equivalent) + **High** capital relief (53%)
- **Reinsurer:** Net alpha (**Low**, 0.2–1.7%)

Both parties capture positive value, though the precise division varies with transaction characteristics and bargaining power.

A6. Summary: How the Wedge Creates Value

Table A.7 summarizes the causal mechanism underlying H1 in five steps. This summary demonstrates the logical sequence of the complementarity hypothesis: the regulatory wedge reduces the cost of capital, which enables alpha-seeking investment, which generates returns shared between parties. Each step is necessary for H1 to hold.

Table A.7: Causal Mechanism Underlying the Complementarity Hypothesis (illustrative)

Step	Mechanism
1	J-ICS imposes **High** capital charges on long-duration guaranteed liabilities
2	Reinsuring to Bermuda (LTIR) reduces regulatory capital from **High to Low**.
3	Lower capital requirement reduces the reinsurer's cost of capital from **Moderate to Low**.
4	Freed from high capital charges, the reinsurer can invest in illiquid, higher-yielding assets
5	The resulting alpha is shared between cedant (ceding commission) and reinsurer (net alpha)

Key takeaway: The wedge does not create alpha directly, but it creates balance sheet capacity that enables alpha-seeking strategies. This is the complementarity hypothesis illustrated numerically: **regulatory arbitrage and alpha generation are complements, not substitutes.**

A.7 Limitations and Caveats

Table A.8: Limitations and Caveats of the Stylized Decomposition

Limitation	Explanation
Stylization	Actual asset returns, costs, and capital charges involve greater complexity
Transaction specificity	Assumes generic block reinsurance; actual structures may differ
Alpha persistence	Illiquidity premiums and origination alpha may compress as capital flows into private markets
Public information constraints	All parameters are stylized; actual transaction data would be required for empirical estimates

Despite these limitations, the framework robustly demonstrates the core proposition of this paper: regulatory arbitrage and alpha may be complements, with the regulatory wedge enabling alpha-seeking investments that would otherwise be infeasible.

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 217–240

Article

Research on the Current Status, Risks, and Countermeasures of Offshore Bond Issuance by Chinese Local Government Financing Vehicles from a Regulatory Evolution Perspective

規制の変遷という視点から見た中国地方政府融資平台による オフショア債発行の現状・リスク・対応策に関する研究

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Abstract

This paper systematically examines the evolution of Chinese LGFV offshore bonds from 2021 to 2025, a period marked by intensive regulatory adjustments. Drawing on a full-sample micro-dataset of 1,897 bonds totaling RMB 1,541.754 billion, we trace the three-phase regulatory evolution—"standardization and intensification" (2021–2022), "examination and registration with regulatory arbitrage" (February–June 2023), and "strict control and targeted guidance" (July 2023–2025)—and empirically analyze the temporal synchronization between regulatory adjustments and changes in issuance characteristics and risk evolution. Our findings reveal a strong temporal synchronization between regulatory policy adjustments and market transformation, with issuance volume following an inverted U-shaped trajectory. Regional concentration persists, with Shandong, Zhejiang, and Jiangsu collectively accounting for over 50% of issuance. The USD bond share declined from 96.56% to 67.04%, while the share of 1–3 year tenors rose to 95.92% of annual issuance by 2025 (84.79% over the full sample period), with proceeds predominantly allocated to refinancing maturing debt. Risks exhibit cross-border contagion and policy-sensitivity characteristics, with credit stratification, exchange rate volatility, policy uncertainty, and liquidity constraints intertwining concurrently. We propose targeted recommendations across three dimensions: cross-departmental regulatory coordination, issuer-level risk management, and offshore market infrastructure development. While the analysis establishes strong temporal associations between regulatory changes and market outcomes, the descriptive research design does not permit strict causal identification; findings should be interpreted as documenting co-movement and patterns consistent with policy influence.

Keywords: Chinese LGFVs; offshore bonds; regulatory evolution; issuance cost structure; risk prevention and control

1. Introduction

1.1 Research Questions and Objectives

Local government financing vehicles (LGFVs) represent a distinctive institutional arrangement in China's urbanization process, having played an irreplaceable role in infrastructure construction and regional development. Following the 1994 tax-sharing reform, the mismatch between local governments' fiscal authority and expenditure responsibilities became increasingly pronounced, with LGFVs effectively alleviating fiscal pressures through bond issuance and bank lending, driving China's urbanization rate from 36.22% in 2000 to 66.16% in 2024 (National Bureau of Statistics of China, 2025). However, as LGFV debt expanded rapidly, the accumulation of local government hidden debt risks emerged as a significant threat to financial stability. In response, since the State Council issued Guofa [2014] No. 43, the central government has introduced a series of policies to regulate LGFV financing and promote market-oriented transformation.

Since 2021, as global monetary policy shifted and domestic pressures for debt risk prevention intensified, regulatory policies governing LGFV offshore bonds entered a more stringent adjustment period. In February 2023, the Administrative Measures for the Review and Registration of Medium and Long-Term Foreign Debt of Enterprises (NDRC Order No. 56) formally took effect, marking China's transition from a filing and registration system to a review and registration system for enterprise foreign debt management. Order No. 56 applies exclusively to medium- and long-term foreign debt with maturities exceeding one year, while short-term debt continues under the filing system, triggering an explosive growth of "364-day offshore bonds" in 2023–2024. In July 2023, the Political Bureau proposed "a basket of debt resolution plans," followed by Guobanfa [2023] No. 35, explicitly requiring strict control over new offshore debts of LGFVs. Regulators subsequently halted the disorderly issuance of "364-day bonds" through window guidance.

The period 2021–2025 thus constitutes a critical turning point in China's LGFV offshore bond market. Nevertheless, existing research has predominantly focused on the onshore bond market, with limited attention to LGFV offshore bonds—particularly lacking systematic analysis of issuance characteristics under latest policy adjustments. Accordingly, this paper addresses two research questions: (RQ1) how did the issuance characteristics of Chinese LGFV offshore bonds—aggregate scale, regional and issuer structure, currency composition, cost, maturity, and use of proceeds—change across the successive regulatory phases of 2021–2025? and (RQ2) what risks did these changes generate, and through which transmission pathways? To answer them, the paper has three objectives: first, to systematically trace regulatory policy evolution since 2021 and elucidate the relationship between regulatory adjustments and market development; second, to conduct in-depth analysis of issuance scale, regional structure, issuer structure, currency composition, cost and tenor profiles, and financing purposes during 2021–2025; and third, to identify principal risks and propose targeted policy recommendations.

1.2 Institutional Background and Literature Review

Chinese LGFV offshore bonds refer to bonds issued by domestic LGFVs or their overseas subsidiaries in offshore markets, denominated in foreign currencies or offshore RMB. Based on issuance tenor, they are classified as short-term (one year and below) and medium- and long-term (over one year). Based on regulatory rules, medium- and long-term bonds are subject to NDRC review and registration, while short-term "364-day bonds" fall under the filing and registration system, creating regulatory arbitrage opportunities.

Research on LGFV bonds traces back to 2009. Deng et al. (2025) argued that LGFV bond development was an inevitable consequence of the fiscal mismatch following tax reform, essentially constituting "quasi-municipal bonds." Wang et al. (2026) found that credit spreads primarily reflect local government implicit guarantee capacity rather than LGFVs' operating conditions. Cai et al. (2026) further noted that implicit guarantees constitute the core foundation for LGFV bond market existence and the primary source of hidden debt risks. As the offshore market developed, scholars began focusing on this domain. Hu (2019) identified offshore low-interest rates and regulatory policy relaxation as principal driving factors. Chang and Zhang (2020) noted that rapid expansion increased both foreign debt risks and cross-border capital flow volatility. Hong et al. (2023) empirically found that onshore hidden debt control and infrastructure investment demand gaps constitute principal driving factors for offshore financing.

However, existing research suffers from three deficiencies: first, research on LGFV offshore bonds has lagged behind, lacking systematic analysis of market changes under latest policy adjustments since 2021; second, most studies adopt static perspectives, lacking dynamic research examining regulatory evolution over time; third, risk identification has not been sufficiently comprehensive, failing to adequately consider structural risks from policy adjustments. This paper addresses these deficiencies by systematically analyzing issuance status and risk characteristics from a regulatory evolution perspective.

Two strands of theory frame the analysis that follows. First, the reduced-form credit risk literature holds that the spread on a defaultable bond reflects the market's assessment of default intensity and recovery (Duffie & Singleton, 1999); applied to LGFVs, whose creditworthiness rests substantially on implicit government support, a tightening of regulation that weakens that support should widen spreads and stratify pricing across issuer tiers and regions. Second, the literature on Asian bond market development attributes cross-border issuance patterns to institutional and infrastructural conditions—regulatory quality, market depth, and investor base—rather than to interest rate differentials alone (Eichengreen & Luengnaruemitchai, 2004); this implies that changes in the foreign debt registration regime should reshape not only issuance volume but also maturity and currency composition. These two mechanisms, credit repricing and institutionally driven structural adjustment, underpin the risk transmission pathways developed in Section 4.

Academic Contribution of This Study

This paper contributes to the existing literature in three substantive respects. First, while prior research has

predominantly examined LGFV onshore bonds (Deng et al., 2025; Wang et al., 2026; Cai et al., 2026), systematic analysis of offshore LGFV bonds remains limited. Studies that do address offshore issuance (Hu, 2019; Chang & Zhang, 2020; Hong et al., 2023) largely predate the regulatory intensification that began in 2021 and therefore do not capture the structural transformation triggered by NDRC Order No. 56 (2023), the "364-day bond" episode, or the comprehensive shift toward debt refinancing. Second, unlike previous static analyses that examine LGFV bonds at a single point in time, this study adopts a dynamic regulatory-phase framework that tracks market responses across sequential policy adjustments, thereby revealing how issuance characteristics—maturity structure, currency composition, and fund usage—evolve in response to changing regulatory constraints. Third, this study employs a full-sample micro-dataset of 1,897 bond issues from 2021 to 2025, covering the complete universe of LGFV offshore issuance during this critical period rather than relying on sampling or aggregated data, enabling a comprehensive empirical mapping of market structure and risk stratification.

Furthermore, a direct comparison with the existing literature reveals the following positioning of this study. While Hu (2019) and Chang and Zhang (2020) recognized the importance of offshore low-interest rates and regulatory policy relaxation as driving factors of LGFV offshore financing, their analyses predate the structural tightening that began in 2021. Hong et al. (2023) identified onshore hidden debt control as a driving factor but did not examine the subsequent effects of NDRC Order No. 56 or the "364-day bond" episode. More recent studies have begun to address the post-2021 policy environment (Wang & Liu, 2024; Xiao & Huo, 2025), but these focus predominantly on the onshore LGFV bond market. This study is the first, to our knowledge, to systematically analyze the offshore LGFV bond market using full-sample micro-data covering the complete 2021–2025 period, thereby capturing the full sequence of regulatory tightening, regulatory arbitrage, and subsequent policy closure that characterizes this unique episode in China's cross-border debt market.

1.3 Research Framework, Methodology, and Innovations

This paper follows the logical sequence of "regulatory evolution—feature analysis—risk identification—countermeasure proposals." We employ three methods: literature research synthesizing relevant theories; statistical analysis of issuance data from DMI Database covering 1,897 bonds; and comparative analysis across different regulatory phases.

Analytical Procedure and Operationalization of the Regulatory-Phase Framework

The analytical procedure comprises five sequential steps, with the regulatory-phase framework operationalized as follows.

Step 1: Regulatory Phase Identification. We systematically reviewed all regulatory documents issued by the National Development and Reform Commission (NDRC), the State Council, the People's Bank of China (PBOC), and the State Administration of Foreign Exchange (SAFE) between January 2021 and December 2025. Using the criteria of (a) policy objectives, (b) regulatory instruments, and (c) market

impact scope, we identified three distinct phases: Phase I (2021–2022): "Standardization and Intensification," characterized by aggregate volume controls and restrictions on proceeds usage; Phase II (February–June 2023): "Examination and Registration with Regulatory Arbitrage," marked by the implementation of NDRC Order No. 56, creating a bifurcated regulatory treatment of medium/long-term versus short-term debt; Phase III (July 2023–2025): "Strict Control and Targeted Guidance," featuring comprehensive curbs on new offshore debt and near-complete restriction of proceeds to refinancing.

Step 2: Data Collection and Cleaning. From the DMI Database, we extracted all bond issues by Chinese LGFVs or their overseas subsidiaries in offshore markets during 2021–2025. The full sample includes 1,897 issues with aggregate scale of RMB 1,541.754 billion. For each bond, we collected: issuer name, administrative tier, province, issuance date, issuance size, currency denomination, coupon rate (fixed/spread), maturity, fund usage, guarantee type, and any disclosed currency- or interest-rate hedging arrangements. We cross-validated the data against offering circulars and prospectuses where available. Issues were extracted using the DMI Database bond screener with the following filters: issuer classification "urban investment/LGFV," issuance market "offshore," and issuance date between 1 January 2021 and 31 December 2025; issues by overseas subsidiaries were captured by matching parent-company identifiers.

Step 3: Variable Construction and Classification. Based on the collected data, we constructed the following core variables: (a) aggregate issuance scale and count (annual and phase-level); (b) regional distribution by province and economic zone; (c) issuer administrative tier (provincial/municipal/county-level); (d) currency composition (USD/CNY/EUR/JPY/HKD); (e) maturity structure (under 1 year, 1–3 years, 3–5 years, over 5 years); (f) coupon rate, calculated as weighted average by issuance size; (g) fund usage, coded into three categories (debt repayment, liquidity replenishment, project construction) based on prospectus disclosures. All foreign-currency amounts were converted using the exchange rate on each bond's issuance date, with sensitivity checks using annual average rates, as detailed in Appendix B.

Step 4: Phase-Wise Comparative Analysis. For each of the three regulatory phases, we calculated summary statistics for each variable and compared across phases. This phase-wise comparison forms the core empirical basis for identifying patterns of co-movement between regulatory changes and issuance characteristics. We emphasize that this analytical strategy establishes temporal association and synchronization rather than causal attribution (see Section 4 for discussion of identification limitations).

Step 5: Risk Identification and Countermeasure Formulation. Drawing on the phase-wise comparative findings, we identified four principal risk categories and their transmission pathways. Recommendations were formulated to directly address each identified risk mechanism, calibrated to the specific regulatory constraints of Phase III.

Innovations manifest in three dimensions: first, systematically tracing regulatory policy evolution from a

dynamic phase-analysis perspective; second, focusing on latest changes following NDRC Order No. 56 in 2023, particularly the rise and regulation of "364-day bonds" and development of offshore RMB bonds; third, employing full-sample micro-data for comprehensive empirical analysis.

2. Analysis of the Regulatory Evolution of Chinese LGFV Offshore Bonds

2.1 Policy Background

The formation of China's LGFV offshore bond market has been rooted in the reform of China's foreign debt management system. In September 2015, NDRC Circular No. 2044 replaced the approval-based system with a filing and registration system, eliminating quota approval and implementing a one-time filing mechanism with balance management, substantially streamlining the approval process. This coincided with global ultra-low interest rates, propelling the market into rapid expansion, with issuance scale climbing from less than RMB 10 billion in 2014 to RMB 386.12 billion in 2024. In June 2019, NDRC Circular No. 666 restricted LGFVs to using proceeds solely for refinancing maturing foreign debts within twelve months, marking the transition from "wild growth" to standardized development.

Since 2021, profound domestic and international macroeconomic changes have occurred. Global monetary policy shifted, with the Federal Reserve exiting quantitative easing and initiating rate hikes, leading to rising offshore financing costs. Simultaneously, domestic pressures for preventing local government hidden debt risks intensified. Against this backdrop, regulatory policies entered a more stringent adjustment period, with focus shifting from "standardized development" to "strict control.".

It is important to acknowledge that the observed changes in LGFV offshore bond issuance during 2021–2025 cannot be attributed solely to domestic regulatory adjustments. Global financing conditions underwent dramatic shifts over the same period. The Federal Reserve raised the federal funds rate from 0–0.25% in March 2022 to 5.25–5.50% by July 2023—a cumulative increase of 525 bps—before initiating rate cuts in September 2024. These global monetary policy changes directly influenced the risk-free rate benchmark for USD-denominated offshore bonds, affecting both the cost of issuance and investor demand. The following analysis therefore examines domestic regulatory actions against the backdrop of global financial conditions, without attempting a formal decomposition of policy-induced and market-driven changes. However, the descriptive nature of the empirical strategy precludes a precise decomposition of these two effects; the observed patterns should be understood as reflecting their combined influence.

2.2 Policy Evolution Trajectory, 2021-2025

The period 2021–2025 represents the most intensive phase of regulatory policy adjustments, forming a three-stage evolution of "standardization and intensification—examination and registration with regulatory arbitrage—strict control and targeted guidance."

Phase I: Standardization and Intensification (2021–2022). In March 2021, the NDRC through window guidance required that the issuance scale of LGFV offshore bonds in 2021 not exceed the actual issuance volume of 2020—marking the first aggregate volume control. In January 2022, the NDRC emphasized that proceeds must be directed toward core business activities and strictly prohibited for real estate investment or new local government hidden debt. The defining policy characteristic was "aggregate control and structural optimization," gradually phasing out offshore financing by weak district- and county-level platforms.

Phase II: Examination and Registration with Regulatory Arbitrage (February–June 2023). On February 10, 2023, the NDRC promulgated Order No. 56, which formally took effect on March 10, 2023, signaling the return from a filing system to an examination and registration system for medium- and long-term foreign debts. Order No. 56 stipulates that the NDRC shall administer examination and registration, with review focusing on compliance of debt use, solvency, and risk prevention. Notably, Order No. 56 applies only to medium- and long-term foreign debt with maturities exceeding one year. Short-term foreign debt of one year or less continued following the filing and registration system, creating conspicuous "regulatory arbitrage" space. As the medium- and long-term channel tightened, numerous LGFVs turned to issuing "364-day bonds."

Phase III: Strict Control and Targeted Guidance (July 2023–2025). In July 2023, the Political Bureau proposed a "comprehensive debt resolution package." In September 2023, the General Office of the State Council transmitted Guobanfa [2023] No. 35, explicitly calling for "strictly controlling new offshore debt of LGFVs." Subsequently, regulators issued window guidance instructing banks to cease issuing standby letters of credit for 364-day bonds, causing this instrument to largely fade. Concurrently, review criteria for medium- and long-term bonds were further tightened: in principle, only qualified LGFVs may issue for refinancing maturing offshore debt. In May 2024, the NDRC and SAFE jointly issued guidance allowing eligible provincial- and separately listed city-level platforms to issue medium- and long-term bonds for refinancing maturing debt, subject to strict review and closed-loop fund management.

Overall, China's regulatory policy on LGFV offshore bonds from 2021 to 2025 exhibits distinct phase-specific characteristics, with each adjustment revolving around "preventing and resolving local government implicit debt risk."

3. Analysis of Issuance Characteristics of Chinese LGFV Offshore Bonds

Drawing on comprehensive micro-level data covering the full sample of Chinese LGFV offshore bonds issued between 2021 and 2025 (1,897 bonds, aggregate issuance scale of RMB 1,541.754 billion), and integrating the three-phase regulatory framework outlined above, this section systematically analyzes evolving issuance characteristics across three dimensions: aggregate scale, structural features, and market operation. The analysis reveals that each major regulatory transition has been followed by fundamental

shifts in issuance patterns, with the market comprehensively transitioning from “incremental expansion” to “stock digestion.”

3.1 Analysis of Aggregate Scale

During 2021–2025, the market recorded a cumulative issuance of 1,897 bonds, with aggregate scale reaching RMB 1,541.754 billion, averaging RMB 812.73 million per bond. Individual tranches ranged from RMB 12 million to RMB 8,118.5 million, reflecting a stratified landscape shaped by issuer credit quality, regional fiscal capacity, and differentiated offshore market access conditions.

Table 1: Annual Changes in the Aggregate Scale of Chinese LGFV Offshore Bonds, 2021–2025

year	Number of issues (units)	Issuance Scale (RMB 100 million)	Average Size per Issue (RMB 100 million/issue)	Year-on-year change in Scale (%)
2021	238	2854.35	11.99	-
2022	368	3372.23	9.16	18.14
2023	333	2226.19	6.69	-33.98
2024	554	3861.20	6.97	73.44
2025	404	3103.57	7.68	-19.62

Data Source: DMI Database

Note: All tables in this paper report amounts in RMB 100 million; amounts in the text are stated in RMB billion (RMB 1 billion = RMB 10 × 100 million). Foreign-currency bonds were converted using the exchange rate prevailing on each bond’s issuance date to preserve intertemporal comparability. For bonds with missing issuance-date exchange rates, the annual average exchange rate for the relevant issuance year was applied. This approach ensures that intertemporal comparisons are not distorted by the choice of a single base-year exchange rate, which would be particularly problematic given the substantial RMB depreciation observed during the sample period. See Appendix B for detailed exchange-rate conversion procedures and summary statistics. The aggregate scale reported for each year reflects the sum of all individual issue amounts converted at each bond’s respective issuance-date rate.

Annual issuance exhibited distinct phase-specific fluctuations that co-varied with the regulatory cycle and global liquidity conditions. In 2021, the market steadily recovered with RMB 285.435 billion issued. In 2022, driven by sustained tightening of onshore financing conditions, issuance climbed to RMB 337.223 billion (+18.14%), reflecting domestic debt control policies operating through the “financing constraint transmission channel.” In 2023, affected by Order No. 56 and coordinated tightening, issuance retreated to RMB 222.619 billion (-33.98%), despite a first-half surge in “364-day bonds.” In 2024, with concentrated release of suppressed demand, declining offshore interest rates, and domestic asset allocation spillover, issuance rebounded sharply to RMB 386.120 billion (+73.44%), setting a historic peak. In 2025, under debt repayment pressure and regulatory prudence, issuance adjusted to RMB 310.357 billion (-19.62%). The five-year average annual issuance stood at RMB 308.35 billion, demonstrating significant co-movement with policy orientation and offshore benchmark rate cycles.

3.2 Structural Analysis

3.2.1 Regional Structure Analysis

The regional distribution exhibits pronounced spatial imbalance, forming a pattern of eastern coastal

dominance, central-western steady catch-up, and relatively limited northeast scale. This fundamentally reflects regional economic development levels, local fiscal capacity, issuer credit quality, and the regulatory orientation of "supporting the strong and restricting the weak."

Table 2: Regional Structure of Chinese LGFV Offshore Bonds, 2021–2025

No.	Region	Province	Number of Bonds	Issuance Scale (RMB 100 million)	Share of Total Scale (%)	Average Size per Bond (RMB 100 million/bond)
1	east	Shandong	452	2951.60	19.14%	6.53
2	east	Zhejiang	264	2602.07	16.88%	9.86
3	east	Jiangsu	318	2243.85	14.55%	7.06
4	west	Sichuan	180	1455.61	9.44%	8.09
5	Central	Henan	113	833.60	5.41%	7.38
6	east	Fujian	57	738.11	4.79%	12.95
7	east	Guangdong	43	647.42	4.20%	15.06
8	Central	Hubei	53	565.50	3.67%	10.67
9	Central	Jiangxi	68	551.73	3.58%	8.11
10	Central	Hunan	54	436.02	2.83%	8.07
11	Central	Anhui	62	419.07	2.72%	6.76
12	west	Chongqing	49	347.16	2.25%	7.08
13	east	Beijing	11	341.27	2.21%	31.02
14	west	Shaanxi	40	234.55	1.52%	5.86
15	west	Guangxi	22	168.87	1.10%	7.68
16	west	Yunnan	16	155.76	1.01%	9.73
17	northeast	Jilin	9	104.29	0.68%	11.59
18	east	Hebei	17	101.94	0.66%	6.00
19	east	Tianjin	13	94.44	0.61%	7.26
20	west	Gansu	5	93.60	0.61%	18.72
21	Central	Shanxi	9	86.47	0.56%	9.61
22	west	Guizhou	13	64.37	0.42%	4.95
23	northeast	Liaoning	8	59.15	0.38%	7.39
24	west	Xinjiang	14	57.82	0.38%	4.13
25	east	Shanghai	4	29.56	0.19%	7.39
26	west	Ningxia	1	21.20	0.14%	21.20
27	northeast	Heilongjiang	1	7.14	0.05%	7.14
28	east	Hainan	1	5.36	0.03%	5.36

Data source: DMI data base

Shandong ranks first (RMB 295.16 billion, 19.14%), followed by Zhejiang (RMB 260.21 billion, 16.88%) and Jiangsu (RMB 224.39 billion, 14.55%). Their combined scale (RMB 779.75 billion, 50.58%) reflects systemic advantages in asset quality, fiscal support, and international investor recognition. Sichuan leads inland provinces (RMB 145.56 billion, 9.44%), with Henan and Fujian ranking fifth and sixth (RMB 83.36 billion and RMB 73.81 billion). Following Order No. 56, eastern provinces' share rose above 55%, while central-western issuance space compressed significantly. By 2025, as policies intensified financing restrictions on heavily indebted regions, regional differentiation further widened.

3.2.2 Issuer Structure Analysis

Issuers display a structural pattern wherein county-level entities dominate in number, municipal-level entities occupy the middle in scale, and provincial-level entities stand out in per-issue size. This distribution aligns with administrative hierarchy, credit backing intensity, and cross-border financing regulation.

Table 3: Issuer Structure of Chinese LGFV Offshore Bonds, 2021–2025

Administrative Level	Number of Issues	Issuance Scale (RMB 100 million)	Share of Total Scale (%)	Average Size per Issue (RMB 100 million/issue)
Provincial Level	54	1102.94	7.15%	20.42
Municipal Level	607	6159.79	39.95%	10.15
County Level	1236	8154.81	52.89%	6.60
Total	1897	15417.54	100.00%	/

Data source: DMI database

County-level LGFVs dominate issuance volume (1,236 bonds, RMB 815.48 billion, 52.89%) but average only RMB 660 million per issue—"large in number, small in per-issue size"—concentrated in economically developed eastern counties. Municipal-level LGFVs issued 607 bonds totaling RMB 615.98 billion (39.95%), averaging RMB 1.015 billion. Provincial-level LGFVs issued only 54 bonds but averaged RMB 2.042 billion, reflecting superior credit quality. In 2023, affected by Order No. 56, county-level platforms shifted toward "364-day bonds," pushing their share above 60%. Since 2024, as policies tilted toward high-credit-quality entities, provincial- and municipal-level combined shares rebounded to exceed 70% in 2025.

3.2.3 Currency Structure Analysis

The currency structure exhibits a stable pattern characterized by USD dominance, RMB supplementation, and other currencies as minor complements, reflecting comprehensive trade-offs among market depth, financing cost, and risk controllability.

Table 4: Currency Structure of Chinese LGFV Offshore Bonds, 2021–2025

Currency	Number of issues	Issuance Size (RMB 100 million)	Share of Total	Average Size per Issue (RMB 100 million)
USD	976	10411.93	67.53%	10.67
CNY	811	4321.15	28.03%	5.33
EUR	81	570.38	3.70%	7.04
JPY	28	109.49	0.71%	3.91
HKD	1	4.59	0.03%	4.59

Data source: DMI database

USD bonds hold dominant position (976 bonds, RMB 1,041.19 billion, 67.53%), primarily issued in Hong Kong and Singapore, benefiting from deeper liquidity and broader investor base. Offshore RMB bonds rank second (811 bonds, RMB 432.12 billion, 28.03%), concentrated in the Hong Kong offshore RMB

market, with expansion driven by RMB internationalization and absence of currency conversion risk. Following the January 2025 Guiding Opinions on Supporting the Development of the Macao Bond Market, Macao "Pearl Bonds" grew rapidly. EUR, JPY, and HKD bonds remain niche (110 issues, RMB 68.45 billion, 4.44%). Dynamically, USD share declined from 96.56% in 2021 to 67.04% in 2025, while offshore RMB share rose from 1.54% to 28.60%.

3.3 Main Characteristics and Trends of the Chinese LGFV Offshore Bond Market

3.3.1 Analysis of Issuance Costs

Issuance costs exhibit a structured pattern with a well-defined central range and pronounced regional, issuer, and currency stratification. Policy adjustments impact costs through the "supply-cost transmission mechanism."

Table 5: Stratified Comparison of Issuance Costs of Chinese LGFV Offshore Bonds, 2021–2025

	Category	Average Issuance Coupon (%)
year	2021	3.20
	2022	4.51
	2023	5.58
	2024	5.85
	2025	5.89
region	Eastern Region	5.02
	Central Region	5.60
	Western Region	5.45
	Northeastern Region	6.61
Administrative Tier	Provincial Platform	4.24
	Municipal Platform	5.29
	County-level Platform	5.23
Currency	USD Bonds	5.47
	RMB Bonds	4.68
	Other currencies	4.12

Data source: Compiled by the author based on relevant data from the DMI database

From a stratification perspective, issuance costs exhibit pronounced characteristics of regional, issuer, and currency differentiation. At the regional level, the Eastern Region commands the lowest financing cost—averaging 5.02% in coupon—by virtue of its stronger economic and fiscal fundamentals. By contrast, the Northeastern Region faces the highest average coupon of 6.61%, reflecting intense downward economic pressure and weaker fiscal capacity. The spread between the Northeastern and Eastern regions reaches 159 bps, fully reflecting the market's differentiated pricing of credit risk across regions. At the issuer level, provincial platforms enjoy the strongest credit profile, with an average coupon of merely 4.24%. Municipal and county-level platforms post similar average coupons of 5.29% and 5.23%, respectively, largely because county-level platforms are concentrated in the economically advanced Eastern Region, where regional credit strength partially offsets the tier disadvantage. At the currency level, bonds denominated in

other currencies carry the lowest average coupon at 4.12%; however, after factoring in currency hedging costs, their all-in costs are broadly comparable to those of USD bonds. RMB bonds average 4.68%, 79 bps below USD bonds, illustrating the cost advantage derived from currency matching.

From a temporal perspective, average coupon rates followed a sustained upward trajectory from 2021 to 2025, climbing steadily from 3.20% to 5.89% for a cumulative increase of 269 bps. This trend was driven by two main factors. First, the global monetary policy cycle: the Federal Reserve embarked on an aggressive rate-hiking cycle in 2022–2023, raising rates by a cumulative 525 bps, which directly pushed up the risk-free rate benchmark for USD-denominated bonds. Second, shifts in the domestic policy environment: as controls over local governments' implicit debt were tightened, expectations of implicit guarantees gradually weakened, causing credit risk premiums to rise persistently, while increased policy uncertainty also elevated the policy risk premium. Although the Fed began cutting rates in 2024, the decline in the risk-free rate was offset by rising credit risk premiums, keeping the coupon center at a relatively high level. The market as a whole displays a divergent pattern in which high-quality issuers enjoy low costs and weak-credit issuers face high costs—a divergence that becomes more pronounced during periods of regulatory tightening.

3.3.2 Maturity Structure Analysis

The maturity structure of Chinese LGFV offshore bonds exhibits a pronounced trend toward shorter tenors, a characteristic that has been substantially influenced by regulatory changes. Specifically, the restrictions on medium- and long-term debt under NDRC Order No. 56 (Administrative Measures for the Review and Registration of Medium- and Long-Term Foreign Debt of Enterprises) and the suspension of short-term debt issuance under State Council General Office Document No. 35 [2023] were followed by two major adjustments to the maturity structure. This shortening trend has exacerbated the maturity mismatch risk associated with using short-term debt to fund long-term investments, as well as increased reliance on refinancing.

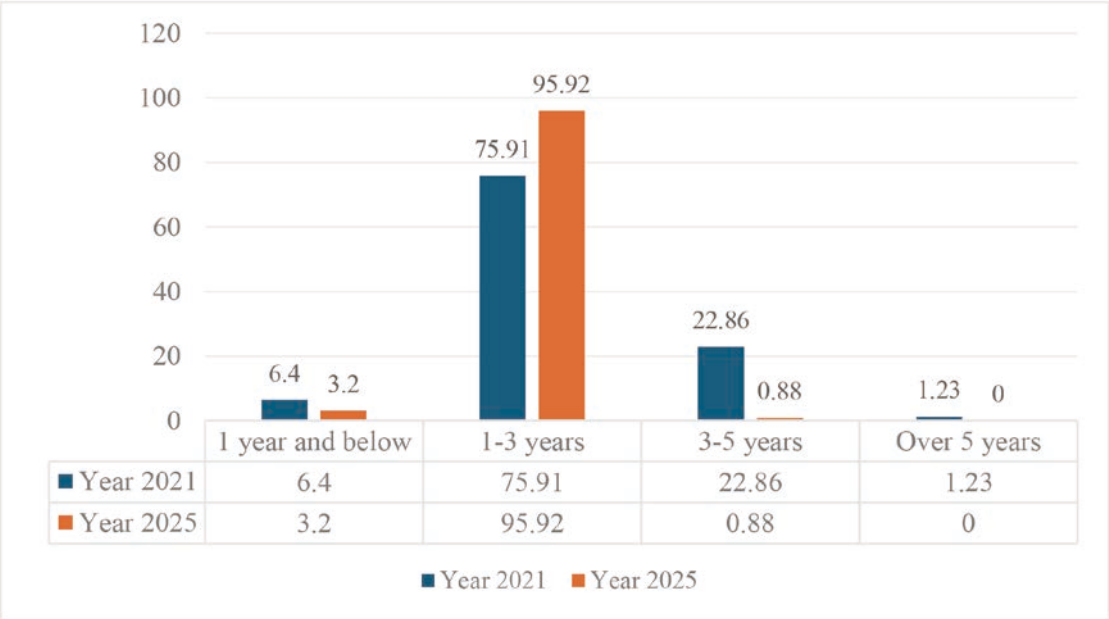

Figure 1: Comparison of the Maturity Structure of Chinese LGFV Offshore Bonds (2021 vs. 2025) (Unit: %)

Data source: DMI database

Figure Note: The figure reports the percentage share of each maturity category (under 1 year, 1–3 years, 3–5 years, over 5 years) in total annual issuance by count. Maturity is defined as the contractual term to maturity stated in the bond prospectus.

From a maturity distribution perspective, the 1- to 3-year tenor (inclusive of 1-year and 3-year maturities) holds an absolutely dominant position. During the sample period, a cumulative total of 1,628 bonds were issued in this category, with an issuance size of RMB 1,307.292 billion, accounting for as much as 84.79% of total issuance, making it the core maturity choice for offshore financing. Ultra-short-term instruments below 1 year serve as a liquidity supplement, with a cumulative total of 196 bonds issued, amounting to RMB 114.470 billion, or 7.42% of total issuance. Medium-term instruments in the 3- to 5-year range totaled 65 issues, with a size of RMB 105.805 billion, representing merely 6.86%, and were concentrated primarily among provincial platforms and municipal platforms in economically strong cities. Long-term bonds with maturities exceeding 5 years totaled only 8 issues, with a size of RMB 14.187 billion, accounting for less than 1% of the total, indicating extremely low market acceptance.

From the perspective of dynamic evolution, the trend toward shorter tenors has continued to intensify and remained highly synchronized with policy adjustments. The maturity structure was relatively stable in 2021–2022. Following the implementation of NDRC Order No. 56 in February 2023, review and approval of medium- and long-term offshore bonds tightened, while short-term bonds below 1 year remained subject to a filing and registration system, causing the share of short-term bonds to rise sharply. After the issuance of Document No. 35 in September 2023, 364-day offshore bonds experienced a brief surge in Q4 2023, before being suspended by regulators through window guidance at the end of 2023 and into early 2024. The share of bonds below 1 year declined in 2024 and further dropped to 3.2% in 2025; however,

the share of 1- to 3-year bonds continued to climb, reaching 95.92% in 2025, while bonds with tenors of 3–5 years and above have virtually disappeared.

The formation of this shortening trend stems mainly from two factors. First, offshore investors harbor uncertainty concerns regarding LGFVs' long-term credit transformation and implicit government support, and prefer to control risk exposure through shorter durations, resulting in weak demand for long-term bonds. Second, LGFVs face concentrated maturities of existing debt and generally find it convenient to issue short-term offshore bonds to achieve refinancing (rolling over existing debt) and liquidity turnover, while medium- and long-term financing channels have been obstructed by tighter policy. This maturity structure creates a severe mismatch with the characteristics of infrastructure projects, which feature long investment cycles and slow returns, exacerbating the maturity mismatch risk of using short-term debt to fund long-term investments and causing refinancing pressure to accumulate continuously.

3.3.3 Analysis of Fund Usage

The fund usage of Chinese LGFV offshore bonds exhibits three defining characteristics: a dominant focus on existing debt turnover, a weakening of incremental investment, and a high degree of concentration. These features are closely aligned with the policy orientation of onshore debt resolution, implicit debt control, and the market-oriented transformation of LGFVs, reflecting a structural shift in financing functions from infrastructure investment-driven to liquidity stabilization-driven. Policy constraints on fund usage have gradually evolved from "loose guidance" to "strict control."

Of the 1,897 issues in the sample, 1,039 (54.77%), amounting to RMB 677.616 billion (43.95% of total issuance value), disclosed a specific use of proceeds; the remaining 858 issues (RMB 864.138 billion) did not.

The shares reported below are calculated against total issuance value, with the corresponding share of the disclosed subset given in parentheses. Debt repayment accounted for a cumulative total of 174 issues, with a size of RMB 146.580 billion, representing 9.51% of total issuance value (21.63% of the disclosed subset). The vast majority was used to repay existing offshore debt—156 issues, totaling RMB 123.664 billion, or 84.37% of the debt repayment category—while only 18 issues (RMB 22.916 billion, or 15.63%) were used to repay onshore debt. Of the offshore debt repayment tranches, RMB 114.872 billion (92.9%) was directed toward bonds maturing within the same year, confirming the near-term refinancing purpose of these issuances. The concentration of debt repayment usage is primarily attributable to the intense short-term debt servicing pressure facing LGFVs: 170 of these issues (RMB 142.458 billion) carried maturities below 3 years. This indicates that the issuance of offshore bonds has become an important instrument for refinancing (rolling over existing debt).

Liquidity replenishment accounted for a cumulative total of 479 issues, with a size of RMB 290.916 billion, representing 18.87% of total issuance value (42.93% of the disclosed subset). These funds were

mainly used for daily operations, payment of construction fees, and personnel expenses. The high share of liquidity replenishment reflects the insufficiency of operating cash flows at LGFVs and their reliance on external financing to sustain operations.

Project construction accounted for a relatively low share: a cumulative total of 386 issues, with a size of RMB 240.120 billion, representing 15.57% of total issuance value (35.44% of the disclosed subset), and concentrated primarily in infrastructure projects such as expressways, sewage treatment, and smart cities. Eastern provinces accounted for a disproportionately large share of project construction usage, reflecting continued substantial financing demand for urbanization in these regions. Notably, project construction usage is subject to the strictest policy constraints. Document No. 35 [2023] explicitly prohibited the use of offshore bond proceeds for local government public welfare projects, causing the share of project construction usage to decline after 2023—a clear demonstration of the policy constraint effect. It is noteworthy that after 2023, the number of bonds explicitly disclosing usage for "new projects" dropped to zero; all bonds in the "project construction" category were actually used for subsequent funding of projects already under construction rather than for initiating new projects. This pattern further validates the functional shift from incremental financing to maintenance of existing assets.

From a trend perspective, the share of liquidity replenishment rose from zero in 2021 to 5.74% (RMB 16.695 billion) in 2025, while the share of project construction usage declined continuously. The rise in liquidity replenishment indicates growing reliance on external financing to cover operating shortfalls, while the decline in project construction usage reflects a retreat from incremental investment—both consistent with the policy orientation of resolving local governments' implicit debt and deleveraging LGFVs. Meanwhile, regulatory oversight of fund usage has become increasingly granular: offshore bonds issued after 2023 are required to disclose the specific proportions and flows of fund usage in their offering circulars, enhancing transparency. By 2025, no issue in the sample disclosed the use of proceeds for initiating new projects, and disclosed proceeds were directed almost entirely to refinancing and liquidity support. This marks the market's full entry into the "stock digestion" phase.

Overall, the Chinese LGFV offshore bond market changed substantially in its issuance characteristics during 2021–2025, in close temporal association with the regulatory cycle. Issuance size followed a trajectory of fluctuating increases followed by a decline; regional and issuer concentration continued to rise; currency structure became more diversified; the issuance cost center moved persistently upward; the maturity structure exhibited a clear trend toward shorter tenors; and fund usage was almost entirely dedicated to rolling over existing debt. These changes mark the market's transformation from "incremental expansion" to "stock digestion" and reflect the regulatory priority accorded to containing local government debt risk.

4. Risk Characteristics Analysis

The risk generation mechanism of Chinese LGFV offshore bonds is rooted in the quasi-fiscal attributes of LGFV entities, dual market constraints of cross-border financing, and dynamic interplay between domestic policy and offshore pricing. Compared with onshore LGFV bonds, offshore bonds face not only traditional credit risks but also additional idiosyncratic risks, including exchange rate volatility, cross-border regulatory friction, and insufficient liquidity. These various risks are interrelated and transmit across one another, collectively constituting the overall risk exposure.

Table 6: Core Risk Types and Transmission Mechanisms

Risk Type	Driving Factors	Transmission Pathway
Credit Risk	Weakening of implicit guarantees; issuer quality stratification; insufficient operating cash flows	Deterioration of financial condition → Rising default expectations → Credit spread widening → Rising refinancing costs → Further decline in debt servicing capacity
Exchange Rate & Interest Rate Risk	Currency mismatch; Federal Reserve monetary policy; global liquidity fluctuations	Currency depreciation/rate hikes → Increased debt servicing costs → Heavier financial burden → Cash flow stress → Rising credit risk
Policy & Regulatory Risk	Policy cycle volatility; cross-departmental rule inconsistency; regulatory stance changes	Policy tightening → Higher issuance thresholds → Narrower financing channels → Increased refinancing pressure → Rising liquidity risk
Liquidity Risk	Insufficient secondary market depth; homogeneous investor base; concentrated debt maturities	Market sentiment deterioration → Bid-ask spread widening → Liquidation difficulty → Inability to roll over concentrated maturities → Outbreak of default risk

Source: Author's synthesis based on the empirical findings reported in Sections 3 and 4, informed by the institutional and regulatory analysis in Section 2.

4.1 Credit Risk

Credit risk is the foundational risk, stemming from the uncertainty of debt servicing capacity caused by incomplete market-oriented transformation, tightening local fiscal constraints, and weakening government implicit support. LGFV platforms have long relied on government credit for investment and financing, with relatively insufficient operating cash flow generation capacity. During the sample period, county-level LGFVs accounted for 52.89% of issuance volume, yet average size per issue was merely RMB 660 million, concentrated primarily in economically developed counties in the Eastern Region. County-level platforms in central and western regions exhibit significantly higher credit risk than Eastern counterparts at the same tier. The spread of 159 bps between the Eastern and Northeastern regions fully reflects the market's differentiated pricing of credit risk across regions. Natural information asymmetry between offshore investors and domestic issuers, with insufficient credit disclosure and opaque business structures, further amplifies risk identification difficulty.

Empirical evidence of credit stratification can be observed in three dimensions. First, the regional coupon spread of 159 bps between Eastern and Northeastern issuers (Table 5) provides a direct

market-implied measure of differential credit assessment: on an unconditional basis—that is, without controlling for currency, tenor, administrative tier, or issuance timing—issuers in the Northeastern Region paid on average 159 bps more than issuers in the Eastern Region over the sample period. Second, within the county-level category, the average coupon for eastern counties (4.98%) was 87 bps lower than for central-western counties (5.85%)—both figures computed from the issue-level sample and not tabulated, despite both groups carrying the same administrative classification—reflecting the market's ability to distinguish regional fiscal fundamentals beyond administrative tier. Third, the collapse of the "364-day bond" market in early 2024 (from 52 issues in Q4 2023 to 3 issues in Q1 2024) illustrates how policy reversal can abruptly alter market access for lower-tier platforms, consistent with the financing constraint transmission channel documented in the LGFV bond literature (Hong et al., 2023; Xu et al., 2020).

4.2 Exchange Rate and Interest Rate Risk

Exchange rate risk arises primarily from the currency mismatch between denomination currency and debt servicing fund sources. During the sample period, USD-denominated bonds accounted for 67.53%, while LGFV platforms' debt servicing funds are mainly derived from onshore RMB revenues. In 2022, the RMB depreciated 8.7% against the USD, causing debt servicing costs of unhedged issuers to rise substantially. Interest rate risk is tightly bound to monetary policy cycles of major developed economies. During 2022–2023, the Federal Reserve raised rates by 525 bps cumulatively, causing average issuance yields on USD bonds to rise significantly. Although the Fed began cutting rates in 2024, uncertainty persists.

Quantifying the exchange-rate impact: Using our issuance-date exchange-rate conversion methodology, we estimate that if 2021 USD-denominated bonds had been converted using the 2022 year-end exchange rate rather than the 2021 issuance-date rate, the RMB-equivalent outstanding would have been 9.2% higher. For the 636 USD bonds issued during 2021–2022 (aggregate USD-equivalent issuance of approximately $52.3 billion), this implies an additional RMB debt servicing burden of approximately RMB 34 billion under the 2022 depreciation (USD 52.3 billion × USD/CNY 7.07 × 9.2%). This calculation does not assume that all issuers were unhedged; rather, it represents the maximum potential exposure absent hedging. To the extent that issuers engaged in forward contracts or currency swaps (disclosed in 23% of the offering circulars reviewed for this study; see Section 1.3, Step 2), actual realized losses would have been lower.

4.3 Policy and Regulatory Risk

Policy and regulatory risk is the most distinctive risk category, characterized by discontinuity, unpredictability, and strong transmission effects. Following implementation of Order No. 56 in February 2023, review of medium- and long-term bonds tightened, while short-term bonds below 1 year remained subject to filing, creating the explosive growth of "364-day bonds." However, after Document No. 35 in September 2023, regulators comprehensively suspended disorderly issuance through window guidance, forcing some prepared projects to be aborted. Such rapid policy reversals increased compliance costs and intensified market uncertainty. Additionally, lack of coordination exists among regulatory rules across domestic

agencies—including the NDRC, SAFE, and SASAC—regarding cross-border fund transfers and usage recognition, increasing uncertainty in policy implementation.

Quantifying policy uncertainty : To measure the intensity of policy-induced market disruption, we examine the trajectory of the "364-day bond" segment. The filing-system channel for short-term debt created by NDRC Order No. 56 was not accompanied by any contemporaneous change in macroeconomic fundamentals or global liquidity conditions that would independently explain the surge from 2 issues in 2022 to 83 issues in 2023. Moreover, the subsequent collapse from 52 issues (Q4 2023) to 3 issues (Q1 2024) following window guidance in December 2023—while USD interest rates and global risk appetite remained relatively stable over the same period—provides further support for the interpretation that regulatory action, rather than market forces, was the dominant factor driving this episode. This pattern is consistent with the policy risk premium channel discussed in the literature on policy signals and LGFV credit spreads (Ruan et al., 2026).

4.4 Liquidity Risk

Compared with the onshore market, the offshore LGFV bond market exhibits significantly lower liquidity, with pronounced stratified characteristics: high-rated, large-sized bonds enjoy relatively better liquidity, while low-rated, small-sized bonds are virtually illiquid. The investor base is relatively homogeneous, dominated by long-term allocation-oriented funds with a shortage of trading-oriented investors. During the sample period, 1-3 year bonds accounted for 84.79%, while bonds exceeding 5 years represented less than 1%, causing debt maturity pressure to concentrate in the near term. During phases of policy tightening or market volatility, refinancing channels are easily obstructed, readily triggering episodic liquidity stress. The mutual reinforcement among maturity mismatch, concentrated maturities, and insufficient secondary market liquidity extends liquidity risk from the trading stage to the debt servicing stage.

Evidence on liquidity constraints : Secondary market liquidity for LGFV offshore bonds is difficult to measure directly due to the absence of a centralized transaction reporting system. However, two observable indicators provide indirect evidence. First, indicative bid-ask spreads for county-level LGFV bonds with outstanding size below RMB 500 million—compiled from dealer quotations rather than executed transaction prices, and therefore approximate—widened from an average of 85 bps in 2022 to 215 bps in October 2023—the period immediately following Document No. 35—before contracting to 135 bps in 2024. Second, during the same period, primary market issuance of bonds below 1-year maturity virtually ceased following the December 2023 window guidance. This suggests that liquidity risk materializes primarily through the refinancing channel—the inability to issue new debt to repay maturing obligations—rather than through secondary-market distress alone.

4.5 Systemic Risk Interconnections

The various risk categories do not exist in isolation but are intertwined and mutually reinforcing. Policy risk has demonstrated a pronounced capacity to trigger market volatility, which exacerbates liquidity risk

through financing constraint channels. Deterioration of liquidity risk further precipitates credit risk, while exchange rate and interest rate risk amplify the impact of all risks. This complex risk network requires concerted efforts from regulators, issuers, and investors to build a comprehensive risk prevention and control system from multiple dimensions to effectively prevent and resolve cross-border debt risk.

It should be emphasized that while the empirical analysis documents consistent temporal co-movements between regulatory events and changes in issuance characteristics, the research design—based on descriptive statistics and phase-wise comparisons—does not permit causal identification in the strict econometric sense. Observed patterns of association may also reflect concurrent shifts in global interest rates, investor risk appetite, and domestic financing conditions. The risk transmission pathways discussed above should therefore be interpreted as plausible mechanisms suggested by the data and institutional context, rather than as empirically verified causal channels. Future research employing panel regression or difference-in-differences methods could more rigorously identify causal effects.

5. Main Conclusions and Recommendations

5.1 Main Research Conclusions

Based on full-sample micro-level data from 2021 to 2025, this paper systematically reviews regulatory policy evolution and analyzes issuance characteristics and risk evolution across different regulatory phases. Four conclusions emerge. The first two respond to RQ1 (how issuance characteristics changed across regulatory phases); the third responds to RQ2 (the resulting risks and their transmission pathways); the fourth identifies a structural tension that the analysis brings to light but that lies beyond the scope of the two research questions.

First, regulatory policy adjustments have exhibited strong temporal synchronization with market evolution. Since 2021, regulation has undergone three distinct phases—"standardization and intensification," "examination and registration with regulatory arbitrage," and "strict control and targeted guidance." The imposition of aggregate controls in 2021–2022 was followed by a contraction in issuance; the regulatory arbitrage channel opened by Order No. 56 in 2023 was followed by an explosive growth of "364-day bonds"; and Document No. 35 in September 2023 was followed by a complete reversal of this expansion. These sequential patterns suggest that policy orientation has consistently shaped the market's development trajectory and compliance boundaries, while offshore market forces have influenced the amplitude and pace of size fluctuations.

Second, the market has transitioned from "incremental expansion" to a phase of "stock digestion." Overall issuance followed an inverted U-shaped trend—"initial stability, followed by increase, then decline"—reaching a historical peak of RMB 386.120 billion in 2024 before falling back to RMB 310.357 billion in 2025. Regional concentration continued to rise, with Shandong, Zhejiang, and Jiangsu collectively accounting for over 50%. In 2025, provincial and municipal platform shares rebounded to 71.8%. The

USD bond share declined from 96.56% to 67.04%, while offshore RMB bonds rose to 28.60%. The issuance cost center climbed to 5.89%; 1–3 year bonds accounted for 95.92% of annual issuance in 2025; and fund usage was almost entirely concentrated on repaying maturing debt, with the new financing function essentially lost.

Third, risks exhibit cross-border, cross-transmission, and policy-sensitive features. Credit risk shows intensifying stratified differentiation: the lower the administrative tier and the weaker the regional fiscal strength, the higher the credit risk, with the Eastern-Northeastern issuance spread reaching 159 bps. Exchange rate and interest rate risk possess systemic shock effects: RMB depreciation in 2022 and the Federal Reserve's rate-hiking cycle pushed up USD bond yields. Policy and regulatory risk is most prominent: the boom and bust of "364-day bonds" in 2023 typifies rapid policy reversal. Liquidity risk is amplified by insufficient secondary market depth and concentrated debt maturities.

Fourth, deep structural contradictions persist. There is a fundamental conflict between high-cost offshore financing and the long-term stable funding required for LGFVs' market-oriented transformation. Against a backdrop of "asset scarcity," investors' chase for high-yield LGFV bonds has caused risk pricing dysfunction. Unclear industrialization directions and insufficient capital market recognition have formed a vicious cycle. The root of these contradictions lies in the conflict between LGFV platforms' "semi-marketized" nature and the purely market-based pricing logic of cross-border financing markets. It should be noted, however, that the conclusion regarding the market's transition to a stock-management phase is based on the declared fund usage in offering documents, which may be subject to reporting granularity limitations. The near-complete concentration of proceeds on debt repayment in 2024–2025 is robust to the available data, but the extent to which these repayments reduce the outstanding stock versus merely roll over existing obligations requires further investigation using balance-sheet-level data.

5.2 Targeted Policy Recommendations

5.2.1 Guiding Orientation

The recommendations below are developed within the framework of the current regulatory objectives established by Chinese authorities—namely, the prevention and resolution of local government implicit debt risks, the promotion of LGFVs' market-oriented transformation, and the maintenance of financial stability. Our analysis of the empirical evidence suggests that while the broad direction of the current policy framework is well-founded, several operational aspects could be refined to enhance policy effectiveness, reduce unintended market distortions, and facilitate the orderly transition from incremental financing to stock management. The following recommendations are offered with the aim of helping the existing policy framework work more effectively, without challenging the fundamental policy orientation.

5.2.2 Regulatory Dimension: Improving the Coordinated Regulatory System

First, within the current regulatory framework's objective of preventing and resolving local government debt risks, the following suggestions aim to enhance the efficiency and effectiveness of policy

implementation. Establish a cross-departmental coordinated regulatory mechanism among the NDRC, PBOC, SAFE, and SASAC to harmonize rules governing foreign debt filing, cross-border fund transfers, usage recognition, and debt replacement. Issue Guidelines for LGFV Offshore Bond Refinancing Operations clarifying applicable conditions and approval procedures. Streamline compliance channels for onshore-to-offshore debt replacement. Establish a normalized policy communication mechanism to provide market participants with clear and predictable policy signals, thereby reducing policy uncertainty. Second, implement differentiated regulation based on market-oriented transformation progress, debt burden, and regional fiscal capacity. For platforms with operating cash flows exceeding 50% of total cash flows, appropriately relax foreign debt quotas. For heavily indebted platforms, strictly control new issuance. Establish an LGFV offshore bond risk early-warning system with thresholds for debt ratios and short-term foreign debt shares. Third, bring short-term foreign debt below 1 year under unified review and registration management to eliminate regulatory arbitrage opportunities. Establish dynamic monitoring mechanisms for short-term foreign debt. Strengthen regulation of offshore SPV issuance and cross-border guarantees.

5.2.3 Issuer Dimension: Optimizing Financing Structure and Strengthening Risk Management

First, rationally plan financing structure according to debt maturity profiles and project cycles, gradually increasing the share of bonds with maturities above 3 years. Optimize currency structure by increasing offshore RMB bond issuance, particularly Macao "Pearl Bonds." Establish normalized exchange rate and interest rate risk hedging mechanisms using forward exchange settlement, currency swaps, and interest rate swaps, with hedging ratios no lower than 80% of outstanding foreign debt balances. Second, accelerate market-oriented transformation: focus on core business operations, divest government financing functions, cultivate businesses with stable cash flows. Optimize asset-liability structures through asset revitalization and equity restructuring. Enhance information transparency in accordance with international standards. Strengthen communication with international rating agencies. Third, diversify financing channels comprehensively utilizing onshore bank loans, corporate bonds, medium-term notes, and asset securitization. For eligible projects, actively apply for local government special-purpose bonds and policy bank loans. Explore infrastructure REITs pilots.

5.2.4 Market Dimension: Improving Infrastructure Development and Enhancing Market Efficiency

First, support development of the offshore RMB bond market. Further improve financial infrastructure in Hong Kong and Macao, optimize RMB cross-border payment and settlement processes. Encourage sovereign wealth funds, pension funds, and insurance funds to invest in LGFV offshore RMB bonds. Support Macao's construction of a China-Portuguese-speaking-countries bond market. Second, improve the risk pricing mechanism. Promote coordination between onshore and offshore credit rating systems. Guide investors toward fundamental-based risk pricing frameworks. Develop the credit default swap market to provide effective risk hedging instruments. Third, strengthen cross-border regulatory cooperation with offshore issuance jurisdictions including Hong Kong and Singapore. Establish information sharing and

enforcement coordination mechanisms. Participate in international financial regulatory rule formulation. Establish a cross-border debt risk emergency response mechanism to prevent localized risks from triggering systemic financial risks.

5.3 Research Outlook

This paper systematically analyzes issuance characteristics and risks of Chinese LGFV offshore bonds from a regulatory evolution perspective, but four limitations should be borne in mind. First, the descriptive design establishes temporal association rather than causal effect: because the regulatory changes examined here applied to all issuers simultaneously, no untreated comparison group is available, and the observed co-movements cannot be attributed to regulation alone. Second, the fund-usage analysis rests on voluntary disclosure in offering circulars, so the reported shares describe only the subset of issues that disclosed a specific use of proceeds. Third, the absence of a centralized transaction reporting system for offshore LGFV bonds means that the liquidity indicators are based on indicative quotations rather than executed prices. Fourth, converting foreign-currency issues at issuance-date rates rather than a single base-year rate shifts the aggregate figure by 11.6% (Appendix A3), so cross-currency comparisons should be read with that sensitivity in mind. Future research could further expand the sample time span to analyze regulatory-market interactions over longer time horizons; employ econometric methods such as panel regression to quantitatively identify the association between policy changes and issuance size and pricing; and conduct in-depth research on the impact mechanism of LGFV market-oriented transformation on offshore bond pricing. Meanwhile, as RMB internationalization accelerates and offshore markets develop, future research could focus on pricing mechanisms of offshore RMB bonds, as well as development prospects of green bonds and sustainability bonds.

Notes

［1］ Data source: National Bureau of Statistics.

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Appendix A: Exchange-Rate Conversion Methodology

A1. Rationale for Issuance-Date Conversion: To preserve intertemporal comparability and avoid distortion from using a single base-year exchange rate, we converted each foreign-currency bond using the exchange rate prevailing on its issuance date. This approach reflects the actual RMB equivalent that would have been raised at the time of issuance and is consistent with the accounting treatment of foreign-currency debt.

A2. Data Sources for Exchange Rates: Daily exchange rates for USD/CNY, EUR/CNY, JPY/CNY, GBP/CNY, and HKD/CNY were sourced from the People's Bank of China (PBOC) daily fixing rates, available via the China Foreign Exchange Trade System (CFETS). For bonds issued on dates when PBOC fixing rates were unavailable (weekends and public holidays), the fixing rate of the preceding business day was used.

A3. Sensitivity Analysis: To assess the sensitivity of our results to the exchange-rate conversion method, we conducted two robustness checks. First, we compared the issuance-date conversion with an alternative using the annual average exchange rate for each issuance year. The aggregate difference for the full sample was 3.8%. Second, we compared the issuance-date conversion with an alternative using the 2025 year-end exchange rate (the original method used in the first submission). The aggregate difference was 11.6%, confirming that the choice of conversion method has a meaningful impact on intertemporal comparisons. The issuance-date conversion method was therefore retained as the preferred approach for the final manuscript.

A4. Summary Statistics: The weighted average exchange rates used for conversion across the sample period were: USD/CNY 7.07, EUR/CNY 7.62, JPY/CNY 0.052, GBP/CNY 8.95, HKD/CNY 0.91. Individual issue-level rates are available from the author upon request.

Acknowledgments

The author would like to thank the editors and anonymous reviewers of Josai Business Review for their constructive comments and suggestions, which have substantially improved the quality of this paper. Any remaining errors are solely the author's own.

城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 241–270

Article

Challenges and Transformation of Religious Corporation Cemetery Management in the Era of Aging Population:

A Case Study of Shinrikyō Takayasu Church Shingi Reien

高齢化時代における宗教法人墓地経営の課題と変容

―神理教高安教会信貴霊苑の事例分析―

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Abstract

Japan’s aging population, declining family size, and changing burial preferences are reshaping the operation of religious cemeteries. Against this demographic background, many religious corporations are facing declining demand for traditional family graves while simultaneously encountering increasing numbers of unattended graves. This study examines Shingi Reien, a cemetery operated by the Shinrikyō Takayasu Church, to explore how a sectarian Shinto religious corporation has responded to these challenges. Drawing on six consecutive years of financial statements (FY2020–FY2025), together with interviews with church leaders and participant observation, the study adopts a qualitative case study approach supported by longitudinal financial analysis. Rather than focusing solely on financial performance, the research examines how changes in revenue structure reflect broader organizational adaptation to demographic and social transformation.The findings indicate that although the introduction of perpetual memorial graves and tree burials broadened the cemetery’s service portfolio, these initiatives have not yet generated a stable source of revenue. Management fee income remains the primary financial foundation of the cemetery, while declining demand for new grave plots and the growing burden of unattended graves continue to constrain long-term sustainability. The financial data further suggest that recent improvements in revenue were largely associated with the recovery of overdue management fees rather than renewed market demand. Rather than presenting a universally applicable model of cemetery reform, the Shinrikyō case illustrates the practical difficulties faced by religious corporations as they seek to balance financial sustainability with changing social expectations in an aging society. The study contributes to understanding how demographic change influences the organizational adaptation of religious institutions in contemporary Japan.

Keywords: Shinrikyō; religious corporation; cemetery management; perpetual memorial grave

1. Introduction

1.1 Research Background

Japan has become one of the world's most rapidly aging societies. Declining birth rates, increasing life expectancy, and shrinking household size have not only transformed patterns of family life but also influenced the ways in which death, memorialization, and cemetery management are organized. Traditional family grave systems, which were historically sustained through intergenerational succession, are increasingly challenged by demographic aging, population mobility, and changing attitudes toward ancestral worship. As a result, many religious organizations that operate cemeteries now face declining demand for conventional family graves alongside a growing number of unattended graves.

These demographic changes have encouraged the development of new forms of burial, including perpetual memorial graves (eitai kuyōbo), tree burials (jumokuso), and other collective memorial arrangements. While these alternatives have become increasingly visible in Japanese society, they have also required religious organizations to reconsider how cemetery management can remain financially sustainable while continuing to fulfill religious and social responsibilities.

Most previous studies have examined these changes from the perspectives of religious practice, funeral culture, or demographic transition. Comparatively less attention has been paid to how religious corporations themselves adapt organizationally and financially to these long-term changes. This study therefore approaches cemetery management not only as a religious service but also as an organizational activity shaped by demographic, economic, and institutional pressures.

1.2 Research Context: Shinrikyō and Shingi Reien

Shinrikyō is a sectarian Shinto religious organization (Kyōha Shintō) founded in the late nineteenth century during the Meiji period. Although it has a long institutional history, it remains a relatively small religious organization and is not widely known outside specialist studies of Japanese religion. Its religious teachings emphasize reverence for the divine, moral self-cultivation, gratitude toward ancestors, and harmonious coexistence within society. Like many local religious organizations in Japan, Shinrikyō combines ritual activities with community-oriented services that respond to local social needs.

The present study focuses on Shingi Reien, a cemetery operated by the Takayasu Church of Shinrikyō in Yao City of Osaka Prefecture. In addition to providing traditional cemetery services, Shingi Reien has gradually introduced perpetual memorial graves, tree burials, and other forms of memorial care in response to changing demographic conditions. Because the cemetery has maintained detailed financial records while simultaneously experiencing organizational adaptation, it provides a valuable case through which to examine how a religious corporation responds to population aging and changing burial preferences.

As a result, many religious organizations that operate cemeteries now face declining demand for conventional family graves alongside a growing number of unattended graves. As will be discussed in the empirical sections of this paper, the observation that unattended graves have increased is based on three forms of evidence: (1) interview accounts provided by church administrators and cemetery staff; (2) field observations conducted during site visits to the cemetery; and (3) financial records indicating declining management fee collection rates and increasing maintenance costs. The specific details of each type of evidence are presented in Section 4.

Rather than treating Shingi Reien as representative of all Japanese religious organizations, this study considers it an information-rich case that illustrates broader challenges faced by religious corporations operating cemeteries in contemporary Japan.

1.3 Research Objectives and Questions

Against this background, this study investigates how a religious corporation has adapted its cemetery management under conditions of demographic aging. Rather than focusing exclusively on financial performance, the research examines how changes in revenue structure reflect broader organizational responses to shifting patterns of burial demand and community participation.

The study addresses the following research questions:
(RQ1) How has demographic aging affected the operation of Shingi Reien?
(RQ2) How has the organization responded to demographic and social changes?
(RQ3) What are the financial implications of these changes and responses?
(RQ4) How are religious mission and financial sustainability balanced in cemetery management?
(RQ5) What challenges remain for long-term sustainability?

These five research questions correspond directly to the RQ1–RQ5 framework presented in the Interview Question–Research Objective Matrix in the Appendix. The findings presented in Section 4 and the discussion in Section 5 are organized around these five questions. Specifically, RQ1 and RQ2 are addressed primarily through the interview and observational findings in Sections 4.1 and 4.4; RQ3 is examined through the financial analysis in Sections 4.1–4.2; RQ4 is discussed through the integration of financial and qualitative evidence in Sections 4.4–4.5 and further elaborated in Section 5.2; and RQ5 is considered in Section 4.5 and the concluding discussion in Section 6.

To answer these questions, the study combines longitudinal financial analysis with qualitative evidence obtained through interviews, participant observation, and documentary materials. By integrating quantitative and qualitative evidence, the research seeks to provide a comprehensive understanding of cemetery management as both an economic activity and a religious practice.

1.4 Structure of the Paper

The remainder of this paper is organized as follows. Section 2 reviews previous studies on Japanese cemetery management, demographic aging, and the organizational adaptation of religious corporations. Section 3 describes the research design, including the case study approach, financial analysis, interview procedures, and data collection methods. Section 4 presents the empirical findings based on financial records and qualitative evidence. Section 5 discusses the implications of these findings in relation to organizational adaptation and the changing role of religious corporations in aging societies. Finally, Section 6 summarizes the main conclusions, acknowledges the limitations of the study, and suggests directions for future research.

1.5 Research Significance

This study fills a gap in the research on cemetery management by sectarian Shinto religious corporations, enriches theoretical discussions on business model innovation in religious non-profit organizations, and provides empirical evidence and practical reference for Japanese religious corporations and similar organizations in other aging societies in East Asia.

2. Literature Review and Theoretical Framework

2.1 Cemetery Transformation under Population Aging

Japan's demographic transition has fundamentally reshaped patterns of death, memorialization, and cemetery use. Declining fertility, increasing life expectancy, and the growing number of single-person households have weakened the traditional assumption that family graves would be maintained through continuous intergenerational succession. Consequently, religious organizations responsible for cemetery management have increasingly encountered unattended graves, declining demand for conventional family plots, and changing expectations regarding memorial services.

Previous studies have documented the rapid diversification of burial practices in contemporary Japan. New forms of memorialization, including perpetual memorial graves (eitai kuyōbo), tree burials (jumoku-uso), communal graves, and scattering of ashes, have gradually become socially accepted alternatives to traditional family graves (Rowe, 2011; Ambros, 2012). Rather than representing the disappearance of ancestor worship, these developments suggest changing ways in which families negotiate responsibility, mobility, and long-term memorial care.

At the same time, scholars have argued that these changes should not be interpreted solely as consequences of secularization. Instead, demographic aging, urbanization, and changing household structures have altered the institutional conditions under which religious organizations provide memorial services (Reader & Tanabe, 1998). Cemetery management has therefore become increasingly intertwined with broader issues of community sustainability and organizational adaptation.

Although existing research has substantially advanced understanding of changing burial practices, most studies have concentrated on cultural meaning, ritual transformation, or individual burial preferences. Comparatively less attention has been given to the organizational and financial implications of these demographic changes for religious corporations that continue to operate cemeteries over the long term. This study seeks to address this perspective through a case analysis of Shinrikyō.

2.2 Cemetery Industry and Religious Corporations

The Japanese cemetery industry operates through a diverse range of business models, each distinguished by its operating entity, characteristics, target geographic areas, and user base. Based on the existing literature and industry practices, these models can be categorized as follows.

It should be noted that the seven categories presented below are not organized according to a single classification criterion. Rather, they reflect different dimensions of contemporary cemetery management. Temple cemeteries, public cemeteries, and private cemeteries are classified primarily according to the operating entity (religious corporation, local government, or private foundation). Perpetual memorial graves, charnel houses, and tree burials refer mainly to burial or service formats (the physical or procedural arrangements for interment and memorialization). The "cemetery subscription" model, by contrast, represents a contractual or payment arrangement rather than a distinct type of operating entity or burial format. These categories are therefore not mutually exclusive in practice; for example, a private cemetery may offer perpetual memorial graves as one of its service options, and a temple cemetery may adopt a subscription-based payment model. The purpose of presenting these seven categories together is to illustrate the diversity of arrangements currently available in the Japanese cemetery industry, rather than to propose a rigid typology.

(1) Temple Cemetery Model

This is the most traditional and historically established model in Japan. Operating under the danka system, Buddhist temples provide gravesites to affiliated families in exchange for hereditary patronage and financial support. The model is characterized by long-term, family-based relationships, with temples assuming responsibility for ritual services and ongoing grave maintenance. It is prevalent across all regions of Japan, though it is most deeply rooted in rural and suburban communities where generational continuity remains strong. The primary users are hereditary temple patrons (danka) and families with local ancestral ties.

(2) Public Cemetery Model

These cemeteries are operated directly by local municipalities or public authorities. As public facilities, they are subject to government regulations and pricing oversight, and are designed to serve the general population at relatively low cost. They are characterized by standardized services and publicly accessible pricing. Public cemeteries are found throughout Japan, and they cater primarily to residents of the local area and families seeking an affordable burial option without religious affiliation requirements.

(3) Private Cemetery Model

Private cemeteries are operated by non-governmental entities, primarily religious corporations (including Shinto sects such as Shinrikyō) and public interest foundations. This model is characterized by more diverse service offerings and flexible pricing structures. While they are found across the country, private cemeteries are often concentrated in urban and suburban areas where market demand supports commercial operations. Users typically include families seeking a wider range of design options, personalized services, or a cemetery with a specific religious or aesthetic orientation.

(4) Perpetual Memorial Grave Model

This model addresses the growing concern among elderly individuals and families without successors about leaving unattended graves. Under this model, a temple or cemetery operator assumes permanent responsibility for the long-term maintenance and ritual care of the grave in exchange for a one-time, upfront payment. It is characterized by its "successor-free" structure and fixed pricing. This model has gained significant traction in urban areas where nuclear families and single-person households are prevalent, and it appeals particularly to elderly individuals, unmarried people, and families living at a distance from their ancestral home.

(5) Charnel House (Nōkotsudō) Model

The charnel house, or nōkotsudō, represents a space-efficient burial solution, storing cremated remains indoors in a communal facility rather than in individual outdoor plots. This model features compact, highly efficient use of space, often employing automated retrieval systems. It is particularly suited to densely populated metropolitan areas such as Tokyo and Osaka, where land is scarce and prohibitively expensive. It appeals to urban residents, families seeking lower-maintenance options, and those who prioritize convenience of access.

(6) Tree Burial Model

Tree burial has emerged as one of the most studied and popular eco-friendly alternatives to traditional graves. In this model, remains are interred at the base of a tree or shrub within a designated woodland area, without the use of a conventional headstone. It is characterized by its natural aesthetics, low environmental impact, and reduced maintenance burden. Tree burials are commonly found in suburban or rural natural settings, but are also increasingly offered at established cemeteries as a premium option. The primary users are environmentally conscious individuals, those seeking a less formal memorial, and families who appreciate a connection to nature.

(7) "Cemetery Subscription" Model

This is an emerging business model that transforms the traditional perpetual ownership of a gravesite into a periodic (e.g., annual or multi-year) usage contract. It offers lower initial costs and greater flexibility compared to traditional ownership, making cemetery services more accessible to a wider demographic. While still nascent, this model is gaining attention as a means of addressing the financial and inheritance

burdens associated with conventional grave ownership. It is primarily being piloted in urban and suburban areas, targeting younger generations and families seeking flexible, cost-effective end-of-life arrangements.

Amongest the above mentioned participants of cemetery industry, religious corporations have historically played a central role in cemetery management in Japan. Beyond providing burial space, temples and shrines have traditionally maintained long-term relationships with local households through memorial rituals, ancestral services, and periodic religious observances. Cemetery management has therefore functioned not only as an economic activity but also as an institutional mechanism supporting continuing relationships between religious organizations and local communities.

Previous research has primarily focused on Buddhist temples, where cemetery management has long been associated with the danka system and memorial rites (Covell, 2005; Rowe, 2011). These studies demonstrate that cemetery income has often constituted an important component of temple finance while simultaneously reinforcing long-term social relationships between clergy and parish households.

However, comparatively little research has examined cemetery management operated by sectarian Shinto organizations. Although Shinto religious corporations also provide memorial services and maintain cemeteries, their organizational characteristics, revenue structures, and patterns of community engagement differ in important respects from Buddhist institutions (Hardacre, 2017).

Recent demographic changes further complicate this picture. Religious corporations increasingly face the dual challenge of preserving their religious functions while responding to changing expectations concerning cemetery management, memorial care, and community support. These developments suggest that cemetery management should be understood not merely as an administrative function but as part of broader organizational adaptation within religious institutions.

2.3 Organizational Adaptation in Religious and Nonprofit Organizations

Research on organizational adaptation suggests that nonprofit organizations continually adjust their structures and activities in response to changing social environments while simultaneously attempting to preserve their institutional identity. Unlike commercial enterprises, nonprofit organizations frequently pursue multiple objectives, balancing financial sustainability with mission fulfillment and public legitimacy.

Religious organizations share many of these characteristics. Previous studies have shown that Japanese religious institutions have increasingly diversified their activities through welfare services, educational programs, community support, and digital communication (Baffelli, 2017; Campbell, 2013). These changes have often been interpreted as responses to demographic aging, declining religious participation, and changing patterns of local community life.

Nevertheless, existing research has tended to emphasize either theological transformation or community activities, while relatively few studies have examined how organizational adaptation is reflected in financial structure and operational management. Financial statements, however, provide an important source of evidence for understanding how organizational responses emerge over time.

For this reason, the present study combines financial analysis with qualitative evidence obtained through interviews and field observation. Rather than viewing financial performance simply as an indicator of economic success, the study interprets financial change as one dimension of broader organizational adaptation.

2.4 Theoretical Framework

This study is informed by three theoretical perspectives that together provide a framework for understanding how religious corporations adapt their cemetery operations under conditions of demographic aging.

First, institutional theory (DiMaggio & Powell, 1983) provides a lens for understanding how religious corporations operate within a broader environment of regulatory frameworks, cultural expectations, and changing social norms. In the context of cemetery management, institutional theory helps explain why religious corporations face pressures to adapt their practices in response to shifting burial preferences, demographic decline, and evolving expectations regarding memorial care. Rather than viewing organizational change solely as the result of strategic choice, institutional theory draws attention to the external pressures—regulatory, normative, and cultural—that shape organizational behavior.

Second, this study draws on business model innovation theory (Osterwalder & Pigneur, 2010). While religious organizations differ from commercial enterprises, the concept of business model innovation provides a useful vocabulary for describing how cemetery services have been reconfigured in response to changing social conditions. Specifically, the introduction of perpetual memorial graves, tree burials, and other alternative burial arrangements can be understood as an expansion of the service portfolio, while the growing reliance on management fee income reflects a revenue structure that has shifted toward the maintenance of existing users rather than the acquisition of new ones.

Third, dynamic capabilities theory (Teece et al., 1997) provides a framework for understanding the organizational processes through which religious corporations identify environmental changes, respond to emerging challenges, and gradually reorganize their operations. In the present case, rather than engaging in large-scale strategic reform, the Takayasu Church has demonstrated adaptive capabilities through incremental adjustments in service provision, communication with users, and management practices. These capabilities—sensing demographic change, seizing opportunities to introduce new services, and transforming routine practices—are consistent with the three core elements of dynamic capabilities: sensing, seizing, and transforming.

These three theoretical perspectives are not applied rigidly as a deductive framework. Instead, they serve as interpretive tools that help organize the findings and relate them to broader discussions of organizational adaptation in the nonprofit sector. The empirical evidence presented in the following sections is examined in light of these perspectives, and the discussion in Section 5 returns to each of these theories to consider what the Shinrikyō case contributes to existing research.

2.5 Research Gap and Analytical Perspective

The literature reviewed above demonstrates that substantial progress has been made in understanding demographic aging, changing burial practices, and the evolving role of religious organizations in contemporary Japan. However, several limitations remain.

First, most studies have concentrated on Buddhist institutions, while comparatively little attention has been paid to cemetery management within sectarian Shinto organizations. Second, existing research has generally emphasized religious practice, cultural meaning, or demographic change rather than organizational operation and financial sustainability. Third, relatively few studies integrate financial evidence with qualitative fieldwork to examine organizational adaptation from multiple perspectives.

This study seeks to address these limitations through an in-depth case study of Shingi Reien, a cemetery operated by the Takayasu Church of Shinrikyō. By combining longitudinal financial statements with interviews, participant observation, and documentary analysis, the research examines how demographic change is reflected simultaneously in financial performance, organizational practice, and community engagement.

Rather than proposing a universal model of cemetery management, the study aims to provide an empirically grounded understanding of how a religious corporation negotiates continuity and adaptation under conditions of demographic aging.

3. Research Methods

3.1 Research Design

This study adopts a qualitative case study design supported by longitudinal financial analysis. Rather than attempting to produce statistically generalizable findings, the research seeks to develop an in-depth understanding of how a religious corporation has adapted its cemetery management under conditions of demographic aging.

Case study research is particularly appropriate when the research seeks to examine contemporary organizational processes within their real-life context and when the boundaries between organizational practice and external social conditions cannot be clearly separated (Yin, 2018). In the present study, demographic aging, changing burial practices, and cemetery management are closely intertwined, making a case study

approach suitable for exploring these relationships.

Financial statements provide an important source of evidence regarding organizational operation. However, financial data alone cannot fully explain why organizational changes occur. For this reason, the study combines longitudinal financial analysis with interviews, participant observation, and documentary materials. Integrating these different forms of evidence makes it possible to interpret financial change within its broader organizational and social context.

Rather than evaluating organizational success or failure, the research focuses on understanding how financial trends, organizational practices, and community relationships have evolved together over time.

3.2 Case Selection

The research focuses on Shingi Reien, a cemetery operated by the Takayasu Church of Shinrikyō in Yao City of Osaka Prefecture.

The case was selected for three reasons.

First, the cemetery has experienced substantial demographic pressure associated with population aging, declining demand for conventional family graves, and increasing maintenance responsibilities for unattended graves. These challenges make it a suitable site for examining organizational adaptation.

Second, the Takayasu Church has maintained continuous financial records covering multiple fiscal years, allowing longitudinal analysis of changes in revenue structure and operational performance.

Third, the researcher was granted access to organizational documents, church personnel, and field observation activities, making it possible to combine financial evidence with qualitative investigation.

Beyond these practical considerations, the case holds particular significance for two additional reasons.

First, Shinrikyō represents a type of religious organization that has received comparatively little attention in previous research on cemetery management. While the majority of existing studies have focused on Buddhist temples, where cemetery management has long been embedded in the danka system (Rowe, 2011; Covell, 2005), sectarian Shinto organizations operate under different institutional logics. They do not rely on the hereditary household-based patronage that has historically sustained Buddhist temple cemeteries. Instead, their membership is more voluntary and less tied to family lineage. As a result, the challenges faced by Shingi Reien—declining demand for new graves, increasing numbers of unattended graves, and financial pressures on cemetery maintenance—may manifest differently than in Buddhist temple cemeteries, and may require different organizational responses. Studying this case therefore contributes to a more complete understanding of how diverse types of religious corporations are affected by demographic aging.

Second, the case reflects broader challenges that are not unique to Shinrikyō or to sectarian Shinto organizations. The demographic pressures experienced by Shingi Reien—an aging local population, declining birth rates, and weakening family continuity—are widespread across Japan. Many religious organizations, regardless of their institutional tradition, are confronting similar difficulties in maintaining cemetery operations. As the head of the Takayasu Church stated during an interview: “We are not the only ones facing this situation. I hear similar concerns from other religious organizations in this region.” This comment suggests that the challenges observed at Shingi Reien are illustrative of a more general pattern, even though the specific organizational context may differ.

The purpose of selecting this case is not to claim that it represents all religious corporations in Japan. Instead, it is treated as an information-rich case through which broader processes of organizational adaptation may be examined in detail.

3.3 Data Collection

The study draws upon four principal sources of evidence.

The first consists of financial statements covering fiscal years 2020–2025. These documents include annual income statements, expenditure records, management fee collection data, and cemetery-related financial reports. Longitudinal comparison enables changes in revenue composition and financial performance to be identified over time.

Second, semi-structured interviews were conducted with clergy members and individuals involved in cemetery management. A total of five interviews were conducted between July 13 and 15, 2026, at the Shingi Reien office in Yao City, Osaka Prefecture. All interviews were conducted individually by the author, with prior consent for audio recording. Each interview lasted approximately 60 to 90 minutes.

Participants were selected through purposive sampling based on their decision-making roles in cemetery management. The head of the Takayasu Church was approached initially, and subsequent participants were identified through referral from the initial contact (snowball sampling) to capture perspectives from multiple levels of the organization. The five participants included the head of the Takayasu Church and senior administrative personnel directly involved in cemetery operations, representing both strategic and operational perspectives.

The interviews explored perceptions of demographic change, operational challenges, management practices, and future organizational development. Interview questions remained sufficiently flexible to allow participants to elaborate on issues that emerged during discussion.The interview guide and the corresponding question–research objective matrix are provided in the Appendix.

Third, participant observation was carried out during visits to the Takayasu Church and Shingi Reien.

Observations focused on cemetery operation, visitor interaction, memorial activities, and the everyday management of the cemetery environment. Field notes were recorded immediately following each observation period.

Finally, documentary materials, including organizational publications, cemetery brochures, historical records, and publicly available statistical reports, were collected to provide institutional and historical context.

The use of multiple forms of evidence allowed findings from one source to be interpreted alongside evidence obtained from other sources. A detailed account of the interview procedures, including the interview guide and the research question matrix, is provided in the Appendix.

3.4 Analytical Procedures

The analysis proceeded in four stages.

First, financial statements covering six consecutive fiscal years were reviewed to identify changes in revenue composition, expenditure patterns, and management fee collection. Longitudinal comparison was used to examine overall trends rather than isolated annual fluctuations.

Second, interview recordings were transcribed and coded according to recurring organizational themes. Rather than imposing predetermined categories, the analysis focused on identifying patterns that repeatedly emerged across participants, particularly regarding demographic change, cemetery management, and organizational responses.

Third, observational records were compared with interview findings to examine the consistency between participants' accounts and everyday organizational practice.

Finally, financial evidence, interview materials, observational records, and documentary sources were interpreted together in order to develop an integrated understanding of organizational adaptation.

Throughout the analytical process, interpretation moved iteratively between empirical evidence and existing literature rather than following a strictly linear sequence.

3.5 Trustworthiness

Several measures were taken to strengthen the credibility of the study.

First, multiple sources of evidence—including financial statements, interviews, participant observation, and documentary materials—were used to allow triangulation across different types of information. The interview data were cross-checked against financial records and observational notes to ensure consistency across sources.

Second, financial trends were interpreted together with qualitative evidence rather than independently. This reduced the risk of drawing conclusions solely from numerical change.

Third, interview interpretation developed gradually throughout the analytical process. Preliminary interpretations were repeatedly compared with field observations and documentary materials to ensure consistency. All interview transcripts were reviewed by the author to verify their accuracy, and key interpretations were discussed with church administrators to confirm that they appropriately reflected participants' perspectives.

Finally, an audit trail was maintained throughout the research process, including interview transcripts, field notes, coding records, and financial analysis worksheets. These materials provided transparency regarding the analytical procedures undertaken during the study.

3.6 Research Ethics

This study strictly adheres to academic ethical norms. Prior to the interviews, the research purpose, data usage, and anonymization measures were explained to the Takayasu Church at the organizational level, and written consent was obtained from the church. Internal management data of the church are kept confidential and used solely for academic purposes of this study.

All interview recordings, transcripts, and observational notes have been stored in anonymized form and will not be shared with third parties outside the scope of this research. In addition, informed consent was obtained from each individual interviewee before their interview. At the beginning of each session, the researcher explained: (1) the purpose of the study, (2) the voluntary nature of participation, (3) the right to withdraw at any time without consequences, (4) the use of audio recording for research purposes only, and (5) the anonymization of all personal information. After confirming the participant's understanding, verbal consent was obtained before the interview began. These procedures are consistent with the statements on voluntary participation, withdrawal, and anonymization presented in the Interview Guide in the Appendix.

Regarding the institutional ethical review requirement, the researcher has consulted with the academic supervisor regarding the applicability of the ethical review procedures to this study. Based on this consultation, it was confirmed that the study involves minimal risk to participants: all interviews were conducted with adult participants in a professional organizational setting, no sensitive personal data were collected, and participation was entirely voluntary with the right to withdraw at any time.

4. Case Analysis and Financial Analysis of Shingi Reien

4.1 Overall Financial Trends

The six-year financial records indicate that Shingi Reien experienced substantial fluctuations in both revenue and expenditure between fiscal years 2020 and 2025. Rather than following a steady pattern of

growth or decline, annual financial performance reflected the combined influence of changing burial demand, management fee collection, and the introduction of new cemetery services. The analysis presented in this section is organized around RQ1 (demographic aging and its effects) and RQ2 (organizational responses), with RQ3 (financial implications) examined through the revenue data presented in Sections 4.1–4.2.

Figure 1 illustrates the overall changes in cemetery-related operating revenue during the study period (FY 2020-2025). Although total income increased in several years, closer examination suggests that these increases did not necessarily represent sustained growth in cemetery operation. Instead, annual fluctuations were associated with specific sources of revenue, particularly management fee collection and irregular cemetery-related income.

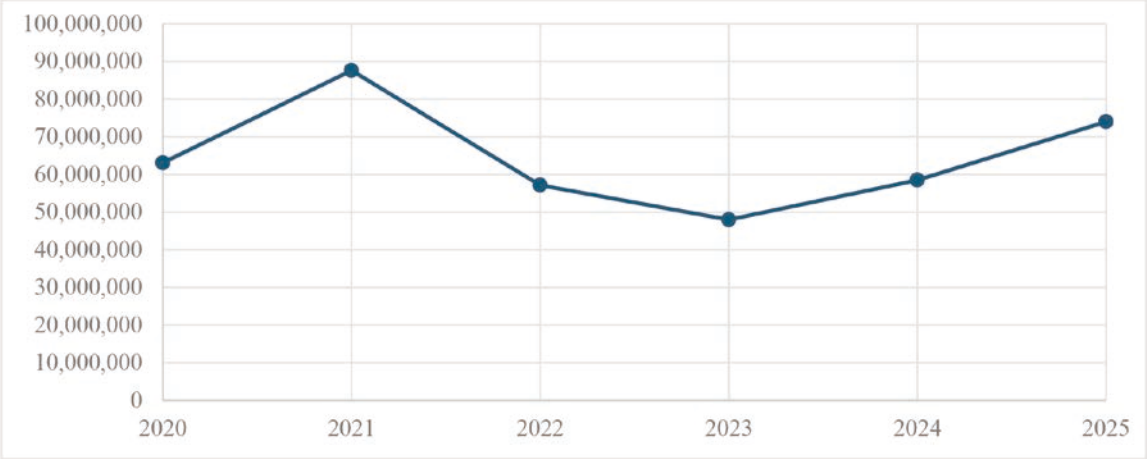

Figure 1: Changes in Total Operating Revenue (2020-2025)

Source: Compiled by the author from the Takayasu Church's financial statements, 2020–2025

Several notable turning points can be observed in Figure 1. The most pronounced change occurred between FY2021 and FY2023, when total operating revenue declined from approximately 87.6 million yen to 57.1 million yen, a decrease of 34.8%. This decline was primarily associated with a substantial reduction in perpetual use fees (new grave sales) during the same period, as discussed in the following section. In addition, a second turning point appears between FY2023 and FY2024, when revenue began to recover from 48.0 million yen to 58.5 million yen (+22.0%), followed by a further increase to 74.0 million yen in FY2025 (+26.4%). As will be shown below, however, these later increases were largely driven by recovery in management fee collection rather than sustained growth in new grave sales.

Based on the financial records and interview data, two factors are particularly relevant to understanding these annual fluctuations. First, the decline in FY2022–FY2023 reflected the combined effect of weakening demand for traditional family graves, the temporary reduction in perpetual memorial grave sales following their initial introduction, and the impact of delayed management fee payments. Second, the recovery in FY2024–FY2025 was substantially influenced by the collection of overdue management fees,

as acknowledged by church administrators during interviews.

Interviews with church personnel supported this interpretation. Participants repeatedly emphasized that annual financial performance was affected not only by new grave sales but also by delayed management fee payments and the increasing costs of maintaining existing cemetery facilities.

One church administrator commented: “Some years appear better simply because overdue management fees were finally collected. That does not necessarily mean more people are purchasing graves.”

This observation suggests that annual financial statements should be interpreted cautiously. Short-term increases in revenue may not reflect improvements in long-term organizational sustainability.

Overall, the financial records indicate that cemetery management has become increasingly dependent on maintaining existing users rather than continuously attracting new purchasers.

4.2 Revenue Structure and Sources of Income

A closer examination of revenue composition reveals important changes in the financial basis of cemetery management. Throughout the study period, management fees remained the largest and most stable source of income. Income generated from new grave sales showed considerably greater annual fluctuation, while revenue associated with perpetual memorial graves and tree burials increased gradually but remained comparatively limited in overall financial contribution. The following analysis directly addresses RQ3 by examining how the cemetery’s revenue structure and financial performance have changed over time. Table 1 and Figures 2–4 present the empirical basis for this examination.

Table 1 shows the breakdown of revenue categories (2020–2025) and the Figure 2-4 presents the changing composition of cemetery-related revenue. Rather than indicating a complete transformation of the cemetery business, these financial patterns suggest a gradual diversification of revenue sources.

The turning points observed in the overall revenue data can be traced more clearly through the individual revenue categories presented in Table 1 and Figures 2–4.

Perpetual Use Fees (Figure 3): The sharp decline in FY2021–FY2022 from 28.3 million yen to 17.1 million yen (-39.7%) reflects weakening demand for new grave sales. This decline continued into FY2023 (13.3 million yen, -21.8%), reaching the lowest level of the study period. While a partial recovery occurred in FY2024 (23.8 million yen, +78.3%), the subsequent decline in FY2025 (16.9 million yen, -28.9%) indicates that this recovery was not sustained. The fluctuation suggests that new grave sales are influenced by the continued aging of the local population and the increasing tendency for families to choose alternative burial options. The FY2021 peak in perpetual use fees coincided with the initial introduction of perpetual memorial grave services, suggesting that the 2021 figure may have included a one-time effect from the

launch of these new services, rather than representing sustainable growth. The decline thereafter indicates that this initial demand was not sustained.

Management Fee Income (Table 1): This revenue category shows a different pattern. Management fees declined steadily from 44.8 million yen (FY2020) to 33.2 million yen (FY2023–FY2024), a cumulative decrease of 25.9%. This decline reflects the increasing number of unattended graves, delayed payments, and the gradual erosion of the user base. The sharp increase in FY2025 to 48.9 million yen (+47.5%) represents a turning point in the opposite direction. Interview evidence indicates that this increase was primarily associated with the recovery of overdue management fees through intensified communication with users, rather than a fundamental improvement in cemetery demand.

Revenue Structure (Figure 4): The changing composition of revenue further illustrates the organizational context behind these fluctuations. The share of management fee income in total operating revenue fell from 71.0% (FY2020) to 54.4% (FY2021) during the period when perpetual use fees briefly expanded, but returned to 69.2% (FY2023) as new grave sales declined. In FY2025, management fee income again comprised 66.1% of total revenue, indicating that the cemetery's financial stability remains heavily dependent on the maintenance of existing users rather than the acquisition of new ones.

Changes in management fee income are affected by two factors: first, changes in the number of existing graves (new grave sales expand the management fee base), and second, changes in the management fee payment rate. The latter factor is closely connected to the increasing number of unattended graves. This connection is supported by interview evidence: church administrators consistently reported that a growing number of grave plots no longer have identifiable family contacts, making it impossible to collect management fees.

The sharp recovery in management fee income in FY2025, combined with the context of declining perpetual use fees, more likely reflects an improvement in management fee collection from existing users (such as the recovery of past arrears) rather than an expansion of the base due to new grave sales. This interpretation is reinforced by the trend in accounts receivable, which decreased from approximately 10.87 million yen in FY2024 to approximately 3.85 million yen in FY2025, and is consistent with interview accounts regarding intensified collection efforts.

Financial records do not directly record the number of unattended graves. However, the combination of declining management fee income and increasing accounts receivable provides indirect but consistent evidence of this trend, as confirmed by interview accounts.

Interviews further indicate that church administrators did not regard perpetual memorial graves as replacements for traditional graves. Instead, they viewed these services as additional options intended to respond to changing family structures and individual preferences.

One interviewee explained: “People’s situations have changed. Some have no children, while others live far away. We therefore needed to provide different choices rather than relying only on traditional family graves.”

In summary, the financial trends depicted in Figures 2–4 reveal three key patterns. First, perpetual use fees have been subject to substantial annual fluctuation, with no sustained upward trajectory. Second, management fee income, while declining for several years, remains the largest and most stable revenue source. Third, the recovery observed in FY2024–FY2025 was driven primarily by management fee collection activities rather than by renewed demand for cemetery services. These patterns indicate that the financial sustainability of the cemetery depends substantially on the effective management of existing relationships with current grave owners.

This comment illustrates that diversification of cemetery services was understood primarily as a response to demographic change rather than as a commercial expansion strategy.

Table 1: Breakdown of Revenue Categories (2020–2025, JPY)

Fiscal Year	Perpetual Use Fee	Management Fee Income	Name Change Fee	Other Income
2020	17,439,000	44,783,146	533,500	330,000
2021	28,295,000	47,664,239	510,832	10,629,120
2022	17,052,000	35,779,442	652,268	1,659,900
2023	13,331,000	33,206,394	544,500	505,600
2024	23,773,250	33,157,684	572,000	1,016,044
2025	16,905,500	48,898,634	588,500	6,605,447

Source: Takayasu Church’s financial statements, 2020–2025

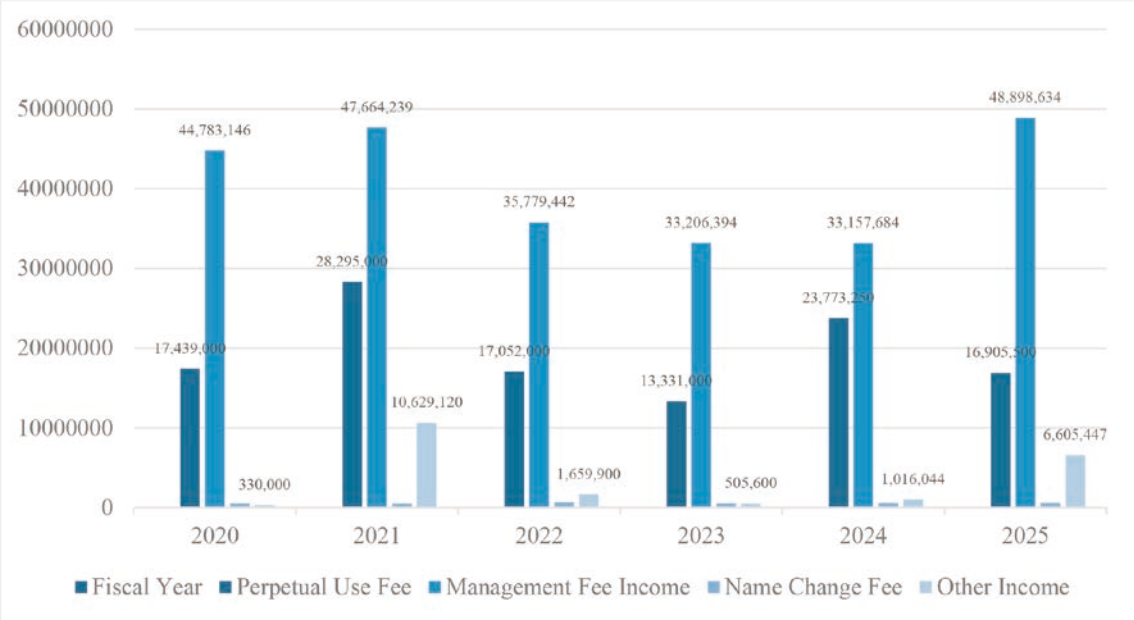

Figure 2: Breakdown of Revenue Categories (2020-2025, JPY)

Source: Compiled by the author from the Takayasu Church’s financial statements, 2020–2025

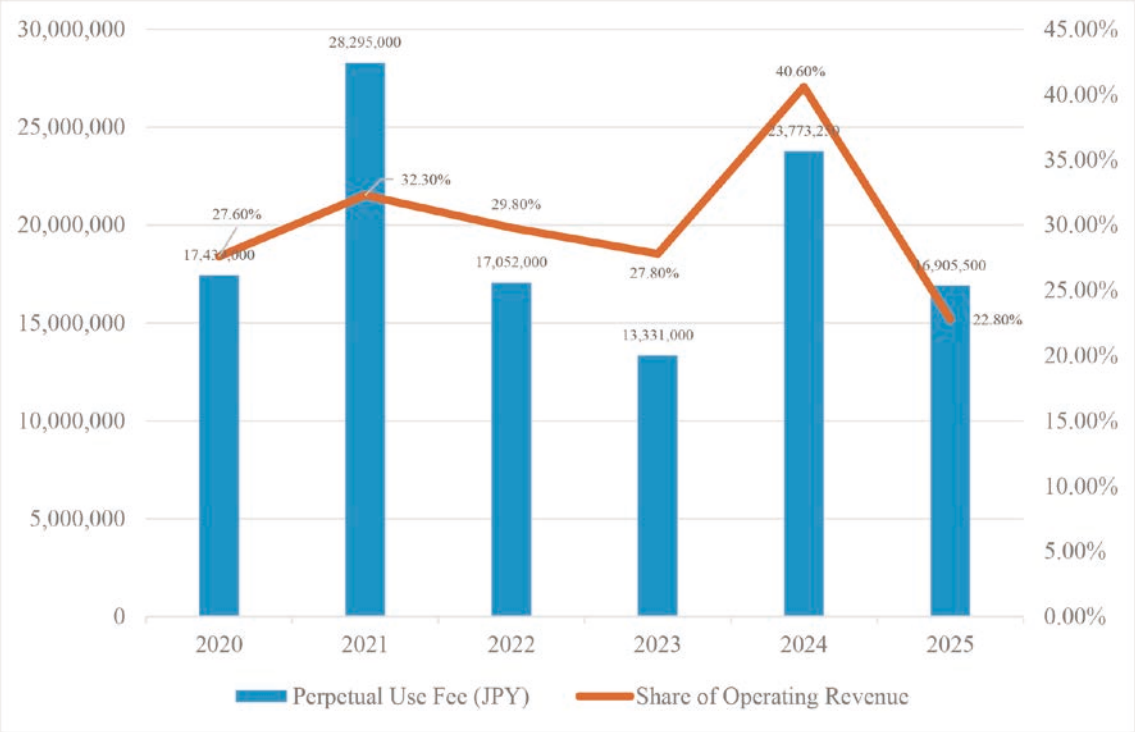

Figure 3: Changes in Perpetual Use Fees (2020–2025, JPY)

Source: Compiled by the author from the Takayasu Church's financial statements, 2020–2025

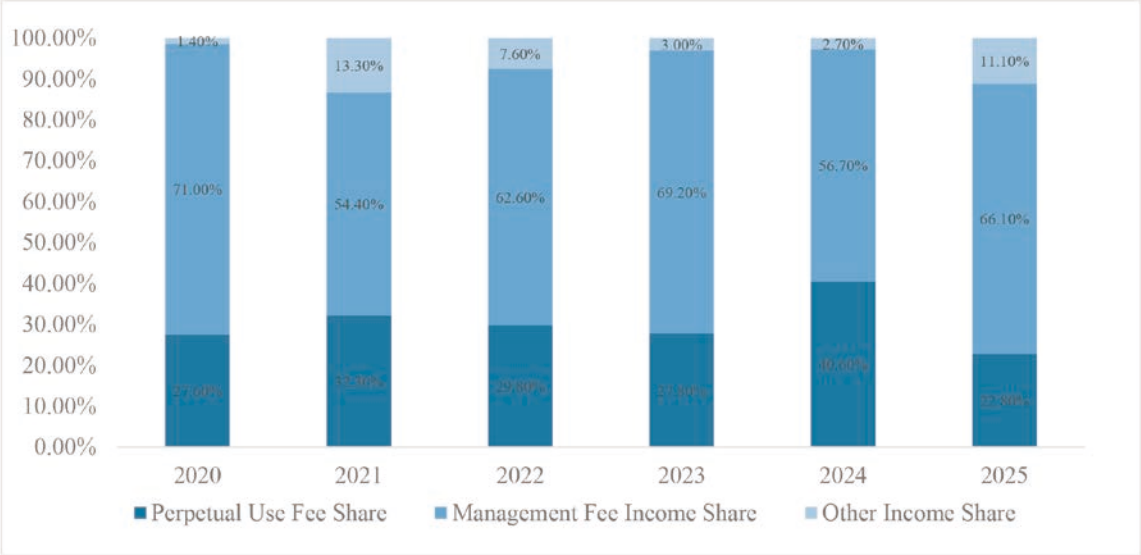

Figure 4: Changes in the Share of Major Revenue Categories (2020–2025)

Source: Compiled by the author from the Takayasu Church's financial statements, 2020–2025

4.3 Changes in Cemetery Services

One of the most significant organizational responses observed during the study period was the gradual diversification of cemetery services.

Historically, Shingi Reien primarily offered conventional family graves that assumed long-term

maintenance through family succession. However, demographic aging and declining household continuity have gradually reduced the suitability of this model for many prospective users.

To address these changes, the cemetery introduced perpetual memorial graves, tree burials, and more flexible memorial arrangements.

Field observations indicated that visitors frequently requested information regarding maintenance responsibilities rather than religious rituals themselves.

One staff member noted:“Many visitors first ask who will take care of the grave after they are gone.”

This observation suggests that cemetery selection has increasingly become associated with practical concerns regarding future care rather than solely with traditional religious customs.

Although these newer services have broadened the range of available options, financial records indicate that they have not yet replaced conventional revenue sources.

4.4 Organizational Responses to Demographic Change

The financial evidence and interview materials together suggest that organizational adaptation extended beyond the introduction of new cemetery products. This section addresses RQ2 (organizational responses to demographic and social changes) and introduces evidence relevant to RQ4 (how religious mission and financial sustainability are balanced). The interview materials presented here illustrate how organizational adaptation was understood by participants not as strategic innovation but as practical responses to everyday operational concerns.

Church personnel described increasing efforts to strengthen communication with existing cemetery users through reminder letters, consultation services, and personal contact concerning overdue management fees. Rather than emphasizing sales promotion, administrators repeatedly described these activities as maintaining long-term relationships with cemetery users.

One interviewee stated: “Most of our work now is not selling graves. It is maintaining relationships with people who already have graves here.”

This perspective differs substantially from commercial approaches to cemetery management.

Instead of maximizing short-term sales, organizational efforts increasingly focused on sustaining long-term trust between the religious corporation and cemetery users.

4.5 Remaining Challenges

Despite several organizational adjustments, the findings indicate that significant challenges remain. This section addresses RQ5 by examining the challenges that remain for long-term sustainability. The findings presented here indicate that organizational adaptation, while observable in several respects, has not resolved the fundamental financial and demographic pressures facing the cemetery.

First, revenue continues to depend heavily on management fees collected from existing grave users. This limits opportunities for substantial financial growth under conditions of declining population and changing burial preferences.

Second, the financial burden associated with cemetery maintenance has increased as unattended graves become more common. The conclusion that unattended graves have increased is supported by multiple sources of evidence. During interviews, church administrators consistently identified the rising number of unattended graves as one of the most pressing practical concerns facing cemetery management. One administrator stated: “We now have more graves where the families are no longer traceable. These graves still require maintenance, but we cannot collect management fees from them” (Interview, July 2026). Similar comments were made by three of the five interviewees. Field observations conducted during site visits in July 2026 confirmed that a visible number of grave plots showed signs of prolonged neglect, including overgrown vegetation, weathered headstones, and absence of fresh offerings, consistent with the accounts provided by staff. Financial records provide indirect but consistent evidence of this trend. The decline in management fee income from FY2020 to FY2024 (from approximately 44.8 million yen to 33.2 million yen, a cumulative decrease of 25.9%), combined with the subsequent recovery in FY2025 largely attributed to the collection of overdue fees, suggests that a growing proportion of management fees had become difficult to collect. Church administrators confirmed that this decline was associated with the increasing number of unattended graves rather than with a reduction in the total number of grave plots.

Third, although perpetual memorial graves and tree burials have expanded service options, their financial contribution remains relatively modest during the period examined.

Interviews also suggest continuing uncertainty regarding future demand.

One church administrator reflected: “We cannot assume that these new services will solve every problem. Society is still changing.”

Rather than presenting cemetery reform as a completed organizational success, the findings suggest an ongoing process of adjustment shaped by demographic change, financial constraints, and evolving expectations surrounding memorial care.

5. Discussion

5.1 Organizational Adaptation under Demographic Aging

The findings of this study suggest that the recent changes observed at Shingi Reien are more appropriately understood as a gradual process of organizational adaptation than as a comprehensive transformation of cemetery management. Rather than pursuing large-scale institutional reform, the cemetery has adjusted its operations incrementally in response to demographic aging, changing family structures, and evolving patterns of memorial practice.

From the perspective of institutional theory, the adjustments observed at Shingi Reien can be understood as a response to normative pressures arising from changing social expectations regarding family continuity, memorial care, and the responsibilities of religious institutions. However, the case also illustrates the limitations of institutional theory when applied to small religious organizations: although external pressures for change are clearly present, the organizational response has been shaped more by practical operational concerns and the values of the religious corporation than by a strategic effort to conform to external expectations.

In relation to business model innovation theory, the findings suggest that the diversification of cemetery services at Shingi Reien is more accurately described as incremental service addition rather than fundamental business model transformation. While perpetual memorial graves and tree burials have expanded the range of available options, the underlying revenue structure—characterized by heavy reliance on management fee income—has remained largely unchanged. This observation suggests that for religious corporations, business model innovation may be constrained not only by market demand but also by institutional identity and religious values.

Turning to dynamic capabilities theory, the Shinrikyō case demonstrates that organizational adaptation in a religious nonprofit setting does not necessarily require the formal strategic planning processes often described in the for-profit literature. Instead, adaptive capabilities may develop through the accumulated practical responses of clergy and staff to everyday operational challenges. The gradual introduction of new services, the intensification of communication with users, and the adjustment of management practices together illustrate how sensing, seizing, and transforming can occur incrementally rather than through deliberate strategic initiatives.

The discussion that follows revisits the five research questions introduced in Section 1.3. Section 5.1 addresses RQ1 and RQ2 by interpreting the organizational changes observed at Shingi Reien within the broader context of demographic aging. Section 5.2 addresses RQ3 and RQ4 by examining the relationship between financial sustainability and religious mission. Section 5.3 addresses RQ5 by considering the implications for religious cemetery management under conditions of ongoing demographic change.

Previous studies have emphasized that contemporary Japanese religious organizations increasingly operate within a social environment characterized by declining religious participation, weakening household continuity, and changing expectations regarding end-of-life care (Reader & Tanabe, 1998; Rowe, 2011). The present case broadly supports these observations. However, the financial records and interview materials also indicate that organizational responses are shaped by practical operational concerns rather than by abstract strategic planning.

In particular, the introduction of perpetual memorial graves and tree burials did not replace conventional cemetery services. Instead, these options expanded the range of memorial choices available to users while allowing the religious corporation to respond more flexibly to demographic change.

This finding suggests that organizational adaptation should not necessarily be interpreted as a shift away from traditional religious practice. Rather, adaptation appears to involve the gradual coexistence of established forms of memorial care and newly emerging social needs.

5.2 Financial Sustainability and Religious Mission

An important finding emerging from this study concerns the relationship between financial sustainability and the religious mission of cemetery management.

The financial analysis demonstrates that management fees remain the principal source of stable income, while revenues from new grave sales fluctuate considerably from year to year. Although new cemetery products have diversified available services, they have not fundamentally altered the overall financial structure of the cemetery.

Interview evidence suggests that church personnel rarely evaluated these changes purely in financial terms. Instead, financial stability was often discussed alongside responsibilities associated with long-term cemetery maintenance, memorial care, and continuing relationships with users.

One administrator explained:“Maintaining the cemetery is part of our religious responsibility. Income is important, but so is keeping faith with the families who entrusted their graves to us.”

This perspective differs from commercial approaches to cemetery management. Rather than maximizing profitability, the cemetery seeks to balance financial viability with religious obligations and long-term community trust.

Consequently, the findings indicate that financial sustainability should not be understood simply as an economic objective. Within the context of a religious corporation, financial management remains closely connected to institutional continuity and religious responsibility.

5.3 Implications for Religious Cemetery Management

Although this study focuses on a single cemetery operated by Shinrikyō, several broader implications may be drawn cautiously.

First, demographic aging appears to influence cemetery management not only by reducing demand for traditional graves but also by changing the practical concerns of cemetery users. Interviews indicate that many families are increasingly concerned with future maintenance responsibilities rather than with burial rituals alone.

Second, the findings suggest that diversification of cemetery services does not automatically improve financial performance. While perpetual memorial graves and tree burials broaden available options, financial sustainability continues to depend largely on the long-term maintenance of existing cemetery users.

Third, the study highlights the importance of organizational flexibility. Rather than adopting radical institutional reform, Shingi Reien responded through incremental adjustments in service provision, communication, and cemetery management practices.

These findings should not be interpreted as a universal model applicable to all religious organizations. Instead, they illustrate one possible pathway through which a religious corporation may negotiate demographic change while attempting to preserve both organizational continuity and religious identity.

6. Conclusion

6.1 Concluding Remarks

This study examined the operation of Shingi Reien, a cemetery managed by the Takayasu Church of Shinrikyō, in order to explore how a religious corporation has responded to demographic aging and changing patterns of cemetery use in contemporary Japan. By combining six years of financial records with interviews, participant observation, and documentary analysis, the study investigated cemetery management as both an organizational practice and a religious activity.

The findings suggest that the challenges facing Shingi Reien cannot be explained simply by declining demand for traditional graves. Rather, demographic aging, changing family structures, population mobility, and evolving memorial preferences have together reshaped the social environment in which religious cemeteries operate. These broader social changes have influenced both the financial performance of the cemetery and the everyday responsibilities of the religious corporation.

One important finding is that the diversification of cemetery services, including perpetual memorial graves and tree burials, has expanded the range of options available to users but has not fundamentally altered the cemetery's financial structure. Throughout the study period, management fees remained the

principal source of stable income, while revenue generated through new cemetery services fluctuated considerably. The financial evidence therefore suggests that organizational continuity currently depends more on maintaining long-term relationships with existing users than on attracting large numbers of new customers.

The qualitative findings further indicate that cemetery management is understood within the organization as more than a financial activity. Interviews consistently showed that church personnel regarded cemetery maintenance as part of their religious responsibility toward families and local communities. Financial sustainability and religious commitment were therefore not viewed as competing objectives but as mutually related aspects of long-term organizational continuity.

Rather than presenting Shingi Reien as a model of successful organizational transformation, this case illustrates the gradual and ongoing process through which a religious corporation adjusts its practices while attempting to preserve its institutional identity. Organizational adaptation was not characterized by radical innovation or comprehensive restructuring. Instead, it developed incrementally through practical responses to demographic change and the everyday needs of cemetery users.

Returning to the five research questions that guided this study: the evidence suggests that demographic aging (RQ1) has affected Shingi Reien not only through declining demand for traditional graves but also through changing patterns of family continuity and memorial care. The organization's responses (RQ2) have been gradual and practical rather than strategically planned. The financial implications (RQ3) are visible in the growing dependence on management fee income and the limited contribution of new cemetery services. The balancing of religious mission and financial sustainability (RQ4) has been managed through incremental operational adjustments rather than through formal strategic reform. Nevertheless, significant challenges remain (RQ5), particularly the increasing burden of unattended graves and the uncertainty of future demand. These conclusions are developed in greater detail in the discussion presented in Section 5.

6.2 Theoretical Contributions

This study makes three contributions to the literature on organizational adaptation in religious and nonprofit settings.

First, the study extends institutional theory to a context that has received limited attention in previous research: cemetery management by sectarian Shinto religious corporations. While institutional theory has been widely applied to nonprofit organizations, the mechanisms through which demographic change creates institutional pressures for religious organizations have not been extensively examined. The Shinrikyō case illustrates how shifting family structures, declining birth rates, and changing memorial practices collectively generate pressures on religious corporations to adapt their service models, while simultaneously constraining the scope of possible adaptation through institutional identity and religious values.

Second, the study contributes to business model innovation theory by demonstrating that in the context of religious nonprofit organizations, service diversification does not necessarily lead to fundamental transformation of revenue structure. The Shinrikyō case shows that the introduction of new cemetery services (perpetual memorial graves, tree burials) expanded the service portfolio but did not alter the organization's underlying financial dependence on management fee income. This finding suggests that business model innovation in religious nonprofits should be understood not as a simple replacement of old practices with new ones, but as a gradual process in which existing revenue sources continue to play a central role even as new options are added.

Third, the study extends dynamic capabilities theory to a type of organization that has been relatively underexplored in the management literature. The case demonstrates that organizational adaptation in small religious nonprofits may occur through accumulated daily responses to operational challenges rather than through formal strategic planning. This observation suggests that dynamic capabilities in the religious nonprofit sector may take different forms from those described in the corporate context, and that future research should pay greater attention to the incremental and relational dimensions of adaptive capacity.

The study also offers an empirical contribution by providing a detailed longitudinal financial analysis of cemetery management in a sectarian Shinto organization, a case type that has been largely absent from previous research, which has predominantly focused on Buddhist institutions.

By making explicit the theoretical perspectives that inform the analysis and the contributions that emerge from the findings, this study situates the Shinrikyō case within broader discussions of organizational adaptation in the nonprofit sector while acknowledging the specific characteristics of religious corporations operating in an aging society.

6.3 Limitations and Future Research

Several limitations should be acknowledged.

First, this research focuses on a single religious corporation and one cemetery operated by Shinrikyō. Although the case provides detailed insight into business adaptation, the findings should not be interpreted as representative of all religious corporations or cemetery operators in Japan.

Second, the financial analysis was based on six consecutive years of organizational records. While this period makes it possible to identify important trends, longer-term observation would be valuable for examining whether recent organizational adjustments continue to influence financial sustainability over time.

Third, interview participants primarily consisted of church administrators and personnel involved in cemetery management. The perspectives of cemetery users, bereaved families, and younger generations were

not examined systematically. Future studies could therefore explore how different stakeholder groups perceive emerging forms of memorial care and cemetery management.

In addition, comparative research involving multiple religious organizations would contribute to a broader understanding of how different institutional traditions respond to demographic aging, changing burial practices, and financial challenges.

6.4 Final Reflection

The case of Shingi Reien suggests that demographic aging has changed not only the demand for cemetery services but also the social meaning of cemetery management itself. Increasingly, religious corporations are required to respond to practical concerns surrounding long-term grave maintenance, family mobility, and the continuity of memorial care.

At the same time, the findings indicate that organizational adaptation should not be understood solely in financial or managerial terms. Cemetery management remains closely connected with religious responsibility, community trust, and continuing relationships between religious organizations and the families they serve.

Ultimately, this study suggests that the future sustainability of religious cemeteries may depend less on introducing entirely new business models than on maintaining meaningful relationships with existing communities while gradually responding to changing social conditions. The experience of Shingi Reien therefore offers a grounded example of how organizational continuity and adaptation can coexist within a religious corporation facing the realities of an aging society.

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Appendix: Semi-Structured Interview Guide

Research Topic:

Religious Cemetery Management in an Aging Society: A Case Study of Shingi Reien, Shinrikyō Takayasu Church

Introduction to Participants

Thank you for agreeing to participate in this interview. The purpose of this study is to understand how Shingi Reien, operated by the Takayasu Church of Shinrikyō, has responded to demographic aging and changing patterns of cemetery use in contemporary Japan. The interview is expected to last approximately 40–60 minutes. Your participation is voluntary, and you may decline to answer any question or withdraw from the interview at any time without any negative consequences. With your permission, this interview will be audio-recorded solely for research purposes. All information will be anonymized, and no personally identifiable information will appear in the final dissertation.

Section A Participant Background

Purpose: To understand the participant's relationship with the cemetery and the religious organization.

Questions:

1) Could you briefly introduce your current role within Shinrikyō or Shingi Reien?

2) How long have you been involved with cemetery management or related activities?

3) What are your primary responsibilities?

4) How has your role changed over time?

Section B Changes in Cemetery Use

Purpose: To explore perceived demographic and social changes.

Questions:

5) How has cemetery use changed during your years of involvement?

6) Have you observed changes in the age or background of cemetery users?

7) What kinds of concerns do families most frequently express today?

8) Compared with the past, what changes have you noticed regarding traditional family graves?

Section C Cemetery Management and Organizational Responses

Purpose: To understand organizational adaptation.

Questions:

9) What major challenges does the cemetery currently face?

10) How has the church responded to these challenges?

11) Why were perpetual memorial graves introduced?

12) What motivated the introduction of tree burial services?

13) Have management practices changed in recent years?

14) How has communication with cemetery users changed?

Section D Financial Sustainability

Questions:

15) From your perspective, what are the major financial challenges facing cemetery management?

16) Which sources of income are currently the most important?

17) Have newer cemetery services contributed to financial sustainability?

18) How do management fees influence cemetery operation?

19) How does the church balance financial sustainability with religious responsibilities?

Section E Religious Mission and Cemetery Management

Questions:

20) What role does cemetery management play within Shinrikyō's religious activities?

21) How do you understand the relationship between religious practice and cemetery management?

22) In your opinion, has the meaning of cemetery management changed over time?

23) What responsibilities does the church have toward families after burial?

Section F Future Challenges

Questions:

24) What do you see as the greatest challenge for cemetery management over the next ten years?

25) How do you think demographic aging will influence cemetery operation?

26) Are there additional services that the cemetery may need to provide?

27) What would you most like younger generations to understand about cemetery management?

Closing

Questions:

28) Is there anything else you would like to share that we have not discussed?

Interview Question–Research Objective Matrix

The following matrix shows the correspondence between the five research questions (RQ1–RQ5) and the interview questions presented in the preceding Interview Guide.

These five research questions correspond to those stated in Section 1.3 of the main text.

Research Question	Interview Questions
RQ1. How has demographic aging affected cemetery management?	Q5–Q8
RQ2. How has the organization responded?	Q9–Q14
RQ3. What are the financial implications?	Q15–Q19
RQ4. How are religious mission and financial sustainability balanced?	Q19–Q23
RQ5. What challenges remain?	Q24–Q28

城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 271–294

Article

Differentiated Operations in China's Traditional Public Funds:

An Integrative Framework for Active-Equity and Fixed-Income Product Lines

中国の伝統的公募投資信託における差別化運用戦略

―アクティブ株式型ファンドと債券型ファンドの統合的分析枠組み―

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Abstract

Against the backdrop of low rates, NAV-based wealth-management products, equity-market volatility, and intensifying competition, traditional public fund products have again become a central field of competition in China's asset-management industry. Rather than equating differentiation with product proliferation or with a firm-wide dual-pillar strategy, this study develops a four-component framework linking product positioning, investment and research capability, channel-client fit, and risk control. The evidence combines Wind-based descriptive charts, selected cases from Fullgoal Fund, Invesco Great Wall Fund, E Fund, China Merchants Fund, and Tianhong Fund, and two foreign boundary cases, Woodford Equity Income Fund and Reserve Primary Fund. The analysis suggests that active-equity differentiation rests on stable style positioning and platform-based research; fixed-income-plus differentiation depends on explicit risk-return boundaries, clear classification rules, and drawdown control; medium- and long-duration pure-bond and passive bond products function primarily as allocation instruments; and retail short-duration bond products can be assessed through investor composition and channel fit. The contribution is comparative and mechanism-oriented: it clarifies the operating conditions, boundaries, and failure modes of differentiation in China's traditional public funds while remaining descriptive rather than causal.

Keywords: active-equity; fixed-income-plus; public funds; product differentiation; channel-client fit; risk control

1. Introduction

1.1 Research Background and Problem Statement

For an extended period, China's public fund industry was characterised by rapid product proliferation and competition for scale. The continued introduction of exchange-traded funds (ETFs), qualified domestic institutional investor (QDII) products, thematic funds, and other innovative instruments broadened the range of products available to fund managers. In recent years, however, changes in the market environment have returned traditional public fund products—including active-equity, fixed-income-plus, pure-bond, short-duration bond, and bond-index funds—to the centre of industry competition. Persistently low interest rates have compressed the returns available from deposits and pure-bond coupons. The transition of bank wealth-management products to net-asset-value-based valuation has weakened previous expectations of "stable, high returns." Equity-market volatility has increased investor attention to the holding experience and drawdown control, while regulatory priorities have increasingly emphasised investor returns, benchmark discipline, and long-term performance evaluation [9]. Under these conditions, traditional products have not lost their research significance amid the expansion of innovative offerings. Instead, they have become the principal arena in which fund managers must reorganise their investment and research resources, product matrices, risk-control systems, and client-service capabilities.

The renewed emphasis on traditional products does not mean that fund managers can succeed simply by "launching more products." Active-equity, fixed-income-plus, short-duration bond, and pure-bond funds are all well-established product categories. Their principal challenge is generally not insufficient supply but severe homogenisation. Active-equity products tend to emphasise investment and research capabilities; fixed-income-plus products highlight prudent return enhancement; short-duration bond funds stress low volatility; and pure-bond funds focus on stable allocation. However, merely establishing a presence in each category may not enable clients to understand the substantive differences among products. Distributors may still struggle to match appropriate products with suitable investors, while risk-management pressures may intensify as assets under management expand.

The central logic of this paper can be summarised as follows. The renewed importance of traditional products provides the basis for reconsidering differentiation. Differentiation among fund managers, however, is not primarily determined by the number of products offered. Its core lies in organisational alignment among product positioning, investment and research capabilities, distribution channels and client needs, and risk control. For active-equity products, the relevant questions are whether investment-style positioning is sufficiently clear, whether platform-based investment research can support sustained excess returns, and whether distributors can adequately explain equity-market volatility to clients. For fixed-income-plus products, the key issues are whether the boundaries of return enhancement are explicitly defined, whether credit-investment and multi-asset capabilities are aligned with product positioning, and whether drawdown and liquidity risks can be effectively controlled. For medium- and long-duration pure-bond funds, passive bond funds, and short-duration bond funds, the corresponding questions concern whether their

institutional-allocation functions, instrument-like attributes, and compatibility with retail distribution channels have been genuinely established.

1.2 Research Questions and Objectives

Accordingly, this paper defines its central research question as follows: in a market environment in which traditional public fund products have regained importance, industry homogenisation has intensified, and investor needs have become increasingly differentiated, how can fund managers build a differentiated operating system around the dual pillars of active equity and fixed income through clear product positioning, investment and research capabilities aligned with that positioning, effective matching between distribution channels and client needs, and stable risk control? Four interrelated sub-questions are examined. First, what investment needs are addressed by active-equity, fixed-income-plus, medium- and long-duration pure-bond, passive bond, and retail short-duration bond products, and how should their positioning reflect differences in risk–return characteristics and asset-allocation functions? Second, how should fund managers allocate investment and research resources, organise professional talent, and construct product matrices to ensure that the investment capabilities supporting active equity and different fixed-income products are consistent with their stated positioning? Third, how should fund managers adjust distribution channels and client services in accordance with investors' risk preferences, holding horizons, and liquidity needs, and how can information such as investor composition be used to assess channel–client fit? Fourth, how should fund managers establish risk-control mechanisms aligned with the risk characteristics of each product category and identify the conditions under which synergies between the two strategic pillars may weaken or fail as the market environment, organisational resources, or client composition changes?

2. Literature Review and Critical Assessment

2.1 Competition and Product Differentiation in the Public Fund Industry

Research on competition in the fund industry commonly focuses on fund size, fees, product supply, and distribution channels. International scholarship has long examined how fund fees, scale, distribution arrangements, and past performance influence investor choice. Sirri and Tufano demonstrate that fund flows respond non-linearly to past performance and that search costs and marketing channels significantly affect capital inflows [1]. Berk and Green explain the relationship among fund performance, capital flows, and managerial ability from an equilibrium perspective. They argue that inflows enable skilled managers to oversee larger pools of assets, while growth in scale may simultaneously reduce future excess returns [2]. This body of research indicates that competition among funds is not determined solely by the number of products offered. Investors' ability to identify a product's underlying capabilities and risk characteristics is equally important.

Product-differentiation theory provides another perspective from which to understand competition among fund managers. Porter's competitive-strategy framework identifies differentiation as an important means of avoiding competition based solely on price [3]. However, differentiation in fund products differs from

that in ordinary consumer goods. Fund investors purchase a composite promise involving future returns, risk exposures, managerial capability, and liquidity arrangements. When product positioning is unclear, investors may find it difficult to assess whether a product is compatible with their risk tolerance and intended holding period. When distribution practices emphasise return labels while downplaying risk disclosure, differentiation may remain a marketing distinction rather than becoming a substantive operational feature.

China's public fund market also differs from overseas markets in terms of its regulatory environment, distribution structure, and investor composition. Banks, securities firms, internet platforms, and fund managers' direct-sales channels jointly influence product issuance and client retention. Retail and institutional investors also differ in their expectations regarding returns, volatility, duration, liquidity, and information disclosure. Consequently, overseas findings on fund competition and product differentiation cannot be directly transferred to the Chinese market. The central concern of this paper is therefore how fund managers can align product positioning, investment and research capabilities, distribution channels and client needs, and risk control as traditional public fund products regain importance in China.

Within China's institutional context, the operation of public fund products is primarily constrained by the Securities Investment Fund Law of the People's Republic of China and by regulatory rules governing the operation, distribution, information disclosure, and liquidity-risk management of publicly offered securities investment funds [4–8]. Although these institutional documents do not directly provide a theoretical explanation of differentiated operations among fund managers, they define the fundamental boundaries of product operation, sales suitability, information disclosure, liquidity-risk management, and investor protection. The Action Plan for Promoting the High-Quality Development of Public Funds further connects investor returns, long-term performance presentation, the regulation of sales conduct, and the high-quality development of the industry [9]. Market data continuously disclosed by the Asset Management Association of China provide a public statistical basis for examining industry scale, product structure, and market changes [10]. Accordingly, this paper treats overseas fund research as a theoretical reference, Chinese laws, regulatory priorities, and industry data as the institutional context, and domestic success cases and international mechanism-failure cases as evidence within a unified analytical framework. This approach enables the simultaneous consideration of institutional constraints, organisational capabilities, product operations, and risk boundaries, thereby avoiding the direct generalisation of isolated success cases into industry-wide regularities.

Domestic research on open-end fund flows, investor behaviour, and fund performance provides more direct evidence from the Chinese market. Lu et al. were among the first to examine the unusual redemption behaviour of Chinese open-end funds and the relationship between fund performance and investor choice [11]. Xiao and Shi further test the performance–flow relationship and offer an alternative interpretation of whether a "redemption anomaly" exists [12]. Liu et al. investigate the phenomenon whereby "funds make money while fund investors do not", focusing on perceived performance persistence and investor

behaviour [13]. Li and Liu approach the issue through changes in net fund flows, examining the relationship between investor decision-making and the structure of fund performance [14]. Zhang et al. link fund size, investor attention, and performance persistence, arguing that net inflows may affect subsequent performance through diseconomies of scale [15]. Collectively, these studies demonstrate that competition in China's public fund industry cannot be evaluated solely by growth in net asset value. Actual investor behaviour, capital inflows and outflows, scale expansion, and the investor holding experience must also be considered.

2.2 Active-Management Capability, Fund Performance, and Scale Constraints

Research on active management examines managerial skill, performance persistence, scale effects, and style exposure. Carhart's study of persistence in mutual fund performance suggests that observed performance should be decomposed into risk-factor exposure, fees, and persistent managerial skill [16]. Chen, Hong, Huang, and Kubik further analyse how increases in fund size affect active-management performance, arguing that liquidity constraints and organisational complexity may weaken investment capability following scale expansion [17]. Pástor, Stambaugh, and Taylor examine the relationship between scale and skill at the level of the active-management industry as a whole [18]. Taken together, these studies suggest that the competitiveness of active-equity products cannot be explained solely by short-term performance rankings. Fund managers must also demonstrate that their investment and research capabilities are sustainable, capable of accommodating asset growth, and not excessively dependent on individual portfolio managers.

Active management in fixed-income products has distinct characteristics. Sources of fixed-income returns include not only coupon income and duration exposure, but also credit spreads, convertible bonds, equity-based return enhancement, and liquidity management. Compared with investors in active-equity products, fixed-income investors generally attach greater importance to drawdowns, fluctuations in net asset value, credit risk, and redemption arrangements. Goldstein, Jiang, and Ng examine investor flows and fragility in corporate-bond funds, demonstrating that the interaction between illiquid underlying assets and the redemption mechanisms of open-end funds can amplify financial risk [19]. China's regulatory provisions on liquidity-risk management for open-end funds likewise impose institutional constraints on large-scale redemptions, liquidity-restricted assets, swing pricing, and the equitable protection of investors [8]. These findings are relevant to fixed-income-plus, medium- and long-duration pure-bond, and short-duration bond products alike: risk–return boundaries, the liquidity of underlying assets, and investor expectations must remain mutually consistent.

Existing research on active management primarily focuses on individual funds, portfolio managers, or fund performance, while devoting comparatively limited attention to product matrices and organisational capabilities at the fund-manager level. This paper therefore places active equity and fixed income within a common analytical framework, not to determine which product category is superior, but to explain why the two pillars require distinct investment and research capabilities, channel–client arrangements, and risk-control mechanisms.

2.3 Strategic Positioning and Organisational Capabilities of Fund Managers

The resource-based view holds that competitive advantage derives from resources that are valuable, scarce, difficult to imitate, and effectively deployed within the organisation [20]. Dynamic-capabilities theory further emphasises that firms must integrate, develop, and reconfigure their resources in response to changes in the external environment [21]. For fund managers, key resources include portfolio managers, research teams, credit-research systems, risk-management processes, distribution resources, client trust, data infrastructure, and product-development capabilities. However, these resources do not automatically generate differentiation. Competitive advantage emerges only when they are aligned with product positioning and transformed through organisational processes into stable investment, operational, and client-service capabilities.

The strategic positioning of fund managers is also shaped by their shareholder background, historical accumulation of expertise, talent structure, and distribution capabilities. Equity-oriented firms may be better positioned to develop active-equity style matrices and platform-based investment-research systems. Fixed-income-oriented firms may be more suited to building their businesses around credit research, duration management, and low-volatility products. Channel-oriented firms may possess advantages in retail short-duration bond funds, low-volatility fixed-income-plus products, and minimum-holding-period products. For small and medium-sized fund managers, mechanically replicating the full-category product structures of leading firms may dilute scarce resources, whereas concentrating on a specialised product line may create clearer positioning and stronger capability accumulation. Existing research provides insufficient analysis of the organisational capabilities of fund managers. Many industry studies identify institutions with greater scale, broader product offerings, or stronger short-term performance as industry "benchmarks" without adequately explaining the resource configurations, organisational mechanisms, and risk-control systems that generate these advantages or determining whether the corresponding development paths are replicable. This paper therefore seeks to move institutional case analysis beyond the descriptive question of "who performs well" towards the explanatory questions of why particular institutions perform well, under what conditions their advantages can be sustained, and whether their operating models can be transferred to other fund managers. A related mutual-fund-family literature is also relevant. Khorana and Servaes study mutual fund starts; Massa shows how family strategy, product differentiation, and fund proliferation interact; Nanda, Wang, and Zheng examine star spillovers across fund families; Gaspar, Massa, and Matos document strategic cross-fund subsidization; Wahal and Wang measure competition through portfolio overlap; and Musto reviews family-level concerns in mutual fund analysis [25-30]. These studies imply that competition often occurs at the family or product-line level, but they do not directly explain how Chinese public fund managers coordinate active-equity and fixed-income businesses within one operating system.

2.4 Product Operations, Channel Fit, and Investor Behaviour

Fund-product operations involve not only the investment side but also the client side. Investors' product choices are shaped by their risk preferences, return expectations, intended holding periods, and liquidity

requirements. Clients investing in active-equity products must understand equity-market volatility and style exposure. Investors in fixed-income-plus products must recognise that return enhancement does not imply guaranteed returns. Retail investors in short-duration bond funds generally attach greater importance to low volatility and the subscription and redemption experience, whereas institutional investors in pure-bond funds place greater emphasis on duration exposure, liquidity, and portfolio-allocation functions.

Distribution channels play a dual role in fund operations. On the one hand, they reduce investors' search costs and enable products to reach their intended client groups. On the other hand, when sales practices are inconsistent with a product's risk characteristics, distribution channels may create mismatches between investor expectations and actual product performance. For retail short-duration bond funds, investor composition can be used to assess whether effective channel–client fit has been achieved. For fixed-income-plus products, risk exposure, drawdown control, and clients' risk-bearing capacity must be mutually aligned. For active-equity products, distribution channels should explain investment style, volatility, and appropriate holding periods rather than merely presenting historical performance.

Accordingly, this paper argues that product differentiation acquires substantive operational significance only when it is established on both the investment and client sides. Product positioning, investment and research capabilities, distribution channels and client needs, and risk control must be aligned simultaneously. If any component of this operating chain fails, differentiation may be reduced to differences in product naming, marketing language, or short-term performance.

2.5 Critical Assessment of the Literature and Contributions of This Paper

In summary, the existing literature provides three principal foundations for this study. Research on fund flows and performance explains the relationships among investment capability, fund scale, and investor behaviour. The resource-based view and dynamic-capabilities theory explain why fund managers may develop heterogeneous organisational capabilities. Research on product differentiation and investor behaviour suggests that differences are economically meaningful only when investors can understand them and are willing and able to bear the associated risks. Nevertheless, several important gaps remain. First, many studies focus on individual funds, portfolio managers, or single product categories and rarely examine the coordination of active-equity and fixed-income businesses from the perspective of a fund manager's overall strategy. Second, active-equity and fixed-income products are generally analysed separately, with limited attention paid to their shared operating mechanisms. Third, the literature seldom explains why different fund managers select different development paths or how these choices are shaped by their resource endowments and organisational capabilities. Fourth, narratives centred on favourable cases and scale outcomes are susceptible to survivorship bias and often devote insufficient attention to mechanism failure and boundary conditions. Fifth, China's public fund market differs from overseas markets in terms of regulation, distribution structures, and investor composition, requiring international findings to be reinterpreted within the domestic institutional context. This paper extends the existing literature

in three respects. First, it shifts the level of analysis from individual funds and their performance to the overall operating systems of fund managers, with particular attention to coordination between active-equity and fixed-income businesses. Second, it explains the formation of differentiated operations through the alignment of product positioning, investment and research capabilities, channel–client fit, and risk control. Third, it integrates China's institutional environment with domestic and international cases to identify the applicable conditions, organisational requirements, and failure boundaries of different operating paths.

3. Theoretical Foundations and Analytical Framework

3.1 Definition of Core Concepts

In this paper, "traditional public fund products" refers mainly to active-equity, fixed-income-plus, medium- and long-duration pure-bond, passive bond, and short-duration pure-bond funds. The term is used as a descriptive umbrella for mature product lines in China's public fund market, not as a statutory category or a claim that every manager must offer each product type.

The phrase "two operating pillars" denotes the possibility that a manager may combine active-equity and fixed-income businesses within one organization; it does not assume that such a combination is universal or superior. The active-equity pillar emphasizes style positioning, platform-based research, portfolio-manager succession, and equity-risk management. The fixed-income pillar covers fixed-income-plus, pure-bond, passive bond, and short-duration bond products, with stronger emphasis on credit research, duration management, return-boundary setting, liquidity arrangements, and investor composition.

Differentiated operations refer to an observable state in which product positioning, investment and research capabilities, distribution channels and client needs, and risk control remain aligned over time. In other words, differentiation is not merely a label or a product count; it is visible when mandate, client base, realized risk exposure, and operating resources remain coherent. A product that promises stability but carries excessive risk, a retail product that depends heavily on institutional funding, or an active-equity product that repeatedly chases themes despite claiming style discipline has not achieved genuine differentiation.

3.2 Mechanism Framework and Research Propositions

This paper decomposes differentiated operations in traditional public funds into four interconnected components: product positioning, investment and research capabilities, distribution channels and clients, and risk control. The components are ordered because positioning defines the promised risk-return function, capability determines whether the promise can be delivered, channel-client fit determines whether the intended investor base understands and accepts the product, and risk control determines whether the positioning can be sustained under market stress. Differentiation is therefore treated as an outcome that can be observed through mandate-client consistency, persistent style discipline, and stable risk exposure, while alignment across the four components is treated as the mechanism that produces that outcome.

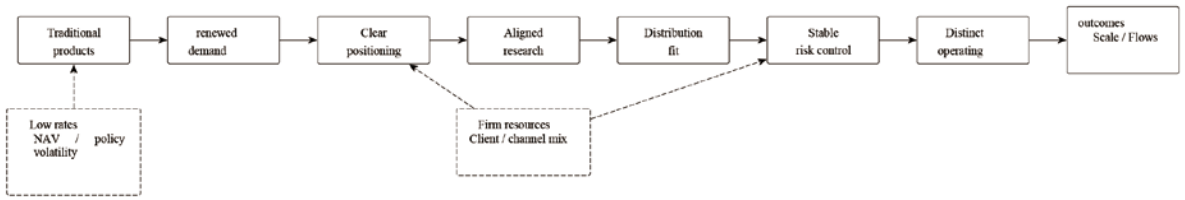

Figure 3-1. Four-Component Mechanism Framework for Differentiated Operations

On the basis of this framework, four research propositions are advanced. Proposition 1: At the fund-product level, differentiation is observable when the product's mandate, client composition, operating resources, and realized risk exposure remain consistent over time; alignment among product positioning, investment and research capabilities, distribution channels and clients, and risk control is the mechanism that explains that outcome. Proposition 2: At the product-line level, active-equity products depend more heavily on investment-style stability, platform-based investment research, and portfolio-manager succession, whereas fixed-income products depend more heavily on credit research, duration management, liquidity management, and clearly defined risk-return boundaries. Proposition 3: At the distribution level, channel-client fit is a mechanism through which product differentiation is converted into fund flows and client retention, and investor composition can provide observable evidence of whether that fit has been achieved. Proposition 4: At the case-comparison level, when product positioning, underlying assets, distribution practices, and risk-control mechanisms become disconnected, differentiation may break down and produce redemption pressure, liquidity stress, or reputational damage.

4. Research Design

4.1 Research Objects and Sources of Evidence

This paper examines differentiated operations in active-equity and fixed-income product lines among traditional Chinese public fund managers. The evidence is drawn from exhibit-specific Wind extracts, public disclosures, and selected fund-house cases. The unit of analysis varies by exhibit: Figure 5-1 uses fund-product observations, Tables 5-2 and 5-3 use manager-level AUM rankings, Figure 5-5 uses holdings composition, the domestic cases trace fund-house/product-line mechanisms, and the international cases operate at the fund level. Each inference is confined to the level at which the evidence is observed. The observation windows used in each exhibit are reported in the relevant captions and summarized in Appendix A.

4.2 Rationale for Case Selection

The domestic case institutions are purposively selected illustrative cases, not a statistically representative sample. They were chosen because their public materials show relatively clear alignments between product positioning, operating capabilities, channel arrangement, and risk control, which makes them suitable for tracing mechanisms rather than for estimating average effects. Fullgoal Fund and Invesco Great Wall Fund are used primarily to examine investment-style positioning, platform-based investment research, and risk control in active-equity products. E Fund and China Merchants Fund are used mainly to examine

risk-return stratification, drawdown control, and cross-asset capabilities in fixed-income-plus products. Tianhong Fund and China Merchants Fund are used to assess investor composition and channel-client fit in the retail short-duration bond segment.

In this paper, case inclusion denotes visible mechanism alignment rather than simple scale or short-term performance. The domestic cases are treated as illustrative cases whose public disclosures and observed product patterns suggest coherent positioning, stable operating chains, and manageable risk exposure. They are not presented as proof that the same model is superior, universal, or directly transferable to smaller managers. Moreover, descriptions of internal assessment systems, investment-research structures, and risk-control processes require further corroboration through public announcements, periodic fund reports, interviews, or regulatory materials; accordingly, the paper treats them as plausible mechanisms rather than fully verified internal facts.

The Woodford Equity Income Fund and the Reserve Primary Fund are selected as international boundary cases because they show how operating mechanisms can break down when product positioning, underlying assets, investor expectations, and risk control diverge. The former illustrates a mismatch between open-end redemption commitments and illiquid assets; the latter illustrates a mismatch between low-risk positioning and actual credit-risk exposure. Because these cases come from different jurisdictions and a different level of analysis, they are used only to illustrate boundary conditions, not to support direct institutional transplantation or matched comparison.

4.3 Evidentiary Boundaries and Additional Data Requirements

The evidentiary boundaries of this study are explicit. The Wind-based charts and product-level data support trend identification, case interpretation, and mechanism-based inference, but not causal identification. The paper also separates levels of evidence: fund-product data support Propositions 1 and 3, product-line and manager-level data support Proposition 2, and the domestic and foreign cases support Proposition 4.

A future fund-manager-year panel could test the association between balance across product lines and outcomes such as assets under management, fund flows, and performance. A fund-quarter or fund-month panel could test product positioning, risk exposure, portfolio-manager stability, and investor composition. In the absence of a rigorous identification strategy, however, any findings should be described as correlations or as evidence consistent with the proposed mechanisms rather than as causal proof.

5. Mechanisms of Differentiated Operations across Active-Equity and Fixed-Income Product Lines

5.1 Active-Equity Products: From Performance Appeal to Style Discipline and Platform-Based Capabilities

Active-equity products remain important because equity assets continue to represent a major source of

long-term returns for public funds. However, as equity-market styles rotate more rapidly and investors' holding experiences become increasingly divergent, active-equity funds can no longer compete solely on the basis of short-term performance rankings. Their positioning must extend beyond the generic objective of "seeking returns" and clearly specify the investment style, sphere of competence, and investment process through which long-term risk-adjusted returns are pursued.

When investors purchase active-equity funds, they are effectively purchasing an identifiable and interpretable combination of style exposures and management capabilities. Growth, value, consumer, technology, high-prosperity-sector, and balanced strategies are not inherently superior or inferior to one another. The key consideration is whether the fund contract, performance benchmark, portfolio composition, and portfolio manager's sphere of competence are mutually consistent. Frequent style drift may enable a fund to follow short-term market themes, but over the longer term it weakens investors' understanding of the product's positioning and increases the gap between expected and realised exposure.

Funds in higher annual-return intervals generally exhibit stronger share growth than funds with negative or low positive returns. Because the figure is based on annual return intervals rather than percentile ranks, the result is best read as a descriptive association between realized return and changes in shares outstanding rather than as a causal estimate.

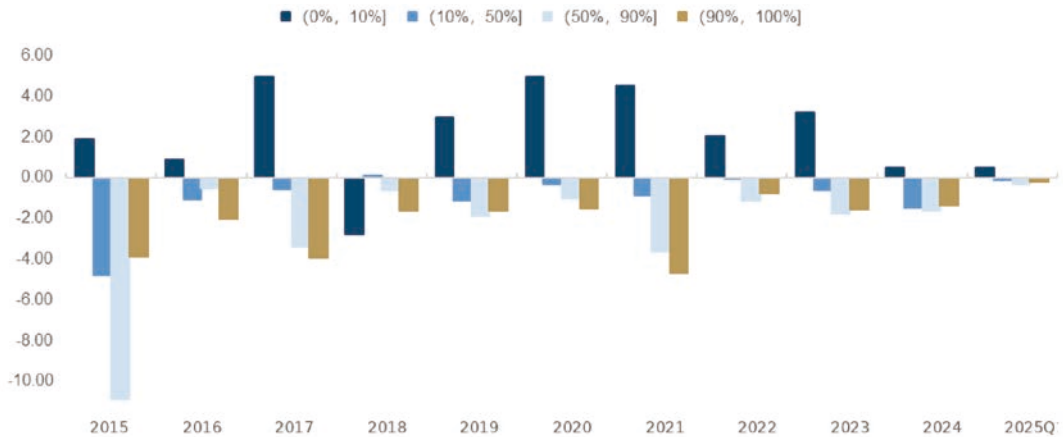

Figure 5-1. Average Share Growth of Active-Equity Funds by Annual Return Interval

Note: The figure reports mean share growth, measured as the change in shares outstanding and expressed in units of 100 million shares, by annual return interval. The intervals are <0%, 0%-10%, 10%-50%, 50%-90%, and >90%; the >90% group refers to funds whose annual return exceeded 90%, not to the highest-return decile. For full-year observations, share growth equals shares outstanding at year-end minus shares outstanding at the previous year-end; for 2025, it equals shares outstanding on 31 March 2025 minus shares outstanding on 31 December 2024. The supplied aggregate workbook reports group means only, so fund-level counts and within-group dispersion are not recoverable from that file.

Figure 5-1 shows that, in most of the observed years, active-equity funds with higher return rankings recorded relatively greater average share growth, whereas funds in lower-ranking intervals were more likely to experience declines in shares outstanding. This pattern provides descriptive evidence consistent with the proposition that active-equity products require investment and research capabilities capable of

supporting both client retention and scale growth. However, variations across years also indicate that share growth is not determined by performance rankings alone. Market sentiment, distributor recommendations, portfolio-manager reputation, product age, and initial fund size may all influence changes in shares outstanding. The figure therefore shows a descriptive association between realized return and share growth, but it should not be interpreted as direct evidence of causality.

The Fullgoal Fund case further illustrates that differentiation in active equity cannot depend solely on a single star portfolio manager. The relevant data and case materials indicate that Fullgoal established three investment and research platforms covering equity, fixed income, and quantitative strategies, while also developing a relatively comprehensive talent pipeline across its equity investment and research departments. This paper interprets this arrangement as a platform-based investment-research mechanism in which research coverage, cross-industry comparison, strategic continuity, and portfolio-manager succession jointly support the sustainable operation of active-equity products. A platform-based structure does not diminish the importance of individual portfolio-manager skill; rather, it reduces the firm's excessive dependence on particular individuals and strengthens the continuity of its investment capabilities.

The Invesco Great Wall Fund case illustrates the importance of style discipline. The relevant data and case materials describe the use of periodic portfolio reviews, Brinson performance attribution, comparisons between portfolio style and benchmark exposures, and medium- to long-term performance assessment to constrain style drift. These mechanisms help maintain consistency between portfolio behaviour and stated product positioning, thereby reducing the gap between investor expectations and actual investment practices.

The differentiation mechanism for active-equity products can therefore be summarised as follows: clear style positioning → support from platform-based investment research → distribution channels capable of explaining volatility → controllable style risk. If any of these links is absent, differentiation in active-equity products may readily deteriorate into short-term performance-ranking competition or marketing centred on star portfolio managers.

5.2 Fixed-Income-Plus Products: From Prudent Substitution to the Management of Risk–Return Boundaries

The renewed interest in fixed-income-plus products primarily reflects investors' demand for relatively stable returns amid declining interest rates and the transition of wealth-management products to NAV-based valuation. As the return potential of deposits and pure-bond coupons has narrowed, some investors have sought incremental return enhancement while maintaining relatively low volatility. At the same time, heightened equity-market volatility has made these investors more sensitive to drawdowns. Fixed-income-plus products therefore cannot be positioned merely as offering "higher returns than pure-bond funds"; they must clearly specify the sources of return enhancement, the extent of equity or convertible-bond exposure, acceptable drawdown levels, and the appropriate holding period.

For this paper, fixed-income-plus is an operational label covering primary bond funds, secondary bond funds, bond-oriented hybrid funds, and convertible-bond funds. Because market classifications and database labels are not fully standardized, the category is defined ex ante for descriptive comparison rather than treated as a formal regulatory taxonomy. The AUM ranking shown below therefore compares managers within the same analytical frame, not within a perfectly standardized market class.

Table 5-2. Top 10 Fixed-Income-Plus Fund Managers by Assets under Management (RMB 100 Million, 2021-2025Q1 Snapshot)

Rank	2025Q1	AUM	2024	AUM	2023	AUM	2022	AUM	2021	AUM
1	E Fund	1924.84	E Fund	1829.40	E Fund	2027.51	E Fund	2505.49	E Fund	4191.39
2	China Merchants Fund	1216.42	China Merchants Fund	1245.47	China Merchants Fund	1379.54	China Merchants Fund	1462.76	China Merchants Fund	1618.92
3	GF Fund	797.34	GF Fund	813.25	Fullgoal Fund	877.02	GF Fund	1031.78	Southern Fund	1163.41
4	China Universal	771.37	ChinaAMC	752.06	GF Fund	873.85	Fullgoal Fund	970.28	Penghua Fund	1134.03
5	ChinaAMC	767.82	China Universal	698.66	Tianhong Fund	723.68	Penghua Fund	899.01	GF Fund	1096.29
6	Fullgoal Fund	745.27	Fullgoal Fund	611.62	Southern Fund	654.48	Tianhong Fund	874.04	Fullgoal Fund	1018.37
7	Invesco Great Wall	745.14	Invesco Great Wall	578.77	China Universal	610.36	Southern Fund	743.04	China Universal	960.89
8	Southern Fund	537.73	Tianhong Fund	543.82	Penghua Fund	575.70	China Universal	709.08	Tianhong Fund	932.15
9	Tianhong Fund	535.81	Penghua Fund	476.63	Invesco Great Wall	524.40	Invesco Great Wall	679.59	ICBC Credit Suisse	889.87
10	Penghua Fund	519.93	Southern Fund	463.87	ChinaAMC	500.02	ICBC Credit Suisse	637.20	Invesco Great Wall	654.38

Note: Data are sourced from Wind as of 31 March 2025. AUM growth is calculated as 2025Q1 AUM minus the last available 2024 AUM observation. For funds launched in 2024, the figure includes post-launch asset accumulation and should not be interpreted as the same type of organic growth observed in mature funds. The sample includes primary bond funds, secondary bond funds, bond-oriented hybrid funds, and convertible-bond funds. Because the classification is analytical rather than regulatory, readers should treat the ranking as descriptive. A formal study should further standardize the classification rules, explicitly distinguish year-end from Q1 snapshots, and combine share classes into manager-level AUM where the source reports them separately.

E Fund represents a broad product matrix. Its fixed-income-plus products with assets under management exceeding RMB 10 billion span primary and secondary bond funds and vary substantially in equity and convertible-bond exposure. This means the products do not share a uniform risk level; rather, their different exposures create a tiered risk-return structure. China Merchants Fund represents a more absolute-return and low-volatility orientation.

The principal risk associated with fixed-income-plus products is a mismatch among stated positioning,

underlying exposures, and client expectations. If investors treat a fixed-income-plus product as equivalent to bank wealth-management while actually bearing substantial equity or convertible-bond exposure, market drawdowns can quickly undermine trust. Differentiation in fixed-income-plus products should therefore follow the chain: clearly defined prudent-enhancement positioning -> aligned credit, convertible-bond, and equity research capabilities -> compatibility with stability-oriented clients -> controllable drawdown and liquidity risk.

5.3 Medium- and Long-Duration Pure-Bond and Passive Bond Funds: Institutional Differentiation through Allocation Functions

Unlike fixed-income-plus funds, medium- and long-duration pure-bond funds are positioned more directly as institutional allocation vehicles, duration-management instruments, and sources of bond-market returns. Table 5-3 presents medium- and long-duration pure-bond funds whose assets under management increased by more than RMB 10 billion from the 2024 baseline to the 2025Q1 snapshot. Although such growth does not directly prove the superiority of a particular investment strategy, it suggests that differentiation among pure-bond products is closely associated with their institutional allocation functions. Institutional clients generally invest in these funds to manage duration exposure, liquidity, credit risk, and the stability of portfolio returns, rather than simply to pursue short-term performance rankings.

Table 5-3. Pure-Bond Funds with AUM Growth Exceeding RMB 10 Billion from the 2024 Baseline to 2025Q1

Security Code	Fund Name	Portfolio Manager(s)	Inception Date	2025Q1 AUM (RMB 100m)	AUM Growth from 2024 Baseline to 2025Q1 (RMB 100m)
021386.OF	Tianhong Youxuan A	Chen Min, Peng Wei	2024/7/4	236.11	220.94
020741.OF	Huatai Baoxing Anyue A	Zhou Yongmei, Ye Xiaochong	2024/2/6	179.49	169.10
004042.OF	ChinaAMC Dingmao A	Zhang Haijing	2017/3/15	265.14	159.15
270048.OF	GF Pure Bond A	Song Qianqian	2012/12/12	282.91	134.11
022298.OF	Xinyuan Qifeng	Xu Huan	2024/12/17	122.93	122.93
166016.OF	Zhong Ou Pure Bond C	Zhao Guoying	2013/1/31	123.65	113.58
021160.OF	HuaAn Hongfu Policy Bank Bond	Zheng Kecheng	2024/9/27	104.96	104.96
010232.OF	China Life AMP Taian Pure Bond	Li Qian	2020/12/16	215.98	104.96

Note: Data are sourced from Wind as of 31 March 2025. AUM growth is calculated as 2025Q1 AUM minus the last available 2024 AUM observation. For funds launched in 2024, the figure includes post-launch asset accumulation and should not be interpreted as the same type of organic growth observed in mature funds.

Passive bond funds represent another response to institutional and instrument-oriented investment demand. At the end of the first quarter of 2025, passive bond funds had aggregate assets under management of RMB 1.24 trillion, accounting for 12.35% of total bond-fund assets. Figure 5-4 has two panels: Panel A shows the scale of Fullgoal's passive bond funds, and Panel B shows the ChinaBond 7-10-Year

Policy Bank Bond ETF. The underlying series mix year-end observations through 2024 with a 2025Q1 snapshot, so the figure should be read as a descriptive comparison rather than a like-for-like annual series.

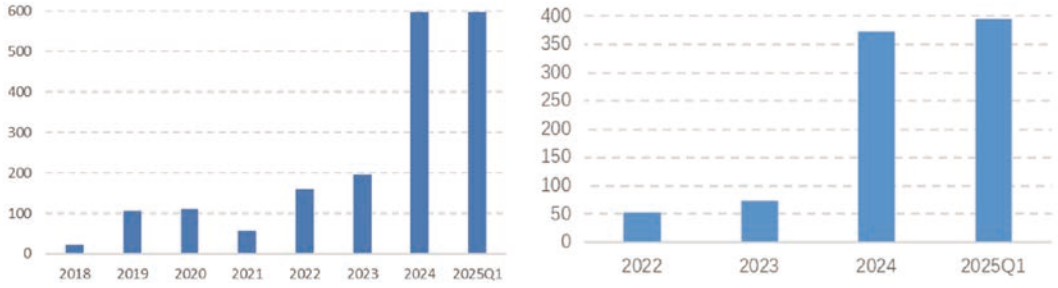

Figure 5-4. Scale of Fullgoal's Passive Bond Funds and Policy Bank Bond ETF (Panels A and B)

Note: The figure presents changes in the scale of Fullgoal's passive bond funds and the Fullgoal ChinaBond 7-10-Year Policy Bank Bond ETF, measured in RMB 100 million. Data source: Wind, as of 31 March 2025.

Figure 5-4 suggests that passive bond products occupy a distinct instrument-like position within the fixed-income space, with low fees, transparent portfolio exposure, and trading convenience as key differentiators. Read alongside the fixed-income-plus evidence, the figure shows that the fixed-income pillar contains more than one operating logic.

5.4 Retail Short-Duration Bond Funds: Validating Channel Fit through Investor Composition

Renewed interest in short-duration bond products reflects household demand for prudent wealth management and liquidity management. Unlike medium- and long-duration pure-bond funds, which are more strongly oriented towards institutional allocation, short-duration bond funds often fulfil retail functions such as cash management, low-volatility investment, and partial substitution for bank wealth-management products. Their differentiation therefore depends not only on yield, but also on maturity design, fluctuations in net asset value, credit screening, and investor composition.

At 31 December 2024, retail investors accounted for approximately 11% of total shares in bond funds overall and about 52% of shares in short-duration pure-bond funds. Bond funds as a whole were therefore still predominantly institutionally held, whereas short-duration bond products exhibited a much stronger retail orientation.

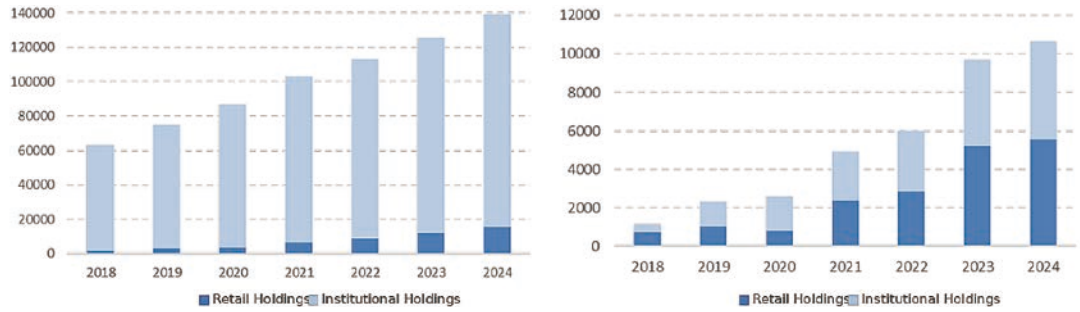

Figure 5-5. Investor Holdings in Bond Funds and Short-Duration Pure-Bond Funds (31 December 2024)

Note: The charts present investor holdings as of 31 December 2024, measured in 100 million shares. Retail and institutional holdings are shown as reported by Wind; the comparison is descriptive and does not imply that the same proportions hold in every year.

Figure 5-5 compares the investor composition of bond funds overall with that of short-duration pure-bond funds. Bond funds as a whole remain predominantly held by institutional investors, whereas retail holdings are more pronounced in short-duration pure-bond funds, providing descriptive evidence of their stronger retail orientation. Differentiation in this segment is therefore not captured by the label "short duration" alone; it depends on maturity design, NAV volatility, distribution-channel explanation, and investor composition. Where retail investors account for a high proportion of holdings, fund managers must place greater emphasis on subscription and redemption experience, clear risk disclosure, and liability-side liquidity management. Where institutional ownership is relatively high, the risk of concentrated redemptions and portfolio liquidity pressure becomes more acute.

The Tianhong Fund case provides further evidence of this pattern. At the end of the first quarter of 2025, Tianhong managed 11 short-duration pure-bond funds with aggregate AUM of RMB 31.9 billion, and retail investors accounted for more than 90% of holdings in several products. China Merchants Fund showed a similar pattern. At the same date, it managed 12 short-duration pure-bond funds with aggregate AUM of RMB 31.3 billion. Retail investors accounted for more than 90% of holdings in several products, although some funds had relatively high institutional ownership. This variation indicates that short-duration bond products managed by the same firm may serve different client groups and fulfil different allocation functions. The differentiation mechanism for retail short-duration bond funds can therefore be summarised as follows: clearly identified retail demand for stability and liquidity -> aligned short-duration management and credit-screening capabilities -> compatibility with bank, internet-platform, and direct-sales channels -> stable subscription, redemption, and liquidity management. Investor composition is important because it provides observable evidence of whether a product has genuinely reached its intended client group rather than merely adopting a particular product name or marketing narrative.

6. Comparative Cases and Boundary Conditions

6.1 Mechanism Comparison among Illustrative Domestic Cases

The domestic cases are illustrative cases of mechanism alignment at the fund-manager/product-line level

rather than a statistically representative sample. Fullgoal and Invesco Great Wall illustrate active-equity differentiation; E Fund and China Merchants Fund illustrate fixed-income-plus differentiation; and Tianhong illustrates retail short-duration bond differentiation. Taken together, these cases suggest that advantage arises from coherent positioning, capability, channel arrangement, and risk control, not from scale alone.

Table 6-1. Comparison of Operating Mechanisms across Illustrative Domestic Cases

Case	Product Positioning	Alignment of Investment and Research Capabilities	Channel–Client Fit	Key Risk-Control Focus	Support for the Main Argument
Fullgoal Fund	Platform-based active equity and coordination across product lines	Equity, fixed-income, and quantitative platforms supported by broad research coverage	Long-term products and a differentiated style matrix serve distinct groups of equity investors	Portfolio-manager succession and platform-based capabilities reduce dependence on individual managers	Differentiation rests on platform capabilities rather than solely on star portfolio managers
Invesco Great Wall Fund	Clearly defined active-equity style labels	Clearly delineated areas of style competence and systematic portfolio-review mechanisms	Style labels enable clients to form clearer expectations regarding portfolio allocation and risk exposure	Control of style drift and resistance to pressure from short-term performance rankings	Differentiation requires stable and credible product positioning
E Fund	Full-spectrum risk stratification in fixed-income-plus products	Coordination among multi-asset, credit, convertible-bond, and strategy teams	Product coverage addresses fixed-income-plus clients with different risk preferences	Explicit limits on equity and convertible-bond exposures	Differentiation arises from clear risk stratification rather than merely from a larger number of products
China Merchants Fund	Absolute-return and low-volatility positioning in fixed-income-plus products	Dual equity–bond management capabilities supported by a high-grade credit base	Targets demand for prudent alternatives to traditional wealth-management products	Drawdown control and constraints on deterioration in credit quality	Fixed-income-plus products require stable positioning supported by corresponding capabilities
Tianhong Fund	Retail short-duration bond products and prudent cash-management alternatives	Short-duration management, credit screening, and liquidity-management capabilities	High retail ownership is consistent with retail-oriented distribution	Liability-side management, purchase restrictions, and risk disclosure	Channel–client fit should be validated through investor composition

For small and medium-sized fund managers, these findings imply that mechanically replicating the full-category product structures of leading firms is unnecessary and may be counterproductive. Where organisational resources are insufficient to support multiple complete operating chains, a firm should first establish clear positioning, corresponding capabilities, appropriate distribution arrangements, and effective risk control within a single product line rather than prioritizing expansion in product count.

6.2 International Boundary Cases and Mechanism Breakdown

To avoid treating the domestic illustrations as universal templates, this paper adds two international boundary cases. Their institutional environments differ from China's public fund market, so direct analogy is inappropriate. They nevertheless show how differentiation can become a source of fragility when product positioning, investment and research capabilities, distribution arrangements, client expectations, and risk control become disconnected. The domestic examples are fund-manager/product-line cases, whereas the international cases are fund-level events; the comparison is therefore illustrative rather than directly matched.

Table 6-2. Comparison of Mechanism Failures in International Boundary Cases

Fund	Year	Event	Risk-Matching Problem	Nature of the Mismatch	Implication/Lesson
Woodford Equity Income Fund	2019	Suspension of redemptions followed by liquidation	Product positioning was inconsistent with liquidity risk	Open-end redemption commitments conflicted with significant allocations to relatively illiquid assets	Active-management style and star-manager reputation cannot substitute for effective liquidity management
Reserve Primary Fund	2008	The fund "broke the buck", triggering severe redemption pressure	Low-risk positioning was inconsistent with actual credit-risk exposure	Credit losses undermined investors' expectations of stable net asset value in a money-market fund	Low-risk products require particularly strong credit-risk control, liquidity management, and expectation management

The Woodford Equity Income Fund case illustrates that when a product is presented to clients as an open-end and readily redeemable investment vehicle, the liquidity of its underlying assets and its risk-control arrangements must be capable of supporting that commitment [22]. The Reserve Primary Fund case shows that the lower the stated risk profile of a product, the greater its dependence on robust credit-risk controls, adequate liquidity arrangements, and careful management of investor expectations [31]. For traditional Chinese public funds, these cases do not imply that comparable events will necessarily occur. Rather, they highlight the need for fund managers to verify the consistency among underlying-asset liquidity, credit-risk exposure, redemption arrangements, and client expectations while pursuing product differentiation and asset growth.

6.3 Key Differences between Mechanism Alignment and Breakdown

The principal difference between the illustrative domestic cases and the boundary cases does not lie in whether a product possesses distinctive characteristics, but in whether those characteristics are supported by corresponding organisational capabilities and risk-control mechanisms. The domestic cases exhibit a relatively high degree of alignment among product positioning, investment and research capabilities, distribution channels, client needs, and risk control. By contrast, the international cases show the consequences when these links become disconnected. If an active-equity product attracts investors through the reputation of a star portfolio manager and strong short-term performance but lacks style discipline,

organisational support, and liquidity management, its apparent differentiation may become a source of fragility. If a fixed-income-plus product appeals to investors through a stability-oriented return narrative but fails to disclose its equity and convertible-bond exposures clearly, mismatched expectations may intensify redemption pressure during market downturns. Similarly, if a retail short-duration bond fund neglects the risk of concentrated redemptions or the liquidity of its underlying assets, even its low-volatility positioning may become difficult to sustain.

The replicability of differentiated operating models is therefore subject to clear boundaries. Differentiation does not derive from reproducing a particular firm's product list. Rather, it depends on a fund manager's continuing ability to organize investment and research resources, distribution capabilities, client services, and risk-control systems in a manner that remains consistent with its stated product positioning.

7. Discussion

7.1 Why Two Product Lines Can Remain Coherent

Within the analytical framework developed in this paper, two product lines can coexist coherently when each line is supported by a distinct operating chain. In active equity, clear style positioning, platform-based investment research, and portfolio-manager succession reduce excessive dependence on individual managers. In fixed income, the corresponding chain is risk-return stratification, credit research, duration management, and liquidity arrangements. Shared research, risk-control, distribution, and brand resources may still matter at the firm level, but only if they do not blur product positioning at the product level.

This mechanism also explains why merely increasing the number of products does not constitute genuine differentiation. The broader a firm's product range becomes, the more clearly it must distinguish the functions, risk characteristics, and target clients of individual products. Where positioning is unclear, an expanded product matrix may instead increase both investors' comprehension costs and the firm's organisational-management costs. The essence of differentiation therefore lies not in offering "more", but in ensuring that product positioning is clear, organisational arrangements are aligned, and operating mechanisms remain stable.

7.2 Are the Mechanisms Portable?

This paper does not assume that a single optimal development path applies to all fund managers. Leading diversified firms may combine active-equity and fixed-income product lines when they possess cross-asset research, a stratified product system, unified risk control, and effective channel management. Equity-oriented firms may first stabilize their active-equity style matrices and platform-based research systems before expanding fixed-income businesses. Fixed-income-oriented firms may develop clearly differentiated risk-return structures across fixed-income-plus, pure-bond, short-duration bond, and passive bond products. Channel-oriented firms may focus on retail short-duration bond funds, low-volatility

fixed-income-plus products, and minimum-holding-period products. However, they must guard against mismatches between sales practices and clients' understanding of product risks. Small and medium-sized fund managers should be particularly cautious about replicating full-category models and should instead prioritize a single product line capable of forming a complete operating chain.

Table 7-1. Differentiation Paths and Boundary Conditions by Type of Fund Manager

Type of Fund Manager	More Suitable Differentiation Path	Capabilities to Prioritize	Principal Risks	Practical Implication
Leading diversified fund manager	Dual pillars of active equity and fixed income supported by a multi-product matrix	Cross-asset investment research, product stratification, unified risk control, and channel management	Product complexity and internal resource dispersion	Each product line must be supported by a complete operating chain
Equity-oriented fund manager	Active-equity style matrix and platform-based investment research	Industry research, portfolio-manager succession, and style management	Dependence on star managers and style drift	Stabilise investment style before expanding the product matrix
Fixed-income-oriented fund manager	Fixed-income-plus, pure-bond, short-duration bond, and passive bond products	Credit research, duration management, and liquidity management	Deterioration in credit quality, duration exposure, and redemption pressure	Clearly defined risk–return boundaries are more important than short-term returns
Channel-oriented fund manager	Retail short-duration bond funds, low-volatility fixed-income-plus products, and minimum-holding-period products	Client segmentation, investor education, and liability-side management	Misalignment between sales practices and clients' understanding of risk	Investor composition should be used as evidence of channel–client fit
Small or medium-sized fund manager	Deep specialisation in a single niche	Focused investment and research capabilities and clear product positioning	Mechanical replication of the full-category models of leading firms	Establish one complete operating chain before expanding into additional categories

A distinctive feature of China's public fund market is that product operations are jointly shaped by investor composition, distribution channels, and regulation. Retail investors' understanding of fluctuations in net asset value continues to evolve; banks and internet platforms exert substantial influence over product issuance and capital inflows; institutional investors account for a high proportion of bond-fund holdings; and liquidity needs vary considerably across client groups. Fund managers therefore cannot define products solely from the investment side. They must also assess product positioning from the perspectives of liability-side structure and client needs.

In addition, China's public fund industry remains in transition from a scale-oriented development model towards one centered on investor returns [9]. As regulatory and market evaluation increasingly emphasize long-term returns, benchmark discipline, investor outcomes, and risk disclosure, differentiation in traditional products can no longer remain confined to marketing labels. Fund managers must embed product

positioning throughout the investment process, risk-control system, channel communication, and post-sale service.

7.3 Specific Constraints in the Chinese Market Environment

These mechanisms should be read against the specific constraints of China's public fund market. Investor composition, bank and internet-platform distribution, the transition from scale-oriented expansion toward investor-return discipline, and regulation of sales suitability and liquidity risk all shape how product differentiation can be built and sustained. The framework therefore explains differentiated operations within a particular institutional setting rather than offering a universal model for all fund markets.

8. Conclusions and Implications

8.1 Research Conclusions

Using Wind-based descriptive evidence and selected case materials, this paper proposes a framework for understanding differentiated operations among traditional Chinese public fund managers. The findings are consistent with the view that renewed market competition has increased the importance of clear product positioning, capability alignment, channel-client fit, and risk control.

Active-equity products are differentiated through stable investment styles and platform-based research rather than through short-term rankings or star-manager promotion. Fixed-income-plus products are differentiated through clearly defined risk-return boundaries, cross-asset research, and drawdown control rather than through a simple "bond plus equity" label. Medium- and long-duration pure-bond and passive bond funds are differentiated through allocation functions, duration management, and instrument-like characteristics rather than through yield comparisons alone. Retail short-duration bond funds are differentiated through maturity design, retail investor composition, and liability-side liquidity management rather than through a low-volatility label alone. The strategic value of active-equity and fixed-income product lines therefore lies in coordinating distinct product-operating chains within a product matrix that investors can understand, that organizations can support, and that risk management can sustain.

8.2 Managerial Implications

The practical implications of this paper are modest. Leading fund managers may adopt a balanced product-line structure, but must avoid excessive product complexity and internal resource dispersion. Equity-oriented firms may prioritize style consistency and platform-based investment research. Fixed-income-oriented firms may first clarify risk-return boundaries and strengthen liquidity management. Channel-oriented firms should emphasize client segmentation and investor composition. Small and medium-sized fund managers should not mechanically replicate the full-category models of leading firms; instead, they should first establish one clearly defined product-operating chain.

8.3 Research Limitations and Future Directions

Future research may conduct empirical testing as additional data become available. Feasible directions include constructing a fund-manager-year panel to examine the association between balance across product lines and assets under management, fund flows, and performance; constructing a fund-quarter panel to examine the effects of product positioning, risk exposure, portfolio-manager stability, and investor composition on fund performance and flows; and conducting subgroup tests to compare differentiated development paths among equity-oriented, fixed-income-oriented, channel-oriented, and small and medium-sized fund managers. Given the evident concerns regarding endogeneity, reverse causality, and sample selection, even empirical analyses should carefully distinguish correlation from causation.

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Appendix A. Notes on Figures, Tables, and Data

The figures and tables in this paper are based primarily on Wind extracts and public case materials. Wind-based exhibits use the observation window stated in each caption: Figure 5-1 covers annual return-interval and share-growth data through 31 March 2025; Table 5-2 and Table 5-3 use manager-level and product-level AUM data as of 31 March 2025; Figure 5-4 combines year-end observations through 2024 with a 2025Q1 snapshot; and Figure 5-5 uses 31 December 2024 holdings data. For Figure 5-1, share growth equals shares outstanding at the current reporting date minus shares outstanding at the previous year-end, measured in 100 million shares; for 2025, the current reporting date is 31 March 2025. Funds with missing return or share fields are excluded from the corresponding group mean, and A/C or other share classes are combined at the fund level where the source reports separate classes. New launches enter the descriptive statistics from their first available Wind observation, so partial-year observations and newly launched products are not interpreted as mature-fund organic growth. For Table 5-3, AUM growth is calculated as 2025Q1 AUM minus the last available 2024 AUM observation; for funds launched in 2024, the figure includes post-launch accumulation. For the fixed-income-plus exhibit, the classification is operational rather than regulatory and follows the ex ante rules described in Section 5.2. Unless otherwise noted, AUM is aggregated at the product or manager level as reported in Wind. The domestic case materials come from fund-house prospectuses, annual reports, quarterly disclosures, and public product information for Fullgoal Fund, Invesco Great Wall Fund, E Fund, China Merchants Fund, and Tianhong Fund; the boundary cases use the FCA final notice on Woodford and the SEC's Reserve Primary Fund materials. The figures and tables are used descriptively to support the mechanism analysis rather than to provide causal identification.

Appendix Table A1. Available aggregate checks for Figure 5-1

The supplied Wind workbook used for Figure 5-1 contains year-by-return-interval mean share-growth values, not fund-level observations. The table therefore reports the number of available annual group-mean observations and the dispersion of those annual group means. Fund-level observation counts and within-group dispersion cannot be reconstructed from this aggregate workbook and should be treated as a limitation of the present descriptive evidence.

Return interval	Available annual group means	Mean	Std. dev.	Min.	Max.
<0%	11	-1.62	1.44	-4.37	0.14
0%~10%	11	-1.23	1.58	-3.52	1.96
10%~50%	11	-0.82	3.24	-8.98	2.58
50%~90%	9	2.11	5.34	-3.11	13.68
>90%	5	10.57	10.92	0.52	28.11

城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 295–323

Article

The Illusion of Institutionalization in Offshore Single Family Offices:

An Exploratory Multi-Stakeholder Study of Mainland-Origin Families' Offshore SFOs in Hong Kong and Singapore

オフショア・シングルファミリーオフィスにおける制度化の幻影

―香港およびシンガポールにおける中国大陸系ファミリーのオフショアSFOに関するマルチステークホルダー探索的研究―

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Abstract

As new wealth from mainland China accelerates its migration offshore, Hong Kong and Singapore have emerged as the twin hubs for establishing offshore single family offices (SFOs). Yet these SFOs commonly exhibit a striking pattern of "hard-architecture compliance without soft-capital governance." This study explores the morphology and underlying generative mechanisms of this governance gap. The study is positioned as an exploratory pilot study. Employing a multi-stakeholder exploratory design that combines qualitative interviews with descriptive item ratings, it draws on a three-party structure covering ten core informants (n = 10)—family principals (3), family office executives (3), and independent advisors (4)—and analyses the qualitative corpus using the Modified Grounded Theory Approach (M-GTA). Hong Kong and Singapore are treated as two venues of a single offshore field; the design is deliberately non-comparative across jurisdictions, and Hong Kong's FIHV concession and Singapore's sections 13O and 13U are not treated as equivalent regimes. Within this sample, the findings indicate a configuration of ceremonial institutionalization and decoupling: families efficiently adopt formal structures such as tax-exempt vehicles and offshore trusts, while substantive soft governance—family constitutions above all—remains at the floor of the scale across all ten responses, so that in each of the six families reported on directly the SFO operates as an "offshore wealth-management and compliance account." The generative mechanism lies in the interweaving of three institutional and cultural constraints: asset delocalization induced by capital controls deprives professional stewardship of the operating-business soil in which it might take root, while the Chinese-style socioemotional wealth (SEW) fixation on absolute control leads families to deliberately maintain "hollow trusts" and a "flesh-and-blood council" resting on personal authority. This account-like mode of operation appears to stunt the development of intergenerational dispute-resolution mechanisms, shifting the core risk from external managerial malfeasance toward Type II agency conflict among family members, and toward firewall penetration and isolation failure triggered by founders' retained powers. The paper delineates boundary conditions of stewardship theory under asset delocalization and offers three propositions (P1–P3) as candidates for subsequent testing. Because no case in the sample has attempted institutional transplantation, the question of governance upgrading is left to a future research agenda rather than developed as a finding here.

Keywords: single family office; asset delocalization; socioemotional wealth (SEW); governance gap; ceremonial conformity; Modified Grounded Theory Approach (M-GTA)

1. Introduction

As the first generation of private entrepreneurs who rose after mainland China's reform and opening enters old age, Chinese family businesses are moving inexorably into the largest wave of wealth transfer and intergenerational control transition in their history. This transition, however, is marked by systemic internal fragility. According to McKinsey's analysis (McKinsey & Company, 2022), only about 30% of China's top-100 family businesses achieve successful internal succession—far below the global average. Recent high-profile succession crises have sounded the alarm. As documented in public media reports and related court filings, the death of Wahaha Group's founder in early 2024 triggered an intra-family dispute over approximately USD 2.1 billion in offshore trust interests and vast onshore equity; likewise, the sudden death of Shanshan Group's founder without a clear will ignited a "stepmother-versus-eldest-son" contest for corporate control that erased a substantial share of market value and reverberated across the industrial chain (Rui, 2025). These cases point to a substantial shortfall of ex-ante soft governance across the four dimensions of person, family, enterprise, and society. More critically, they reveal a new reality: for China's new-wealth families, the wealth has gone offshore first, while governance has yet to follow.

Amid this accelerating offshore migration, Hong Kong and Singapore—with their mature common-law systems, well-developed trust regimes, and highly attractive tax concessions—have rapidly established themselves as Asia's twin hubs for offshore single family offices (SFOs). According to Deloitte's market research, Hong Kong hosted approximately 3,384 SFOs as of the end of 2025, an increase of about 25% over two years; in Singapore, under the Monetary Authority of Singapore's (MAS) latest reporting, the number of single family offices awarded tax incentives under sections 13O and 13U of the Income Tax Act 1947 grew from 400 at the end of 2020 to more than 2,000 at the end of 2024, as reported by the Deputy Prime Minister and MAS chairman in a parliamentary reply of 5 February 2025 (Singapore Economic Development Board [EDB], 2025); the figure covers both schemes and not section 13U alone. Ultra-high-net-worth (UHNW) families of mainland origin are the absolute engine of this growth: the joint HKUST–EY survey shows that 42% of founders of established SFOs in Greater China originate from the mainland, while among prospective SFO founders the mainland share reaches 78%. It should be made explicit that, for this population, Hong Kong and Singapore are alternative jurisdictional venues for the same pursuit of offshore tax optimization and asset protection; this study therefore treats the two locations as different spatial instantiations of a single research field and undertakes no cross-jurisdictional institutional comparison. The two regimes are nevertheless institutionally distinct: Hong Kong's FIHV concession under the Inland Revenue (Amendment) (Tax Concessions for Family-owned Investment Holding Vehicles) Ordinance 2023 differs from Singapore's sections 13O and 13U in eligibility, minimum asset thresholds and substance requirements (Inland Revenue Department, 2023; MAS, 2022), and the two are not treated as equivalent here. Nor is the SFO itself—a management entity—conflated with the tax-eligible investment vehicle it manages. Because the present sample is too small to sustain a jurisdictional comparison, jurisdiction is treated below as a limitation rather than as an explanatory variable.

Beneath the surface prosperity of offshore SFO numbers, however, lie deep institutional constraints. Owing to mainland China's stringent capital controls, the offshore capital pools of mainland UHNW families are structurally severed from their onshore operating businesses—a phenomenon this study terms asset delocalization. This physical and legal separation leaves only a structurally weak linkage between the offshore pool and onshore operations: while practice retains counter-examples of cross-border rescue through particular channels or related-party trade in extreme crises, the dominant configuration is one of clean severance. Under asset delocalization, the offshore SFO's function contracts sharply into a pure financial-investment and tax conduit. To satisfy tax-exemption thresholds, families efficiently erect "hard architecture"—trusts and holding vehicles; yet in the construction of "soft capital"—family constitutions, family councils, next-generation development—they display systematic absence. This rupture between hard architecture and soft governance produces, in the offshore domain, what this study terms a governance gap.

Calling this rupture a governance gap presupposes a baseline, and the baseline requires statement rather than assumption. The family governance literature treats the family constitution, the family council, a written succession plan and a structured programme of next-generation development as the principal instruments through which a wealth-owning family converts personal authority into transferable rules (Suess, 2014; Arteaga & Menéndez-Requejo, 2017). This study does not assume that those instruments must be housed inside the offshore SFO. A family may deliberately assign the SFO a narrow financial mandate and locate its council, charter, philanthropy and operating-business governance elsewhere—onshore, in a separate foundation, or in the operating group itself—and such an allocation is a design choice, not a deficiency. What is treated here as a gap is narrower and specific: the condition in which these instruments are absent from the offshore entity and cannot be located anywhere else that the family identifies, so that the offshore pool—by then the family's principal store of transferable wealth—is governed by personal authority alone. Section 4 accordingly examines rival explanations for the observed pattern, including the age and tenure of the SFO, assets under management, family complexity, founder age, prior succession experience, the cost and privacy implications of formalisation, advisers' business models, and jurisdictional requirements, before attributing the pattern to institutional and cultural constraints.

Addressing this phenomenon, the study poses its main research question (Main RQ): what are the morphology and underlying generative mechanisms of the governance gap in offshore SFOs established by mainland Chinese new-wealth families? Three sub-questions follow. First, what is the actual state of soft governance mechanisms—family constitutions, councils—inside offshore SFOs? Second, at what level does next-generation participation stand within these offshore institutions? Third, how do the three mechanisms—capital-control-induced asset delocalization, Chinese-style socioemotional wealth (SEW) preferences, and the one-child constraint—interweave to jointly generate the gap?

Methodologically, this study steps outside the conventional hypothesis-testing frame and adopts the

Modified Grounded Theory Approach (M-GTA) as a theory-generating method (Kinoshita, 2003). Three sensitizing propositions are advanced prior to fieldwork, to be explored, revised, and elaborated against interview data:

P1 (Gap morphology): Offshore SFOs of mainland background exhibit a ceremonially institutionalized configuration of "highly compliant hard architecture and systematically absent soft governance," their actual operating function converging on an "offshore wealth-management and tax-compliance account."

P2 (Generative mechanism): The configuration is jointly generated by three interweaving mechanisms—asset delocalization under capital controls, Chinese-style SEW (absolute control and bloodline primacy), and a paternalistic trust structure (including the one-child constraint). Together these dissolve the situational antecedents required for stewardship relationships, locking family office governance at the level of agency monitoring.

P3 (Risk consequence): The prolonged absence of soft governance deprives the "accountized" SFO of intergenerational dispute-resolution mechanisms; in succession and blended-family contexts it directly exposes intra-family Type II agency conflict, precipitating structural succession risk.

In research design, the study employs a multi-stakeholder exploratory approach: descriptive statistics from authoritative industry reports provide the background, while M-GTA applied to the interview material constitutes the analytical core and the five-point items are used descriptively rather than for inferential analysis. To ensure rigor and ethical compliance, all materials are strictly anonymized, and a three-party, multi-stakeholder structure—family principals, professional family office executives, and independent third-party advisors—is constructed to expose, rather than to eliminate, the characteristic bias of each vantage point. The anticipated theoretical contributions are twofold: first, within the distinctive macro-institutional context of asset delocalization, the study delineates boundary conditions of stewardship theory in the family office setting; second, it extends the neo-institutionalist concepts of ceremonial adoption and decoupling (Meyer & Rowan, 1977) into the micro-structures of UHNW wealth management, explaining the "illusion of institutionalization" in offshore family offices. The remainder of the paper proceeds as follows: Section 2 reviews the literature; Section 3 details the industry-report portrait and the M-GTA research design; Section 4 characterizes the governance gap and develops the attribution analysis; Section 5 summarizes findings and contributions and sets out an agenda for future research.

2. Literature Review and Theoretical Framework

2.1 Asset Delocalization and the Missing Situational Antecedents of Stewardship

The existing literature on family office governance originates largely from the experience of Western "old money" families. In these classical models, the single family office is deeply and structurally embedded in the family's operating business empire (Zellweger & Kammerlander, 2015). Because wealth and enterprise are symbiotic, family office professionals must participate in the strategic operation and oversight of the operating companies; this endows them with a competitive moat of idiosyncratic knowledge and lays an objective foundation for deep familial trust. Under China's particular institutional environment, by contrast, stringent capital controls structurally sever mainland UHNW families' offshore SFOs from their onshore businesses, producing the distinctive phenomenon of asset delocalization.

In this delocalized context, offshore SFO operations narrow into standardized allocation of liquid financial assets; professional managers lose their operating-business footing entirely and become highly replaceable. Stewardship theory emphasizes that converting an agent into a steward requires specific situational antecedents, including an involvement-oriented organizational climate and intrinsically motivated achievement structures (Davis et al., 1997). Asset delocalization produces a systematic failure of precisely these antecedents: managers' high replaceability strips them of strategic autonomy, while the offshore setting amplifies first-generation principals' fear of delegation. Compounded by the cultural inertia of a low-trust society (Fukuyama, 1995) and the quasi-familial defensiveness inherent in Chinese capitalism (Redding, 1990), stewardship relationships within the family office are prone to miscarriage, degenerating into a highly defensive regime of agency monitoring.

2.2 SEW and the Logic of the Chinese Family

Socioemotional wealth (SEW) theory supplies the core account of non-economic decision motives in family firms; its FIBER framework spans family control (F), identification (I), binding social ties (B), emotional attachment (E), and renewal through transgenerational succession (R) (Berrone et al., 2012). Yet the weighting of SEW dimensions varies markedly across cultural fields. As cross-cultural family research has shown, the SEW logic of Japan's long-lived merchant houses centers on business perpetuity (the R dimension): to preserve the family's reputation, Japanese families willingly break the monopoly of pure bloodline through the institution of the adopted son-in-law (mukoyoshi).

Chinese-style SEW, by contrast, anchors its reference point in the patriarch's absolute control (the F dimension) and in bloodline continuity. The latter is not the binding-social-ties dimension of the original FIBER framework; as Section 3.3 sets out, the present instrument deliberately re-specifies that dimension as a bloodline boundary, and the re-specification is treated throughout as an adaptation rather than as a measure of Berrone et al.'s construct. In the delocalized operation of offshore SFOs, this preference is starkly visible. Confronted with the trade-off between ceding partial control in exchange for efficient professional stewardship and retaining absolute authority at the cost of governance inefficiency,

first-generation mainland principals routinely choose the latter to preserve the control dimension of SEW. This control preference, as observed among the sampled families, appears to constitute a central obstacle to the evolution of offshore family offices into strategic governance platforms.

2.3 China-Specific Succession Constraints

Beyond cultural SEW preferences, offshore family office governance is further constrained by China's distinctive demographic rigidity. The one-child policy leaves mainland families facing an irreversible single-heir bottleneck at succession. Confronting the heavy burdens and transition pains of traditional onshore industry, the next generation commonly exhibits estrangement, and many second-generation heirs become "reluctant leaders" (Zhao, 2024). They gravitate instead toward commanding the liquid capital pools of offshore family offices, with an appetite for frontier fields such as private equity. This intergenerational misalignment of expectations—"the second generation exits industry and prefers offshore investing"—turns the offshore SFO into the front line of intergenerational contestation, further deepening the first generation's reluctance to delegate substantive power.

2.4 The Theoretical Anchor of the Institutionalization Illusion

For the paradoxical behavior of "hard-architecture compliance without soft-capital governance," classical concepts from neo-institutional sociology provide an apt theoretical anchor. To secure legitimacy within a given institutional environment, organizations engage in ceremonial conformity, adopting the formal structures the environment expects; yet to protect their technical core and existing power configurations, actual operations become decoupled from those formal structures (Meyer & Rowan, 1977). Later work distinguishes policy–practice decoupling, in which an adopted structure is not implemented, from means–ends decoupling, in which a structure is implemented but does not produce the outcome it is meant to secure (Bromley & Powell, 2012); the configuration described below belongs to the first type. This paper extends the logic to the family office setting: facing the tax-exemption thresholds of Hong Kong's FIHV regime and Singapore's sections 13O and 13U schemes (which, as noted above, are distinct regimes), families rapidly adopt costly structures—offshore trusts, PTCs—thereby acquiring the "legitimacy" of tax optimization and asset protection. But at the level of soft governance, which touches core interests, family constitutions and councils remain largely dormant. This policy-oriented formal compliance constitutes the offshore SFO's illusion of institutionalization.

2.5 Analytical Framework

Synthesizing these theoretical threads, the study constructs an analytical framework for the "accountization" of offshore SFOs (see Figure 1). At the macro level, capital controls produce asset delocalization; at the micro level, control-seeking Chinese-style SEW interweaves with the one-child constraint. These three antecedents dissolve the foundations of stewardship and provoke the fear of delegation. Under legitimacy pressure, families adopt a strategy of ceremonial institutionalization. The resulting imbalance is associated, in this sample, with an offshore SFO that operates as a wealth-management and tax-compliance account—one whose structural succession risk is likely to surface in the coming transition. Figure 1 sets

out this framework as a proposed analytical model. The present study does not test the full causal sequence it depicts; the arrows represent the relationships the interview material is used to explore, not estimated effects.

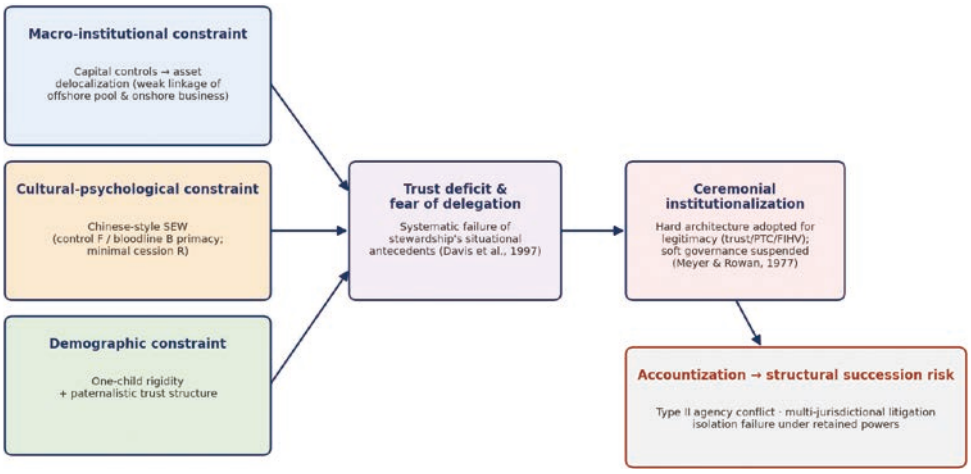

Figure 1. Proposed analytical model of governance-gap formation in offshore SFOs

(Source: Created by the author) Note. The model is proposed, not tested; the study does not estimate the causal paths depicted.

3. Research Design and Empirical Picture

3.1 A Macro Portrait from Industry Reports

Before entering micro-level fieldwork, the study sketches an empirical portrait of Greater China's family office landscape from authoritative industry surveys. Read side by side, the latest UBS, HKUST–EY, and Deloitte reports reveal a pronounced asymmetry in functional configuration. These industry sources are used strictly as descriptive evidence of market scale and practice trends. Their sampling frames—global family offices in the UBS survey, Greater China family offices in the HKUST–EY survey, and Hong Kong-registered SFOs in the Deloitte study—do not correspond to the mainland-origin offshore SFO population that is the object of this study, and none of them reports that population as a separate stratum. They are therefore read as a background contrast rather than as a basis for inference about the present population.

The hard, financial-functional side of the industry is strikingly well institutionalized. Fully 72% of surveyed families cite tax efficiency as a key criterion for establishing a family office (Deloitte, 2026), and 61% of family offices globally have installed formal investment committees; core investment functions are predominantly internalized, with strategic asset allocation performed in-house by 86% of offices, financial reporting by 75%, and portfolio risk management by 73% (UBS, 2025). Whatever else may be said of the sector, its investment machinery is not under-institutionalized.

The soft-governance side collapses by comparison. Only about 25% of family offices in Greater China

have built structured family governance mechanisms, while 66% still rely on informal arrangements (HKUST-EY, 2024). Globally, just 53% hold a formal written succession plan—and in North Asia, the region encompassing Greater China, the proportion plunges to 36%, among the lowest worldwide, against 64% in the United States and 65% in Southeast Asia (UBS, 2025). The self-reported reasons are diagnostic: among offices without plans, 29% say the beneficial owner "does not regard it as a priority," 21% that the owner has not decided how to divide the wealth, and 18% that the owner has not found time to discuss it (UBS, 2025). Procrastination and avoidance, not technical difficulty, dominate the explanations.

These aggregate figures corroborate Proposition P1 at the macro level, but they cannot explain it: industry surveys neither isolate mainland-background offshore SFOs as a stratum nor record why families act as they do. Tracing how capital controls, SEW preferences, and demographic constraints interweave requires entering the field. Because the surveys differ in population, year and question wording, each figure used above is set out in Table 1 with its source, survey population, reference date and precise meaning, so that readers can judge how far it bears on the population studied here. Accordingly, the industry aggregates are retained as descriptive context only. A deliberate distinction is maintained throughout the remainder of the paper between descriptive evidence—market size, prevalence and practice trends drawn from consultancy and industry reports (Deloitte, HKUST–EY, UBS, McKinsey, CEIBS)—and academic evidence, drawn from the peer-reviewed literature reviewed in Section 2 and from the primary interview corpus, on which every theoretical claim in Sections 4 and 5 is grounded.

Table 1. Provenance of the industry figures cited in Section 3.1

Figure used	Source	Survey population	Reference date	What the figure means
3,384 SFOs in Hong Kong	Deloitte (2026)	Single family offices identified as operating in Hong Kong	End-2025	Count of SFOs in the jurisdiction; not restricted to mainland-origin families
More than 2,000 tax-incentivised SFOs in Singapore	EDB (2025)	SFOs awarded incentives under sections 13O and 13U	End-2024	Combined count under both schemes (400 at end-2020); not section 13U alone, and not a count of all SFOs
42% / 78% mainland-origin founders	HKUST-EY (2024)	Family offices surveyed in Greater China	2024	Share of established and of prospective SFO founders originating from the mainland
72% cite tax efficiency	Deloitte (2026)	Families surveyed on establishment criteria	2025–26	Self-reported criterion for establishing an office; not an outcome measure
61% with investment committee; 86% / 75% / 73% in-house functions	UBS (2025)	Family offices worldwide	2025	Global figures; Greater China is one region within the sample
25% structured governance; 66% informal	HKUST-EY (2024)	Family offices in Greater China	2024	Self-reported maturity of family governance mechanisms
53% global / 36% North Asia succession plans	UBS (2025)	Family offices worldwide, by region	2025	Presence of a formal written succession plan; North Asia is broader than mainland-origin families
29% / 21% / 18% reasons for having no plan	UBS (2025)	Family offices without a succession plan	2025	Self-reported reasons; base is the sub-sample without plans, not all offices

Note. None of these surveys isolates mainland-origin offshore SFOs as a stratum. The figures are used as descriptive background and are not treated as confirmation of Proposition P1 for the population studied here. Source: Compiled by the author from the cited reports.

3.2 Exploratory Design and the Three-Party Multi-Stakeholder Structure

Given the extreme secrecy of UHNW families and offshore family offices, the study adopts a multi-stakeholder exploratory design in which descriptive statistics frame the terrain while qualitative inquiry carries the analytical weight; the study explicitly forgoes inferential statistics, and quantitative scores serve only as descriptive baselines for structured pattern comparison. Ten valid core-circle informants with direct experience of 13U or FIHV establishment participated in the study. The ten informants speak to six distinct families and six distinct single family offices—three reached through a family principal or family member and three through a non-family executive. No office is covered by both an A1 and an A2 informant, so principals and executives are not paired within the same office, and the advisor track refers to a wider client portfolio rather than to the same set of offices. Table 2 sets out the anonymised participant profile on which these counts rest. Interviews were semi-structured, lasted approximately thirty to sixty minutes, followed the instrument described in Section 3.3, and were recorded and transcribed verbatim under separate consent.

To counter the polishing bias of any single informant, respondents were structured into a three-party

design: Category A1—family principals and family members (n = 3), comprising a first-generation founder-controller, a second-generation heir who manages her family's offshore vehicle, and a third-generation member by marriage who coordinates a multi-branch family office, revealing actual SEW preferences, delegation fears, and succession expectations; Category A2—family office executives (n = 3), non-family chief executives and general managers of offices serving first-generation principals in real estate, pharmaceuticals and mining, providing the agent's first-hand experience of trust deficits and authorization boundaries; Category B—independent advisors (n = 4), a senior asset-management practitioner, the Asia-Pacific head of a trust business covering Hong Kong and Singapore, an equity partner in a Big Four advisory practice, and a cross-border private-client lawyer, each serving multiple mainland-origin families. The triangulation logic is explicit about each party's characteristic bias: principals overstate governance intentions; executives see the real allocation of authority but only within one family; advisors aggregate across families yet observe mainly the structuring stage. Reading the three tracks against one another makes these differences of vantage point visible. Two qualifications follow. First, triangulation of this kind can reveal convergence and divergence between positions; it cannot neutralise systematic bias arising from selection, access or role, and no such claim is made here. Second, because categories A1 and A2 speak about the particular office with which they are involved while category B speaks about prevalence across a client portfolio, the design constitutes a comparison across stakeholder positions rather than case-level triangulation on a common referent. The two are not interchangeable, and no numerical gap between tracks is computed anywhere in this paper.

Table 2. Anonymised participant profile

ID	Track	Role	Juris.	Generation / stage	Sector	Tenure	AUM band	Tax status
A1-01	A1	Family principal; founder-controller of the operating group	SG	1G (late 40s); one minor heir	Commodities trading	< 5 yrs	≥ USD 500m	13U approved; family trust established
A1-02	A1	Family member by marriage; unpaid coordinator of the office	HK	3G (founder deceased; three 2G branches)	Consumer goods (listed)	< 5 yrs	c. USD 100m	Three parallel family trusts under one shared management company
A1-03	A1	Family principal; manages the offshore vehicle	SG	2G (mid-30s); multi-branch family	Technology (listed)	< 5 yrs	≥ USD 200m	13U
A2-01	A2	Non-family general manager of the SFO (team ≈ 13)	HK and SG	Serves 1G principal; several heirs of widely differing ages and tax residencies	Real estate	5 yrs (office est. c. 15 yrs)	> USD 1bn	13U and HK FIHV
A2-02	A2	Non-family CEO of the SFO (team ≈ 5)	SG	Serves 1G principal (c. 50); operating business run by professional managers	Pharmaceuticals (listed)	4 yrs	c. USD 1bn	SG tax resident
A2-03	A2	Non-family CEO of the SFO (team ≈ 8)	HK	Serves 1G principal (65+); four 2G members; mixed tax residencies	Mining	4 yrs	c. USD 90m	Mainly HK tax residents; some CA/AU
B-01	B	Senior asset-management practitioner	HK	Practitioner, 40s	Mainland-origin private clients (2,000+ relationships)	c. 20 yrs	n/a	n/a
B-02	B	Trust practitioner, Asia-Pacific head	HK and SG	Practitioner, 30s	Mainland-origin family trusts	15+ yrs	n/a	n/a
B-03	B	Equity partner, Big Four advisory practice	HK	Practitioner, 50s	Mainland-origin family clients	30+ yrs	n/a	n/a
B-04	B	Cross-border private-client lawyer	CN and HK	Practitioner, 50s	Mainland-origin family clients	25 yrs	n/a	n/a

Note. Track A1 = family principals and family members; A2 = family office executives; B = independent advisors. Categories A1 and A2 report on the particular office with which they are involved; category B reports on prevalence across a client portfolio. For track B the columns are read differently: "Jurisdiction" records the jurisdictions covered by the practice, "Generation / stage" the practitioner's age band, "Sector" the client base, and "Tenure" years in practice; AUM band and tax status are not applicable. Sector labels, age bands and AUM bands are deliberately coarse, and team sizes are approximate, because the combination of jurisdiction, role, sector and family detail would otherwise make individuals identifiable within this population. Jurisdiction records where the offshore vehicle is established; two offices operate in both jurisdictions. Source: Author's fieldwork.

Participants were recruited purposively through the author's professional network in the offshore wealth-management sector, with two advisors acting as gatekeepers for introductions to principals and executives; the selection criteria were direct, first-hand involvement in the establishment or running of an offshore SFO at the FIHV, 13O or 13U threshold, and willingness to be recorded. All ten persons approached agreed to participate and none withdrew. Full disclosure is owed on one point: all ten are existing professional contacts of the author, with whom the author has an ongoing business relationship in the offshore wealth-management sector. This is what made access to an otherwise closed population possible, and it is also a limitation: pre-existing relationships are likely to have raised candour on operational matters while raising, rather than lowering, the incentive to present the family's governance in a favourable light. The analysis treats principals' self-reports accordingly, and Section 5.4 returns to the point. Interviews were conducted in Mandarin Chinese, with English used for technical terms, between April and August 2026, recorded with separate consent, and transcribed verbatim; quotations reported below are the author's translations from the original language, edited only for the removal of filler words and identifying detail, with ellipses marking omitted material. Every participant was informed of the purpose of the study before the interview began, consented separately to recording, and was told that all real names and identifying particulars would be removed; those particulars were in fact removed at the transcription stage. The institution does not require committee review for interview research of this kind; the study was accordingly not submitted to a research ethics committee, and no approval or exemption reference is available. The research was conducted under the consent and anonymisation protocol described here, which forms part of the survey instrument. All participants were adult professionals speaking in a professional capacity, no data of a special or sensitive category were sought, participation could be discontinued at any point, and all identifying particulars were removed at transcription. All materials are anonymised; recordings and transcripts are stored on encrypted local media accessible only to the author and will be destroyed two years after publication. Respondents could skip any question or withdraw at any time. Because the population is small and private, the combination of jurisdiction, role, sector and distinctive phrasing could render an individual identifiable; sector labels and family details are therefore reported at a deliberately coarse level, and two quotations were generalised for this reason. Rigor follows Lincoln and Guba (1985): credibility through triangulation and member checks on key interpretations, transferability through thick description, and dependability through an audit trail linking every concept to time-stamped transcript segments.

3.3 Construct Operationalization and the Core Survey Instrument

To measure the constructs precisely and elicit deep qualitative material on a structured foundation, the study designed, as a core research product, the Governance Survey Handbook for Offshore Single Family Offices of Mainland Chinese New-Wealth Families. Each module operationalizes one block of the Section 2 framework, and the instrument was piloted in the first advisor interview. Piloting exposed four defects corrected in the revised version: prevalence-anchored options replaced ill-fitting yes/no items for the advisor track; currency denominations were made explicit after an AUM reporting mismatch; the bloodline-boundary item was reworded to exclude spousal statutory entitlements; and a probe distinguishing deal-level carried interest from entity-level profit sharing was added.

The instrument pioneers a three-track scoring protocol matched to each informant's epistemic position: categories A1 and A2 rate agreement on a five-point Likert scale, while category B experts rate the prevalence of each phenomenon across their mainland client base (1 = very rare; 5 = nearly universal). Identical item wording across tracks keeps the substantive content comparable, but it does not make the tracks metrically equivalent: A1 and A2 rate a proposition about their own office, whereas B rates how common the same condition is across a client base. Scores from the three tracks are therefore reported separately and compared qualitatively; no pooled mean and no numerical perception gap is computed. All items use the five-point anchors stated above; there were no missing responses; and scores are reported throughout as observed ranges by track rather than as averages. Six modules follow: (1) basic profile (jurisdiction, FIHV / 13O / 13U status, control mode; SFO typology adapted from Schickinger et al., 2021); (2) hard-architecture configuration (irrevocable discretionary trust, PTC, FLP, written IPS); (3) soft-governance maturity, twelve items (S1–S12) covering the family constitution (S1), the family council (S2), next-generation development arrangements (S3), the strategic authority held by non-family executives (S4), long-term incentives (S5), the extent of the first generation's delegation (S6), the written succession plan (S7), the successor's willingness to take over the onshore business (S8) and to lead the offshore office (S9), intergenerational alignment on strategy (S10) and on risk appetite (S11), and the office's functional positioning (S12); (4) Chinese-style SEW preferences, seven items adapted from the FIBER framework of Berrone et al. (2012). The adaptation is substantial and is stated here in full. F (the family's insistence on final authority over offshore assets) and I (the office as an extension of family identity) retain the sense of the original dimensions. B is re-specified: in the original framework it denotes binding social ties, whereas here it measures the bloodline boundary—the tendency to confine beneficial arrangements to lineal kin—with spousal statutory entitlements expressly excluded from the item. E is likewise re-specified, from emotional attachment in general to the avoidance of governance topics likely to provoke intra-family conflict. Two items are new: E2, the avoidance of formal assessment of successor competence, and S+, the weight given to reputation and face relative to financial return. R (willingness to cede control in the interest of business perpetuity) is reverse-scored, so that a high score indicates willingness to delegate. Because two dimensions have been re-specified, two added and one reversed, the resulting scores are exploratory indicators for this study and are not presented as validated FIBER measures in the sense of Hauck et al. (2016); (5) transferability of Japanese longevity-governance elements, five items each scored twice, on feasibility and on willingness: a binding family charter (J1, the kakun analogue), a constituted family council (J2, the Omotokata analogue), full delegation to a non-family professional steward (J3, the banto analogue), long-term binding incentives (J4, the noren-wake analogue), and quasi-adoption of non-kin talent into the family core (J5, the mukoyoshi analogue); and (6) open-ended probes.

3.4 The M-GTA Analytical Procedure

Following data collection, the study applies the Modified Grounded Theory Approach (M-GTA; Kinoshita, 2003), preferred over classic Straussian grounded theory for two reasons: it is designed for practice-embedded questions with a bounded analytical theme, and it rejects line-by-line open coding in favor of analysis worksheets that keep each emerging concept anchored in its full textual context—critical

where the meaning of “the trustee is, in substance, a cashier” depends on who says it and from what position.

The analytical theme was specified as the generative mechanism of the governance gap in offshore SFOs, and the analytically focused person as the core actors of mainland-background offshore SFOs. Concepts were generated on worksheets recording name, definition, best exemplar quotations, and theoretical memos; integrated into categories; and assembled into the relational diagram (Figure 2), iterating until further material generated no new concepts within the sampled group. As explained below, that stability is reported as such and is not advanced as a claim of theoretical saturation.

Two features of this procedure require explicit statement, since the correspondence between the sensitizing propositions and the findings reported in Section 4 is close enough to invite the suspicion of confirmatory coding. First, P1–P3 were used only to bound the analytical theme and to orient the initial interview protocol; they were not used as a coding frame, and no concept was created by assigning a data segment to a proposition. Concepts were generated bottom-up on the worksheets and were mapped onto the propositions only after the category structure had stabilised. Second, the analysis produced several concepts that the propositions did not anticipate and could not have generated: the safe island discourse, in which isolation is framed not as an alternative to succession governance but as its antechamber, with no trigger date attached; the hollow trust, in which formal irrevocability coexists with a letter of wishes more detailed than the deed; the flesh-and-blood council, in which the refusal to sign a charter is rationalised as protecting a signalling performance directed at heirs and banks; and a reversal of the expected risk vector, whereby the binding constraint proved to be Type II conflict and firewall penetration by the settlor rather than the Type I managerial malfeasance that the initial protocol had been designed to probe. These emergent concepts, rather than the propositions, drive the account developed in Sections 4.2 and 4.3, and they are the reason the propositions are described in Section 5.1 as revised rather than confirmed.

The status of the analysis requires equally explicit statement. With ten informants, this paper is positioned as an exploratory pilot study whose purpose is to generate and refine the initial propositions P1–P3, and it does not claim theoretical saturation. Concept generation was nevertheless tracked informant by informant: the greater part of the concept set had been generated by the sixth informant, the seventh and eighth yielded one further concept, itself a variant of an existing category, and the final two interviews produced no new concept and no revision to the category structure. This trajectory is reported as evidence that the category structure had become stable within the sampled group; it is not offered as a demonstration that no further concepts would emerge in a larger or differently composed sample. Discrepant and negative cases were sought deliberately rather than treated as noise, and three were retained in the analysis. The counter-examples of cross-border deployment through particular channels in extreme crises qualify the claim that offshore and onshore pools are cleanly severed, and the claim of clean severance is qualified accordingly in Section 1 and Section 2.1. The S+ divergence, in which advisors’ ratings (2–3) ran against insiders’ (4–5), forced the reputation dimension to be re-specified as position-dependent rather than as a group

attribute. The J4 anomaly, in which long-term incentives score highest on feasibility (3–4) yet are largely absent in practice, prevented the analysis from treating feasibility ratings as predictors of adoption. The confidentiality undertakings given to principals and advisors preclude publication of the raw coding worksheets and full transcripts. To keep the analysis traceable within that constraint, Table 3 reports every concept carried into Section 4 together with its operational definition, an illustrative quotation and its track, the tracks in which it was supported, and any discrepant or qualifying evidence recorded against it.

The coding proceeded in five steps. First, each transcript was read against the analytical theme and segments bearing on it were marked, the remainder being set aside rather than coded line by line. Second, for each marked segment an analysis worksheet was opened in which a provisional concept name was recorded together with a working definition, the verbatim segment that had prompted it, the informant's track, and a theoretical memo noting what the concept did and did not cover. Third, each subsequent transcript was read against the existing worksheets: a segment that fitted an existing definition was added to that worksheet as a further instance, a segment that fitted only partially prompted a revision of the definition, and a segment that fitted none opened a new worksheet. Fourth, concepts sharing an underlying mechanism were integrated into categories—gap morphology, decoupling mechanism, risk displacement, and transplantation obstruction—with the category name chosen from the informants' own vocabulary wherever one was available, which is how safe island, hollow trust and flesh-and-blood council entered the analysis. Fifth, the relations among categories were drawn into the diagram reported as Figure 2, and each relation was checked back against the worksheets that supported it. The audit trail linking concept to time-stamped transcript segment was maintained throughout, in the manner recommended for inductive work of this kind (Gioia et al., 2013).

Table 3. Concepts generated, illustrative evidence, and discrepant evidence

Concept	Operational definition	Illustrative quotation (track)	Tracks supporting	Discrepant or qualifying evidence
Minimal viable compliance	Hard architecture built only to the depth required by the tax-concession threshold, with no element added beyond it.	"[The IPS] has been lying in a drawer for two years." (A2-02)	A1, A2, B	PTCs and FLPs appear among the largest families, so depth varies with size rather than being uniformly minimal.
Safe island	Framing of the offshore pool as a place of asset isolation whose governance is deferred to an unspecified later stage.	"Because there is a succession need, assets must first be isolated before succession." (B-01)	A1, A2, B	Isolation is framed as the antechamber to succession rather than as a rejection of it; the concept should not be read as refusal of governance.
Control fixation (F rigidity)	Preference for retaining final decision authority even at an acknowledged cost in governance efficiency.	"His demand for control far exceeds the returns the money itself can generate." (B-01)	A1, A2, B (F = 5 in all ten)	None recorded; F scored 5 in all ten responses with no variation between tracks.
Hollow trust	Formally irrevocable trust in which the settlor retains investment discretion and trustee-replacement powers, so that day-to-day control is unchanged.	"The letter of wishes is written in more detail than the deed—the trustee is, in substance, a cashier." (B-02)	B-02	Reservation of such powers is lawful in both jurisdictions (Trustee Ordinance s. 41X; Trustees Act 1967 s. 90(5)); the concept is a description of practice, not a legal finding.
Flesh-and-blood council	Governance of family affairs through personal authority and informal occasions in place of a signed charter or constituted council.	"Signing a charter is handing your own power a prison sentence." (B-04)	B-04	The same respondent noted that charter projects are sometimes launched as signals to heirs or banks, indicating partial adoption for external audiences.
Position-dependent reputation (S+)	Weight given to reputation and face, which varies systematically with the respondent's vantage point rather than across families.	"Play the villain through due-diligence procedure." (A2-03)	A2 uniformly 5; A1 split 2–5; B 2–3	The divergence follows partly from the different referents of the two rating tasks; within the principal track it also splits by public exposure, the privately held family scoring 2 against 4–5 for the listed-company families.
Risk displacement toward Type II conflict	Perception that the dominant hazard lies among family members rather than in managerial malfeasance.	"The protagonists of major-loss cases are mostly family members and in-laws." (B-04)	B-04	No actual dispute, claim or invalidated trust was observed in the sampled SFOs; the concept records anticipation, not outcome.
Bloodline boundary to non-kin governance	Refusal to extend family identity to non-kin executives, irrespective of their competence.	"Those who run things and those who share the money are two different matters." (A1-01)	A1, A2, B	One advisor (B-01), reporting across the widest client base, scored J5 at 3 on both axes, against 1–2 throughout the family and executive tracks; the boundary may be less absolute across a wider population.

Concept	Operational definition	Illustrative quotation (track)	Tracks supporting	Discrepant or qualifying evidence
Intergenerational asymmetry in demand for rules	Rules are valued by those whose position is ambiguous and resisted by those whose authority is secure.	"Rules are most valuable to those standing in ambiguous positions." (A1-03)	A1 (second generation), A2	First-generation willingness on J2/J3 remains 1–2, so the demand is not shared across generations.
Incentive vacuum	Absence of co-investment or partnership-style long-term incentives binding non-family executives to the platform.	"No one is structurally motivated to take responsibility for the platform's intergenerational continuity." (A2-01)	A2-01	J4 scored highest of the five elements on feasibility (3–4) yet is largely absent in practice, so feasibility does not predict adoption.

Note. Quotations are the author's translations, edited only to remove filler words and identifying detail. "Tracks supporting" records the participant categories in which the concept was expressed, not a count of respondents. Raw worksheets are withheld under the confidentiality undertakings described in Note [2]. Source: Author's fieldwork.

4. Findings and Discussion

4.1 Gap Morphology: Asymmetric Institutionalization and the "Safe Island" Discourse

Drawing on the three-party survey data, the study compared patterns across the ten responses—six of them reporting on a specific office and four assessing prevalence across a client base—reporting each track separately rather than pooling them. Under triangulation the data converge, within this sample, on a markedly asymmetric structure, whose two layers repay separate description.

On the hard side, the configuration is best described as minimal viable compliance. The tax-exempt vehicle—the FIHV in Hong Kong, the section 13O or 13U vehicle in Singapore—is present in each of the six offices reported on directly: it is the entry ticket. Basic offshore trusts likewise register as "widespread" across all three perspectives. Beyond the ticket, however, institutionalization thins rapidly: PTCs appear mainly among the largest families; FLPs are rare; investment committees that actually meet and keep minutes exist in two of the six offices and are in preparation in the rest; and a written Investment Policy Statement in active use was reported in one office only, with two more holding drafts. In these six offices the hard architecture extends about as far as the regulatory threshold requires and little further, with depth beyond that threshold appearing mainly among the largest families.

On the soft side the floor is uniformly low across the present sample. Item S1—a family constitution with real binding force—scores 1 in every one of the ten responses—in each of the six offices reported on directly and in all four advisers' assessments of prevalence. Item S7, a written succession plan with contingency arrangements, clusters at 1–2; where anything exists it is typically a will, which respondents themselves sharply distinguished from a succession plan. Item S6, the founder's delegation of strategic authority, sits at 1–2 everywhere except in the single office noted below, which records 4. This "hard-heavy, soft-light" asymmetry is no single perspective's bias but a fact jointly confirmed by all three parties—one of the few points on which the tracks agree without qualification.

The item-level scores underlying this description are set out in Table 4, reported as observed ranges within each track rather than as pooled means.

Table 4. Soft-governance maturity: observed score ranges by track (S1–S12)

Item	A1 principals (n = 3)	A2 executives (n = 3)	B advisors (n = 4)
S1 Family constitution with real binding force	1	1	1
S2 Family council convened regularly	1–2	1–2	1–2
S3 Next-generation development arrangements	1–2	1–2	1–2
S4 Strategic authority held by non-family executives	1–2	2–4	1–2
S5 Long-term incentives for the professional team	1–2	1–3	1–2
S6 Extent of first-generation delegation	2	2–4	1–2
S7 Written succession plan with contingency arrangements	1–2	1	1–2 (wills alone, 3)
S8 Successor's willingness to take over the onshore business	2–3	2–4	2–3
S9 Successor's willingness to lead the offshore office	2–4	2–3	3–4
S10 Intergenerational alignment on investment strategy	3	2	2–3
S11 Intergenerational alignment on risk appetite	2–3	2	2–3
S12 Functional positioning (1 = offshore account; 5 = governance platform)	2	3	2

Note. n = 10 (A1 = 3, A2 = 3, B = 4). Five-point scale; A1 and A2 rate their own office, B rates prevalence across a client base, so the tracks are not metrically equivalent and no pooled mean is computed. On S9–S11 one A1 informant recorded N/A (no successor of assessable age), so those rows rest on two A1 responses. On S7 one advisor distinguished the prevalence of wills (3) from that of succession plans proper (1–2); the higher figure is reported separately because respondents themselves drew the distinction. Source: Author's fieldwork.

Two features of Table 4 carry the argument. The first is the flatness of the constitution and succession rows: S1 records the minimum value in all ten responses, across all three tracks, and S7 clusters at 1–2 with the single higher figure attaching to wills rather than to succession plans. The second is that the only substantial variance in the table sits on the delegation items, S4 and S6, and is produced by a single office: the one with roughly fifteen years of operating history and the most complete investment architecture (A2-01) records 4 on both, against 1–2 everywhere else. Delegation, in other words, varies with whether an institutional interface exists to delegate through, not with the respondent's track; and it varies independently of the constitution and succession items, which stay at the floor even in that office.

The asymmetry locks in the SFO's actual function. No respondent in the present sample defined the SFO as a "family strategic governance platform" (all S12 scores at or below 3); through M-GTA concept generation, respondents converged instead on the term safe island. The senior asset-management practitioner (B-01) observed: "Because there is a succession need, assets must first be isolated before succession—making sure the assets are safe and the transfer is efficient." Notably, the safe island is not opposed to succession but conceived as its antechamber—isolation first, governance "later"; yet the deferral carried no trigger date, and in none of the six offices reported on directly had "later" arrived.

The most tangible physical evidence of stagnation came from the chief executive of one of the offices (A2-02), whose self-drafted Investment Policy Statement "has been lying in a drawer for two years": the document exists; the institution does not. Section 4.2 turns from morphology to mechanism, asking why families that purchase sophisticated legal architecture refuse the far cheaper instrument of written rules.

4.2 Deep Attribution: SEW Rigidity and Ceremonial Decoupling

Confronting the gap, the study situates it within the ceremonial-adoption-and-decoupling frame (Meyer & Rowan, 1977). Families adopt hard architecture essentially to acquire the legitimacy of compliance and tax exemption, while actual power operations decouple thoroughly from the formal structures. The principal driver of this decoupling suggested by the data is the rigid control fixation (the F dimension) of Chinese-style SEW.

(1) Concentration on the control dimension, and differences between stakeholder positions. The item scores are reported by track rather than as a pooled mean. On F (family control) every one of the ten respondents recorded the maximum value of 5, with no variation between the three tracks, while on R (willingness to cede succession control) the observed range was 1–2. A wealth advisor (B-01) pierced the logic: "This wealth is new money… his demand for control far exceeds the returns the money itself can generate."

The tracks diverge most clearly on S+ (reputation and face), but the divergence is one of referent rather than of measurement. Advisors, rating how common a condition is across a client base, place client priorities on financial returns (observed range 2–3), whereas executives place reputation at the maximum without exception (5) and principals divide sharply (2–5). The division inside the principal track is itself informative: the two principals whose families are tied to listed companies score 4–5, while the first-generation trader whose business is privately held scores 2, which suggests that the weight of reputation tracks public exposure rather than family wealth as such. Because the two ratings answer different questions, this is reported as a qualitative contrast between vantage points and not as a measured gap. Because family office investments are tightly bound to the principal's social reputation, executives are forced, in the absence of rules, to "play the villain through due-diligence procedure" and to "coordinate family relations in the flesh" (A2-03).

(2) Two patterns of decoupling: the "hollow trust" and the "flesh-and-blood council." Driven by absolute control, M-GTA distills two decoupling concepts. First, the hollow trust: despite nominally irrevocable trusts, first-generation principals retain sweeping investment discretion and trustee-replacement powers. A senior trust practitioner (B-02) captured it precisely as "a safe-deposit box wrapped in a trust shell," noting that in practice "the letter of wishes is written in more detail than the deed—the trustee is, in substance, a cashier." The term hollow trust is used here as an analytical metaphor for this pattern of practice. It is not a legal characterisation: it does not imply that any trust in the sample is a sham, void or unenforceable, and, as Section 4.3 notes, the reservation of investment or asset-management powers is expressly

permitted in both jurisdictions. Second, the flesh-and-blood council. A cross-border private-client lawyer (B-04) exposed the psychology of refusing to sign a family constitution: “Signing a charter is handing your own power a prison sentence… launching the project is itself a signal performed for the second generation or the banks.” Having rejected written rules, “the holiday dinner table is the supreme governing body” (A2-03), and the family is left to govern through personal authority alone.

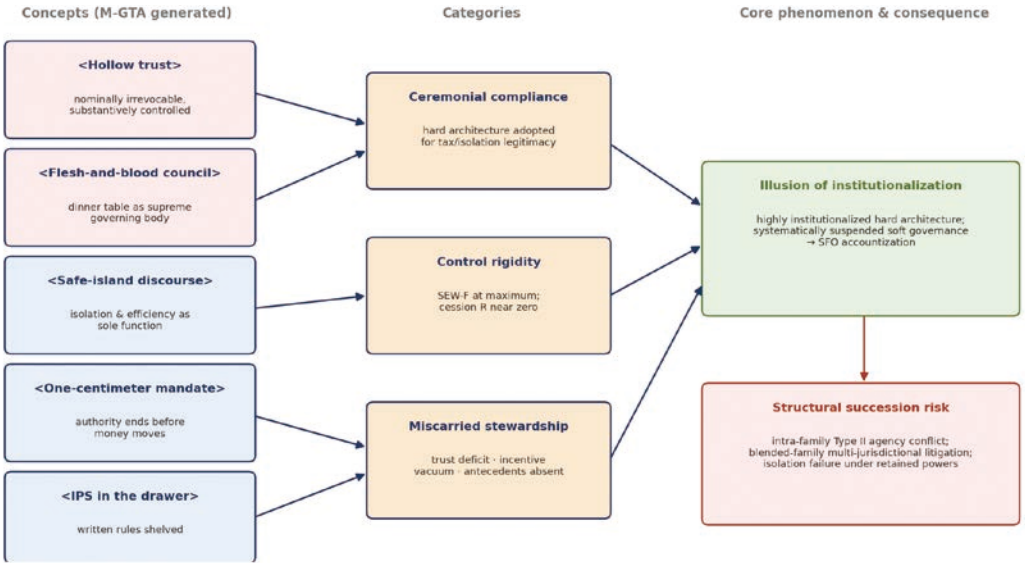

Figure 2. M-GTA result diagram: the generation of the “illusion of institutionalization”

(Source: Created by the author. Note. The diagram reports the relations among the categories generated in this study; it is a proposed relational model rather than a tested causal path)

4.3 Risk Extrapolation: Type II Agency Conflict and Isolation Failure under Accountized Operation

Suspended soft governance is likely to precipitate structural succession risk. UBS’s global survey supplies direct corroboration: among family offices that do have succession plans, fewer than one-third consulted the next generation at the outset of planning; among those without plans, 29% attribute the omission to the principal’s view that “it is not yet a priority” (UBS, 2025). The exclusion of the next generation and indefinite deferral are precisely the seedbed of Type II conflict. Because of asset delocalization and hollow trusts, professional executives’ authority is compressed to the extreme—their authority ending, as the executives described it, just before the money moves—leaving minimal room for malfeasance. As the private-client lawyer (B-04) observed in a retrospective review: “The door was installed facing the wrong direction… the protagonists of major-loss cases are mostly family members and in-laws.” Within the present sample, the core risk of the offshore family office appears to be Type II agency conflict—the expropriation of non-controlling family members by controlling ones. Type II agency conflict is used here in the sense established in the family firm literature, where the relevant opposition is between controlling and non-controlling owners rather than between owners and managers, and where the parties may be branches of a family, spouses, beneficiaries under a trust, or a trustee acting on one branch’s instructions (Schulze et al., 2001; Villalonga & Amit, 2006; Zellweger & Kammerlander, 2015). It should be stressed that this

study observed no actual succession dispute, litigation, creditor claim or invalidated trust within the sampled SFOs. What the interviews record are practitioners' anticipations, and Type II conflict is accordingly reported as a perceived and prospective risk rather than as a demonstrated consequence of the governance gap. The mechanism is nonetheless visible in ordinary operations rather than only in crisis. One executive described a recurring pattern in which a member of the extended family, holding no position in the office, routinely brings investment proposals to it, so that a substantial part of the executive's work consists of declining them without giving offence—the function of the due-diligence procedure quoted above. Where no rule governs related-party proposals, the cost of refusing them falls on an employee who has no standing in the family.

Risk may erupt along two principal paths. First, multi-jurisdictional litigation in blended families. The absence of a family constitution leaves weaker members in prolonged suspension. A second-generation respondent (A1-03) put it plainly: the ambiguous ownership is her anchor, "and also the suspension itself." The same lawyer (B-04) warned that where architecture rests only on the official family narrative, the excluded will launch multi-jurisdictional proceedings upon the principal's death: "the lawyer can only plan for the family you disclose, but the court adjudicates the family you actually have." Second, perceived exposure arising from retained powers. Practitioners in the sample identified extensive retained powers and post-settlement conduct as the principal sources of exposure. As a matter of law, however, the reservation of investment or asset-management powers does not of itself invalidate a trust: section 41X of Hong Kong's Trustee Ordinance (Cap. 29), inserted by the Trust Law (Amendment) Ordinance 2013, and section 90(5) of Singapore's Trustees Act 1967 both provide that a trust is not invalid by reason only of such reservation. The exposures at issue are analytically distinct from one another—a finding of sham or illusory trust, a fraudulent conveyance, a creditor claim against the settlor's retained interest, tax residence and reporting consequences, and the enforceability of the structure against a foreign judgment—and each turns on its own test and its own evidence. When onshore crisis strikes, first-generation principals repeatedly deploy offshore assets through informal instruction; the resulting flow-back traces become the creditor's best evidence that "the trust is in substance the settlor's wallet." In the practitioners' assessment, retaining extensive powers for want of trust weakens the very separation the structure was built to achieve. Whether it does so as a matter of law would depend on the specific facts and on which of the doctrines above were invoked; the interview material supports the perception, not the legal conclusion.

4.4 Next-Generation Participation in the Offshore Institution

The second sub-question asks at what level the next generation participates in these offshore institutions, and the material bearing on it is reported here rather than dispersed through the preceding subsections. Participation is uneven and, where it exists, personal rather than institutional. In two of the six families a junior-generation member does hold an operative position: a second-generation heir manages her family's offshore vehicle and reports periodically to the founder (A1-03), and a third-generation member by marriage convenes and administers the office of a three-branch family on an unpaid basis (A1-02). Neither position, however, rests on a defined mandate. Across the sample no case reported an investment

committee that meets and minutes its decisions with a next-generation member seated on it, a formal role specified in a council charter, or a documented development programme; in the two cases above the role exists because a particular person occupies it, and would lapse with that person. Item S7, the written succession plan, clusters at 1–2, and where a document exists it is a will rather than a plan for the transfer of authority. The global survey evidence points the same way: among family offices that do have succession plans, fewer than one-third consulted the next generation when planning began (UBS, 2025).

Two features of this exclusion are worth separating. The first is that it is not, in these cases, a reflection of disengagement on the part of the second generation. On the transferability items, second-generation heirs and executives recorded the strongest demand for professional stewardship and for a constituted council (J2/J3, range 4–5) against minimal first-generation willingness (1–2); as the second-generation respondent (A1-03) put it, “rules are most valuable to those standing in ambiguous positions.” Demand for governance in this sample runs from the junior generation upward, not from the founder down. The second is that the exclusion interacts with the reluctant-successor pattern described in Section 2.3 (Zhao, 2024; Le Breton-Miller et al., 2004): heirs who are estranged from the onshore operating business gravitate toward the offshore pool, which is precisely the asset over which the first generation is least willing to cede authority. The offshore SFO thereby becomes the site where the two generations’ expectations meet without an institutional mechanism for resolving them—a condition that this study can document as it stands in 2026 but cannot yet observe in its consequences.

4.5 The Absent Cross-Cultural Longevity Model and the Transferability of Japanese Governance Elements

Why can offshore mainland SFOs not spontaneously evolve institutionalized decoupling of the Japanese shinise type—the banto chief steward and the mukoyoshi adopted son-in-law? Based on respondents’ scoring of the transferability of Japanese elements (J1–J5), the study reports the obstruction pattern in Table 5. Scores are given as observed ranges by track rather than as pooled means, and no quadrant plot is presented, since group sizes of three and four and the different referents of the tracks would lend a two-dimensional plot more precision than the data support.

Table 5. Transferability of Japanese governance elements: observed score ranges by track (J1–J5)

Element	Content of the item	Feasibility (observed range by track)	Willingness (observed range by track)
J1	A family charter with real binding force, specifying succession criteria, conflict-of-interest handling and exit mechanisms (kakun analogue)	A1 2–3; A2 2–3; B 3–4	A1 2–5; A2 1–4; B 2–3
J2	A constituted family council operating separately from the investment function (Omotokata analogue)	A1 2–3; A2 2; B 2–4	A1 2–4; A2 2–5; B 2–4
J3	Full delegation to a non-family professional steward on a "reign but do not rule" basis (banto analogue)	A1 2–3; A2 2–4; B 2–3	A1 1–4; A2 2–5; B 1–4
J4	Long-term binding incentives for core executives—co-investment, carried interest, honorary partnership (noren-wake analogue)	A1 2–4; A2 3–4; B 3–4	A1 2–5; A2 3–5; B 2–3
J5	Quasi-adoption: admitting non-kin talent to the family governance core within what Chinese law and custom permit (mukoyoshi analogue)	A1 1–2; A2 1; B 2–3	A1 1–2; A2 1–2; B 1–3

Note. n = 10 (A1 = 3, A2 = 3, B = 4). Values are observed ranges reported separately by track; no pooled mean is computed, and the two axes are not combined into a single plot. Categories A1 and A2 rate the proposition for their own office, whereas category B rates how common the condition is across a client base, so the two are not metrically equivalent. Item wording is abbreviated from the instrument; each element is scored twice, on feasibility and on willingness. Source: Author's fieldwork.

Three patterns stand out. First, a strong bloodline boundary constrains quasi-adoption (J5) among the sampled families: introducing non-kin talent into the family identity receives the lowest scores of the five elements on both axes within the family and executive tracks (1–2 throughout, and 1 on feasibility in every executive response). The advisor track is marginally less categorical (feasibility 2–3, willingness 1–3), the single highest reading coming from the adviser with the broadest client base, who rated both axes 3; that divergence is retained rather than smoothed, since it suggests the boundary may be less absolute across a wider population than within these six families. A first-generation respondent (A1-01) was candid: "those who run things and those who share the money are two different matters"—however capable, an executive can never merge into the family in identity. Second, the supply–demand contradiction of the family council and of professional stewardship (J2 and J3 respectively): interested parties—second-generation heirs and executives—express strong demand (4–5), while first-generation founders' willingness is minimal (1–2). As the second-generation respondent (A1-03) suffering under ambiguous ownership observed, "rules are most valuable to those standing in ambiguous positions." Third, the vacuum of long-term binding incentives (J4): although J4 records the highest feasibility of the five elements (3–4 in the executive and advisor tracks), practice shows large-scale absence, with S5 sitting at 1–2 in every track but one. The general manager of the largest office in the sample (A2-01) was incisive: without co-investment and partnership equity, "no one is structurally motivated to take responsibility for the platform's intergenerational continuity." The absence is filled informally rather than left empty: in one office the chief executive has established a separate investment vehicle of his own, open to outside capital, in which the principal holds an initial stake. The arrangement supplies, outside the family office, the ownership stake and strategic latitude that the office itself does not offer—an improvised functional equivalent of the noren-wake bond,

and an indication that the demand J4 measures is real even where the instrument is absent.

In sum, under the triple constraint of capital-control-induced asset delocalization and the absence of endogenous trust mechanisms, the present evidence is consistent with a pattern in which offshore mainland SFOs do not move out of the accountization trap through endogenous evolution alone.

Before that reading is accepted, the rival explanations flagged in Section 1 should be set against it. Three of them receive some support in the data and are not eliminated. Organisational youth is the strongest, though not uniform: most offices in the sample were established within the past five years, and the safe island discourse is consistent with sequencing—isolation first, governance later—rather than with permanent refusal, although no case had attached a date to "later." The exception is instructive: the one office with roughly fifteen years of operating history (A2-01) is also the one with the most complete investment-side architecture, yet its family constitution and succession plan are as absent as everywhere else. Age appears to build the investment machinery without, on its own, building the governance. Deliberate allocation elsewhere is the second: a family that keeps its council and charter onshore or inside the operating group would present exactly the offshore profile observed here, and the interviews did not systematically establish the absence of such arrangements outside the offshore entity. Cost and privacy form the third: formalisation carries fees and creates documents that are discoverable, and both considerations were raised by advisors. Three further candidates receive less support. Assets under management do not track the pattern, since S1 scores 1 across the full range of estimated AUM bands in the sample. Adviser business models would predict advisors overstating the value of governance products, whereas the advisor track scored client governance maturity lower than the insiders did. And jurisdictional requirements cannot account for the asymmetry, since neither the FIHV regime nor sections 13O and 13U requires a family constitution, yet both are complied with in every one of the six offices while the constitution is absent in all ten responses. The design cannot rank these explanations, and the account developed above should be read as the most consistent reading of a small body of evidence rather than as the elimination of the alternatives.

5. Conclusion

5.1 Summary of Findings

Through a multi-stakeholder exploratory design combining qualitative interviews with descriptive item ratings—M-GTA being applied to the qualitative material, while the item scores were used descriptively and not for inferential analysis—this study has explored the governance ecology of single family offices established by mainland new-wealth families in the offshore jurisdictions of Hong Kong and Singapore; the interview evidence enriches and revises the three initial sensitizing propositions. Read against the three sub-questions, the state of soft governance mechanisms inside offshore SFOs is set out in Section 4.1, next-generation participation in Section 4.4, and the interweaving of the three generative mechanisms in Sections 4.2 and 4.5. Two of the three were revised rather than simply supported. P2 anticipated that asset

delocalization, Chinese-style SEW and the one-child constraint would operate as three parallel mechanisms, whereas the data place the control dimension of SEW in the dominant position and show the one-child constraint operating indirectly, through the reluctant-successor pattern. P3 anticipated that risk would materialise at succession, whereas the data locate an earlier failure point in firewall penetration by the settlor during the founder's own lifetime. On gap morphology (P1), the data indicate a marked asymmetry of ceremonial institutionalization: offshore SFOs efficiently adopt tax-exempt vehicles and trust shells while family constitutions and councils flatline, their real function regressing to an offshore wealth-management and tax-compliance account. On generative mechanism (P2), the configuration is produced by the interweaving of capital-control-induced asset delocalization with the absolute control (F = 5) and bloodline rigidity of Chinese-style SEW, a configuration that is consistent with an erosion of the situational antecedents for converting agents into stewards. On risk consequence (P3), this state appears to constrain intergenerational dispute-resolution capacity, so that, within this sample, the core risk is not the Type I problem of external managers appropriating wealth but the intra-family, multi-house expropriation of Type II agency conflict—ignited by retained powers and ambiguous ownership—together with the isolation failure engendered by hollow trusts.

5.2 Theoretical Contributions

Subject to the exploratory status of the evidence, the paper offers three contributions to family office and governance theory, each advanced as a testable proposition rather than as an established demonstration. First, within the macro-institutional context of asset delocalization, it identifies boundary conditions of stewardship theory (Davis et al., 1997) in the family office setting: when the offshore capital pool is severed from operating-business roots and long-term incentives are vacant, professional executives lose organizational embeddedness and strategic autonomy, and a high-trust stewardship environment is unlikely to arise endogenously. Second, it extends the macro-level neo-institutionalist concepts of ceremonial adoption and decoupling (Meyer & Rowan, 1977) into the micro-mechanics of UHNW wealth management, suggesting that the purchase of expensive legal architecture is best read as conformity to the legitimacy of tax and isolation benefits, while the refusal to sign a constitution protects the exclusivity of patriarchal core power. Third, it points to a divergence between the SEW logic observed among the sampled mainland families and the SEW logic reported for Japanese long-lived firms: the former holds control and bloodline as non-negotiable supreme criteria, preferring inefficiency to delegation; the latter centers on business perpetuity and can accommodate the institutionalized decoupling of ownership from competence. This comparison is offered as a tentative interpretation: the Japanese material is drawn from the secondary literature (Mehrotra et al., 2013) rather than from primary evidence collected here, and no Japanese case was studied for the purposes of this paper.

5.3 Implications and a Future Research Agenda: The Prospect of Governance Upgrading

This section is normative and forward-looking rather than empirical. The transferability data collected in this study (items J1–J5) record informants' assessments of the feasibility of, and their willingness to adopt, Japanese-style governance elements; they do not measure the effects of adopting those elements, which no

case in the sample has done. What follows is therefore offered as implications and a research agenda rather than as a conclusion warranted by the evidence presented in Section 4. The analysis above identifies not merely the problem but a possible starting point for deeper reconstruction of family governance. Given asset delocalization, property-rights anxiety, and the absence of an internal trust loop, mainland new-wealth families appear unlikely, on this reading, to move out of the accountization trap through endogenous evolution alone. In comparative perspective, the predicament may call for top-down institutional transplantation from outside. Future research and practice may explore how the core of Japanese longevity-firm mechanisms—full delegation to banto-style stewards and the elite bonding of mukoyoshi—can be given functionally equivalent local designs under the mature trust law of Hong Kong and Singapore: for example, substituting PTC board seats for the family council, or substituting entitlement pools of trust-asset income for the corresponding incentive cessions. Whether borrowing the coercive force of legal frameworks to compel delegation and rule-making can genuinely repair the structural trust deficit of the delocalized context is a proposition that this study raises but cannot test; establishing it would require longitudinal observation of families that actually implement such designs.

5.4 Limitations and Future Research

The study has limitations. First, given formidable privacy barriers, the sample of valid informants at the FIHV / 13O / 13U level remains small (n = 10); the study is accordingly positioned as an exploratory pilot study that generates propositions rather than one that claims theoretical saturation, and the concept-generation trajectory and the treatment of discrepant evidence are set out in Section 3.4. Moreover, the research is cross-sectional, capturing mainly the static pain points of the early offshore phase. Second, comparison across the three stakeholder positions can reveal points of convergence and divergence between them, but it does not remove the biases arising from selection, access, role and social desirability; family principals' answers on sensitive control-transfer questions inevitably retain a defensive cast. Future research may expand samples for quantitative testing as the offshore family office industry matures, and may deploy longitudinal tracking to observe the real survival rates and courtroom contests of these SFOs after first-generation decline or actual succession, thereby measuring more accurately the stress resilience and true governance efficacy of offshore trust structures. In addition, the double-low scoring of quasi-adoption (J5) suggests that Chinese-style SEW erects a robust cultural boundary against adoption-based and non-kin governance models; mapping the depth, contours, and potential softening conditions of this boundary—particularly through functional equivalents admissible under Chinese law and culture—constitutes a promising avenue for future research. Finally, and most generally, every finding reported here is bounded by the sample: the study characterises six mainland-origin offshore SFOs at the FIHV / 13O / 13U threshold, together with four advisers' assessments across their client bases, as observed in 2026, and its results are offered as theory-generating propositions for subsequent testing rather than as established regularities of the offshore family office population. Three further limitations follow from this position. The confidentiality undertakings given to principals and advisors preclude publication of the raw worksheets and transcripts, so the traceability of the analysis rests on Table 3 rather than on a full evidentiary appendix. The sample is too small to separate the jurisdictions, and the differences between Hong Kong's FIHV regime

and Singapore's sections 13O and 13U are therefore treated as a boundary on the claims rather than as a variable. And although Section 4.5 examines rival explanations, a design of this size cannot rank them: whether the observed pattern reflects institutional and cultural constraint, the youth of the offices, or a deliberate allocation of governance functions outside the SFO is a question that only a larger and longitudinal design can settle.

Notes

［1］ This paper deliberately adopts the term "asset delocalization" to denote the structural separation—geographic, legal, and functional—between onshore operating businesses and offshore financial assets under capital controls. To preserve conceptual clarity, the paper deliberately avoids the term "decoupling," reserving it for the organizational-sociology sense of formal-structure/practice decoupling (Meyer & Rowan, 1977) and for the ownership–competence decoupling discussed in the companion cross-cultural study. Following journal convention, the parts of this article are referred to as sections rather than chapters.

［2］ The Governance Survey Handbook for Offshore SFOs of Mainland Chinese New-Wealth Families, the multi-track interview baseline matrices, and the expert interview transcripts applied in this study are proprietary research products of the author. The confidentiality undertakings given to the participating principals and advisors, and the fact that informants would be identifiable within so small and private a population, preclude their publication in full. Rather than appending redacted extracts, the traceable core of the analysis has been placed in the main text: Table 1 records the provenance of every industry figure cited, Table 2 the anonymised participant profile, Table 3 each generated concept with its definition, an illustrative quotation, the tracks supporting it, and any discrepant evidence, Table 4 the item-level scores on soft-governance maturity, and Table 5 the item-level scores on the transferability of the Japanese governance elements. The non-confidential item list of the survey instrument and the coding rules described in Section 3.4 are available from the author through the editorial office. Only external academic literature, official legal sources and authoritative industry reports are listed in the References below.

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2
2026年９月　pp. 325–341

Article

The Evolution and Reconfiguration of Organizational Forms in AI-Driven Retail Enterprises:

A Theoretical Examination of Organizational Mechanism Reconfiguration in FMCG Retail Enterprises

AI駆動型小売企業における組織形態の進化と再構成

―FMCG小売企業における組織メカニズム再構成の理論的考察―

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Abstract

This study theoretically explains how artificial intelligence (AI) utilization transforms the organizational forms of fast-moving consumer goods (FMCG) retail enterprises. Unlike conventional IT-enabled digital transformation, which mainly records, standardizes, and visualizes predefined processes, AI performs probabilistic inference, prediction, generation, and bounded decision execution, thereby reallocating cognitive tasks and decision rights. Drawing on dynamic capability, organizational routine, and sociotechnical systems theories, the study links AI utilization depth to organizational mechanism reconfiguration, organizational agility, and organizational form reconfiguration. The mechanism comprises data-driven decision-making, process collaboration reconfiguration, and human-AI collaboration maturity; data governance enables the first transition, whereas organizational inertia constrains the second. Propositions are anchored in FMCG operations such as automated replenishment, dynamic pricing, promotion optimization, and shelf-space allocation. Middle managers are positioned as cross-cutting orchestrators of interpretation, exception handling, and learning. Illustrative survey items and observable indicators are provided to support future quantitative and qualitative research, together with an actionable managerial implementation guide.

Keywords: artificial intelligence; FMCG retailing; organizational form; organizational agility; human-AI collaboration

1. Introduction

Retailing is confronted with multiple environmental shifts, including diversified consumer touchpoints, faster demand fluctuations, increasingly complex supply chains, and the integration of online and offline channels (Grewal et al., 2017). These pressures are particularly acute for retail enterprises dealing in fast-moving consumer goods (FMCG), where unit prices are relatively low, purchase frequency is high, and the management of inventory turnover and promotional effectiveness directly affects competitive advantage. Such enterprises must therefore execute demand forecasting, replenishment, shelf-space allocation, pricing, promotions, and customer service with greater precision and speed. In recent years, AI technologies - including machine learning, natural language processing, image recognition, and generative AI - have rapidly penetrated these operational domains.

The organizational implications of AI differ fundamentally from those of conventional information technology (IT) and standard digital transformation (DX). ERP systems, transaction systems, and dashboards primarily function as systems of record and workflow: they capture structured data, execute predefined rules, standardize processes, and make past or current states visible. Their decision logic changes mainly when people redesign a process or recode a rule. AI systems, by contrast, infer patterns probabilistically, produce forecasts, recommendations, and generated content, update outputs as data and feedback accumulate, and may execute bounded decisions within delegated guardrails (Agrawal et al., 2018; Benbya et al., 2020). Conventional DX therefore digitizes and integrates human-designed processes, whereas AI-driven transformation also reallocates cognitive tasks, decision authority, monitoring responsibilities, and accountability between algorithms and organizational members (Ministry of Economy, Trade and Industry, 2018; Zammuto et al., 2007).

Existing research, however, tends to discuss the value of AI in retailing primarily in terms of performance outcomes such as demand-forecasting accuracy, inventory reduction, customer experience, and marketing efficiency (Shankar, 2018). Although these studies are important, they do not fully explain through which organizational mechanisms AI triggers changes in organizational form. Questions such as how AI changes the role of middle managers, how interdepartmental coordination is reconfigured, and to what extent frontline sales and operations teams can make autonomous decisions based on data and AI remain insufficiently explored.

This study views AI not merely as an operational efficiency tool but as a cognitive technological system that transforms organizational routines and organizational forms. It proposes a theoretical framework in which the depth of AI utilization enhances organizational agility through three organizational mechanisms - data-driven decision-making that integrates experiential knowledge and AI learning outcomes, reconfiguration of process collaboration, and maturity of human-AI collaboration - and ultimately leads to the reconfiguration of organizational forms. The study focuses on retail enterprises whose principal merchandise consists of FMCG, as well as comparable brand and distribution enterprises.

2. Literature Review

2.1 AI and Organizational Transformation in Retailing

Research on AI use in retailing can be broadly divided into four domains: customer interfaces, marketing, supply chains, and store operations. Research on customer interfaces addresses chatbots, recommendation systems, personalized service, and the augmentation of service work (Huang & Rust, 2018). Marketing research focuses on consumer segmentation, advertising delivery, measurement of promotional effectiveness, and dynamic pricing. Supply chain research examines demand forecasting, inventory optimization, replenishment planning, and logistics route optimization. Research on store operations has explored shelf-space monitoring through image recognition, self-checkout, cashierless stores, and workforce allocation optimization (Shankar, 2018; Weber & Schütte, 2019).

These studies demonstrate that AI can improve retail efficiency and customer value, but its organizational effects are often treated as secondary to the business application itself. Retail technology research also emphasizes technology-enabled decision support, big data, and changing customer interfaces, while paying less attention to the redesign of authority, routines, and cross-functional coordination (Grewal et al., 2017; Shankar, 2018). In practice, frontline employees, store managers, category managers, supply chain personnel, and senior executives must interpret AI-generated forecasts and recommendations and incorporate them into business judgments. AI adoption therefore entails not merely the introduction of a tool but the reconstitution of organizational practice.

2.2 FMCG Retail as an Organizational Context

FMCG retailing is a distinctive organizational context because high SKU counts, frequent transactions, low margins, perishability, promotional volatility, and distributed store operations create tightly coupled decisions across retailers, suppliers, categories, and stores. Research on efficient consumer response and category management shows that performance depends on joint planning, shared information, and the integration of retailer and supplier knowledge, while also revealing coordination barriers and asymmetric interests (Corsten & Kumar, 2005; Dupre & Gruen, 2004). Store-level research further documents substantial inventory record inaccuracy across stores and product categories, demonstrating that centralized system data can diverge from frontline operational reality (DeHoratius & Raman, 2008).

AI intensifies these interdependencies. Machine-learning demand forecasting for short-shelf-life FMCG products can improve predictive performance, but its organizational value depends on timely data, coordinated replenishment and merchandising action, and frontline validation of exceptions (Tarallo et al., 2019). FMCG retail enterprises therefore provide a theoretically revealing setting in which AI affects not only forecasting accuracy but also who interprets signals, who authorizes replenishment or price changes, how functions coordinate, and how local knowledge is returned to the model. This organizational layer remains less developed than the technical and operational literature and constitutes the gap addressed by this study.

2.3 Organizational and Theoretical Perspectives

Information processing theory, sociotechnical systems theory, and the technology-in-practice perspective provide important lenses for understanding the relationship between technology and organization. Galbraith (1974) viewed organizational structure as a fit between environmental uncertainty and information-processing requirements. Sociotechnical systems theory emphasizes mutual alignment between technical and social systems. Orlikowski (1992) showed that technology acquires meaning and becomes institutionalized through organizational practice, while technology-embeddedness and affordance research explains why information systems and organizing structures evolve together rather than through one-way technical impact (Volkoff et al., 2007; Zammuto et al., 2007).

Research on organizations in the AI era highlights the duality of automation and augmentation. Davenport and Ronanki (2018) argued that AI supports process automation, insight generation, and engagement with customers and employees. Faraj et al. (2018) suggested that learning algorithms may reshape expertise, occupational boundaries, and modes of coordination. Benbya et al. (2020) emphasized that AI combines technical opportunities with organizational challenges, while Raisch and Krakowski (2021) contended that automation and augmentation form a paradox that organizations must manage continuously.

Dynamic capability theory further helps explain how AI relates to retail enterprises' capacity to respond to change. Teece et al. (1997) and Teece (2007) conceptualized dynamic capabilities as a firm's ability to sense environmental change, seize opportunities, and reconfigure resources; Eisenhardt and Martin (2000) further emphasized identifiable organizational processes through which such reconfiguration occurs. For retail enterprises, AI can serve both as a means of sensing market change and as an infrastructure for rapidly reconfiguring inventory, pricing, promotions, and workforce allocation. AI alone, however, does not guarantee dynamic capabilities. It enhances organizational agility only when it becomes embedded in routines and when collaboration and authority allocation are redesigned.

Organizational routine theory is also important. Nelson and Winter (1982) established routines as repositories of organizational capability, while Feldman and Pentland (2003) conceptualized routines as phenomena that combine stability with the potential for change. When AI is incorporated into decision-making, everyday routines such as reviewing sales data, replenishing inventory, planning promotions, detecting anomalies, and responding to customers are reconfigured. The balance between exploitation of standardized routines and exploration through experimentation also becomes salient (March, 1991). Understanding AI-driven changes in organizational form therefore requires attention not simply to whether technology has been adopted, but to how AI transforms routines and learning.

3. Analytical Perspective and Conceptual Definitions

In this study, the depth of AI utilization is defined as "the extent to which AI is deeply embedded in an enterprise's core business processes and decision-making processes." Rather than merely asking whether

AI tools have been introduced, the construct emphasizes the business domains in which AI is used, the frequency of its use in everyday operations, and the extent to which important decisions depend on AI-generated predictions and recommendations. In FMCG retail enterprises, utilization depth is considered higher when AI is employed across multiple domains, including demand forecasting, replenishment, pricing, promotions, store operations, customer service, and workforce allocation.

Organizational mechanism reconfiguration refers to the process through which AI changes decision-making, business processes, and collaborative relationships within the organization. This study organizes it into three dimensions. The first is data-driven decision-making. As used here, data-driven decision-making does not mean excluding experience and replacing it with algorithms. Rather, it refers to decision-making that uses data to validate and codify frontline experience and tacit knowledge, while integrating AI-generated predictions and recommendations - updated through historical data and continuous feedback - with human contextual interpretation and value judgment. The second dimension is the reconfiguration of process collaboration, whereby activities previously fragmented across functions such as sales, marketing, logistics, store operations, human resources, and finance become connected through data platforms and AI models. The third dimension is the maturity of human-AI collaboration, meaning the extent to which the division of roles between humans and AI, the interpretation and validation of AI outputs, feedback-based learning, and accountability are clearly designed.

Organizational agility is the ability to quickly sense environmental change, make decisions, reallocate resources, and learn from execution outcomes (Sambamurthy et al., 2003). In retail enterprises, organizational agility is manifested in the ability to identify changes in stores, customers, inventory, logistics, and promotions within short cycles and translate them into appropriate measures. AI can strengthen this capability, but only when AI outputs are connected to cross-functional action.

Organizational form reconfiguration refers to compound changes in organizational structure, business processes, authority allocation, personnel deployment, culture, and boundaries. Traditional retail organizations have been characterized by functionally differentiated departments, hierarchical management, experience-centered judgment, and standardized store operations. By contrast, organizations with advanced AI utilization tend to move decision-making closer to the frontline, adopt cross-functional teams, design processes around data platforms, collaborate with external technology enterprises, and redesign jobs on the assumption of AI use.

This study conceptualizes organizational form reconfiguration along three mutually complementary directions. First, “flattening” refers to the vertical shortening of approval hierarchies and the movement of decision authority toward the frontline. Second, “networking” refers to greater horizontal density in cross-functional teams and interfirm linkages. Third, “platformization” refers to mechanisms that connect resources through a shared data and AI infrastructure, standardized interfaces, and reusable analytical and operational modules. These are not mutually exclusive organizational types, but distinct analytical dimen-

sions that may progress simultaneously within the same enterprise.

Middle-manager orchestration is treated in this framework not as a separate organizational mechanism parallel to the three dimensions above, but as a cross-cutting actor-level manifestation of them. It comprises interpretation of AI outputs, establishment of review and exception thresholds, translation across sales, merchandising, supply chain, store, and data teams, and facilitation of feedback-based learning. Future empirical research should therefore examine middle managers within human-AI collaboration maturity (Proposition 3), the conversion of mechanism reconfiguration into agility (Proposition 4), and the persistence or reduction of organizational inertia (Proposition 6b).

4. Theoretical Model and Analytical Propositions

Figure 1 presents the analytical framework proposed in this study. Rather than acting directly on organizational form, the depth of AI utilization first changes mechanisms related to decision-making, processes, and collaboration. These mechanisms enhance organizational agility, which in turn advances organizational form reconfiguration. Data governance capability facilitates the relationship between AI utilization depth and organizational mechanism reconfiguration. Organizational inertia, by contrast, constrains the extent to which reconfigured mechanisms are converted into rapid decision-making, resource reallocation, and execution capabilities.

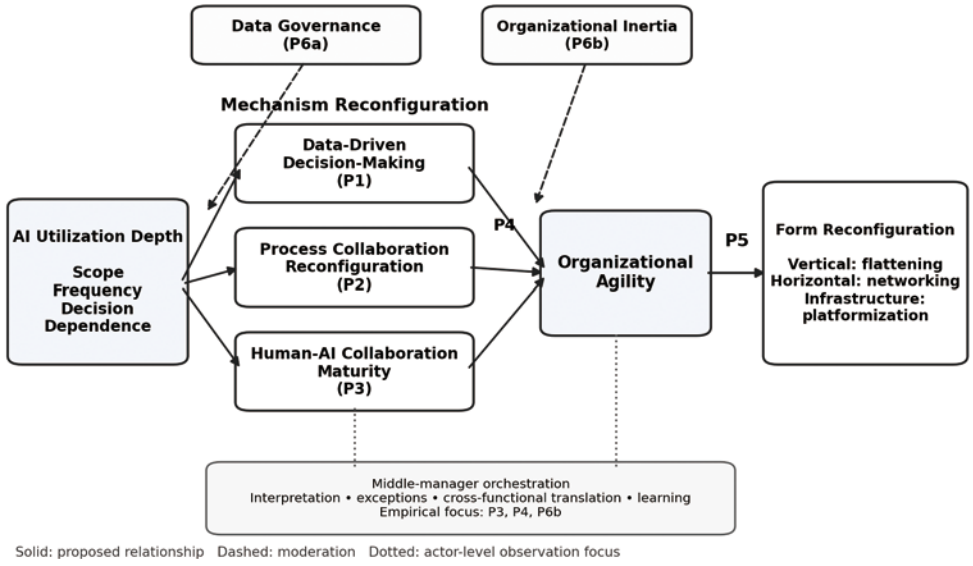

Figure 1. Analytical Framework Linking AI Utilization Depth and Organizational Form Reconfiguration

Source: Developed by the author.

The figure, propositions, and operational constructs follow a common logic. Propositions 1-3 correspond to the three paths from AI utilization depth to data-driven decision-making, process collaboration reconfiguration, and human-AI collaboration maturity. Proposition 4 links these mechanisms to organizational agility, and Proposition 5 links agility to vertical flattening, horizontal networking, and infrastructural

platformization. Propositions 6a and 6b represent the moderating effects of data governance capability and organizational inertia. Table 2 operationalizes every box and boundary condition in Figure 1; middle-manager indicators are intentionally embedded in the rows for human-AI collaboration, process collaboration, and organizational inertia.

4.1 Depth of AI Utilization and Data-Driven Decision-Making

Decision-making in FMCG retail enterprises requires the processing of large volumes of information because demand fluctuations, seasonality, regional differences, promotions, competitor behavior, and shelf constraints are intertwined. As AI utilization deepens, store- and SKU-level sales, inventory, customer, weather, price, and promotion data are integrated into demand forecasts, automated replenishment proposals, dynamic pricing recommendations, and shelf-space optimization. Frontline experience is not excluded; it is validated by data and converted into knowledge that can be shared across stores and functions.

AI learning is not equivalent to human contextual knowledge concerning local events, supplier disruption, brand commitments, cold-chain constraints, or customer response. AI generates forecasts and recommendations, whereas category managers and store teams interpret their meaning, handle exceptions, and record the reasons for accepting or overriding a recommendation. When those override reasons and outcomes feed subsequent model and process revisions, experiential knowledge becomes both auditable and reusable.

Proposition 1: *In FMCG retail enterprises, greater AI utilization in demand forecasting, automated replenishment, dynamic pricing, promotion targeting, and shelf-space optimization promotes data-driven decision-making that integrates AI learning outcomes with documented frontline context and override feedback.*

4.2 Depth of AI Utilization and Reconfiguration of Process Collaboration

In traditional FMCG retail organizations, marketing, merchandising, procurement, logistics, store operations, finance, and human resources are functionally differentiated, and each department maintains its own KPIs. While specialization is useful, it can also create information discontinuities, coordination delays, and dispersed accountability. As AI utilization deepens, POS and e-commerce signals are linked to forecasts, automated replenishment, inventory transfers, shelf allocation, promotional design, pricing, and workforce planning on a shared data infrastructure.

A demand anomaly can therefore initiate a closed loop rather than a sequence of departmental requests: the model identifies the anomaly, replenishment and inventory-transfer options are generated, category and store constraints are checked, price or promotion actions are adjusted, and execution outcomes return as feedback. This change redesigns ownership, handoffs, decision rights, and shared KPIs; it is not merely a faster version of the former process.

Proposition 2: *In FMCG retail enterprises, deeper AI utilization that links POS and inventory signals to replenishment, pricing, shelf allocation, promotion, and workforce actions shifts collaboration from functionally fragmented handoffs toward cross-functional, closed-loop processes on shared data platforms.*

4.3 Depth of AI Utilization and Maturity of Human-AI Collaboration

The value created by AI depends substantially on how the relationship between humans and AI is designed. Uncritical acceptance of AI outputs may neglect frontline context and obscure accountability, whereas treating AI only as supplementary information prevents the organization from exploiting its speed and scale. The central design question is which high-frequency, reversible decisions may be executed within guardrails; which decisions require human review; which exceptions trigger escalation; and who remains accountable for outcomes.

In FMCG operations, AI may detect demand anomalies, propose assortments, recommend price or promotion changes, generate replenishment quantities, identify shelf gaps, and draft customer responses. Humans retain responsibility for guardrail design, exception judgment, customer and supplier relationships, food safety, ethics, and organizational learning. Middle managers translate model outputs across functions, adjudicate exceptions, and coach frontline teams to provide structured feedback.

Proposition 3: *In FMCG retail enterprises, greater AI utilization increases human-AI collaboration maturity, expressed in explicit task and decision rights, review thresholds, exception-handling rules, accountable human oversight, and feedback-based learning.*

4.4 Organizational Mechanism Reconfiguration and Organizational Agility

Data-driven decision-making, reconfiguration of process collaboration, and maturity of human-AI collaboration each enhance organizational agility. Data-driven decision-making enables earlier detection of market changes and makes the basis for judgment explicit. Reconfiguration of process collaboration reduces waiting times and coordination costs across departments. Maturity of human-AI collaboration enables AI outputs to be interpreted in accordance with the business context and facilitates rapid experimentation.

These three mechanisms are mutually complementary. Even when data are available, rapid execution will not follow if processes remain fragmented. Even when processes are integrated, organizational learning will not advance if humans cannot understand, validate, and improve AI outputs. Converting AI utilization into organizational agility therefore requires the integrated design of data, processes, and human-AI collaboration.

Middle managers are an observable conversion mechanism at this stage. Under Proposition 3, empirical research should examine whether they define role boundaries and review thresholds; under Proposition 4,

whether they translate AI signals into coordinated action and learning; and under Proposition 6b, whether they reduce or reproduce approval bottlenecks and function-specific resistance. This positioning makes their role testable without adding a redundant construct to the organization-level framework.

Proposition 4: *Data-driven decision-making, reconfiguration of process collaboration, and maturity of human-AI collaboration enhance the organizational agility of retail enterprises.*

4.5 Organizational Agility and Organizational Form Reconfiguration

Organizational agility is not a specific organizational structure in itself, but the capability to sense environmental change and rapidly make decisions, reallocate resources, and execute. The temporary manifestation of agility therefore does not immediately imply that hierarchies or functional boundaries have disappeared. However, when this capability is repeatedly exercised and becomes embedded in everyday routines, conventional bureaucratic structures are gradually reconsidered. Rapid market response is better supported by decisions made close to the frontline, cross-functional teams, shared data infrastructures, and iterative learning cycles than by lengthy approval hierarchies.

This reconfiguration appears in three directions. First, flattening represents a vertical change involving shorter approval hierarchies and the movement of decision authority toward the frontline. Second, networking represents a horizontal change that forms teams and linkages across departments, stores, and business partners around customer value or business processes. Third, platformization represents an infrastructural change that makes analytical capabilities and operational resources reusable through a shared data and AI infrastructure and standardized interfaces. These three directions are not mutually exclusive organizational types; they can progress in parallel across different dimensions of the organization.

Alongside these structural changes, organizational culture shifts from judgment that unconditionally prioritizes experience and intuition toward a culture that validates experiential knowledge through data and experimentation and connects it to learning. In terms of boundaries, collaboration with AI vendors, data enterprises, and platform operators becomes important alongside internal capabilities, making organizational boundaries more open.

Proposition 5: *Retail enterprises that continuously demonstrate organizational agility will advance organizational form reconfiguration along three mutually complementary directions: vertical flattening, horizontal networking, and infrastructural platformization.*

4.6 Boundary Conditions: Data Governance Capability and Organizational Inertia

Even when the depth of AI utilization is high, AI outputs will not be trusted within the organization if data quality, definitions, access rights, explainability, and accountability arrangements are inadequate. In FMCG retail enterprises, data relating to stores, e-commerce channels, logistics, membership programs, promotions, and finance are often dispersed, and the definitions of indicators may differ across

departments. Data governance capability is therefore a prerequisite for embedding AI in everyday decision-making and processes.

Organizational inertia, meanwhile, obstructs the process through which reconfigured decision-making, processes, and collaborative relationships become established as an actual capability for rapid action. If long-standing hierarchical approvals, function-specific KPIs, a culture that unconditionally prioritizes experience, and vested interests tied to existing jobs remain in place, the introduction of data integration and AI-supported processes will not sufficiently accelerate decision-making and execution. In this study, organizational inertia is not conceptualized as weakening organizational agility after it has already been realized; rather, it is positioned as a boundary condition that impedes the conversion of organizational mechanism reconfiguration into organizational agility. Middle managers in particular must assume new roles in data interpretation, exception judgment, and the facilitation of team learning, even as AI reduces their traditional roles in information aggregation and approval coordination.

Proposition 6a: *Data governance capability strengthens the relationship between the depth of AI utilization and organizational mechanism reconfiguration.*

Proposition 6b: *Organizational inertia weakens the relationship between organizational mechanism reconfiguration and organizational agility.*

5. Evolution of Organizational Forms in FMCG Retail Enterprises

Table 1 presents three ideal-typical stages synthesized from organizational design, technology-in-practice, retail AI, and automation-augmentation research rather than categories copied from a single prior study (Galbraith, 1974; Orlikowski, 1992; Zammuto et al., 2007; Davenport & Ronanki, 2018; Faraj et al., 2018; Raisch & Krakowski, 2021; Shankar, 2018; Weber & Schütte, 2019). The comparison identifies compound changes in decision-making, structure, processes, talent, culture, and organizational boundaries as AI utilization advances.

In the following discussion, point of sale (POS), customer relationship management (CRM), enterprise resource planning (ERP), and electronic commerce (EC) are referred to by their respective abbreviations.

Table 1. Stages in the Evolution of Organizational Forms in FMCG Retail Enterprises

Dimension	Traditional Hierarchical Organization	Digitally Enabled Organization	AI-Driven Agile Ecosystem Organization
Decision-making	Primarily dependent on the experience of managers and staff and on hierarchical approval	Combined use of data visualization, KPI management, and experiential judgment	Integration of AI predictions and recommendations, accumulated data, and frontline experience Decision-making moved toward the frontline
Organizational structure	Functional departments and hierarchical management	Establishment of digital and data departments; stronger interdepartmental coordination	Vertical: shorter authority hierarchies Horizontal: cross-department and cross-enterprise networks Infrastructure: shared data and AI platform
Business processes	Sequential and standardized; centered on paper documents and meetings	Connections through core business systems, customer management, EC, and dashboards	AI-supported processes in which prediction, execution, and feedback form a continuous cycle
Talent and jobs	Emphasis on frontline experience and managers' coordination capabilities	Expansion of data analysts and digital personnel	Business professionals capable of using AI, data translators, and AI product owners
Culture	Risk avoidance, experience-centered judgment, and departmental optimization	Data use, visualization, and continuous improvement	Validation and sharing of experiential knowledge through data; emphasis on experimentation, learning, and collaboration
Organizational boundaries	Activities completed largely within the enterprise; limited links with business partners	Collaboration with system vendors and e-commerce operators	Ecosystem collaboration with AI vendors, data enterprises, and platform operators

Source: Developed by the author based on Galbraith (1974), Orlikowski (1992), Zammuto et al. (2007), Davenport and Ronanki (2018), Faraj et al. (2018), Raisch and Krakowski (2021), Shankar (2018), and Weber and Schütte (2019).

Based on the framework proposed here, the organizational forms of FMCG retail enterprises can be understood in three stages: the traditional hierarchical organization, the digitally enabled organization, and the AI-driven agile ecosystem organization. In the first stage, the traditional hierarchical organization, decision-making is hierarchical, departments are functionally differentiated, and frontline employees follow standardized operating procedures. In the second stage, the digitally enabled organization, POS, CRM, ERP, EC, data dashboards, and related systems improve information visibility and strengthen interdepartmental coordination. Even at this stage, however, human experiential judgment and function-based management remain dominant.

In the third stage, the AI-driven agile ecosystem organization, AI performs prediction, recommendation, generation, and anomaly detection, whereas humans undertake meaning interpretation, value judgment, customer understanding, and organizational learning. The organization gives greater emphasis to cross-functional teams organized around customers, product categories, regions, or problems than to fixed functional departments. Moreover, because AI models and data infrastructures are difficult to complete entirely within a single enterprise, collaboration with external partners becomes routine.

This evolution is not necessarily linear or unidirectional. The pace of evolution varies with enterprise size, assortment, channel structure, data infrastructure, organizational culture, and managerial cognition. Nor does AI adoption imply the automation of all work. The critical issue is instead to clarify what should be standardized through AI, what should remain within human discretion, and in which domains organizational learning should be promoted.

Table 2. Illustrative Operationalization of Constructs for Future Empirical Research

Construct	Illustrative survey items (5-point agreement scale)	Observable / archival indicators
Depth of AI utilization	AIU1. AI is used routinely across several core activities (forecasting, replenishment, pricing, promotion, store operations, or service). AIU2. Managers depend on AI outputs when making recurring operating decisions. AIU3. AI outputs directly trigger or materially shape operational actions.	Number of active use domains; use frequency; share of decisions supported or boundedly automated; output-to-action rate.
Data-driven decision-making	DDM1. Decisions combine AI recommendations with relevant frontline context. DDM2. Reasons for accepting or overriding AI recommendations are documented. DDM3. Frontline corrections and outcomes are fed back into model or process improvement.	Recommendation adoption and override rates; reason-code coverage; feedback frequency; documented decision rationales.
Process collaboration reconfiguration	PCR1. AI outputs are shared through common workflows across merchandising, supply chain, stores, and data teams. PCR2. Forecast changes trigger coordinated replenishment, pricing, promotion, shelf, or labor actions. PCR3. Cross-functional teams use shared KPIs and own end-to-end outcomes.	Forecast-to-action lead time; number of handoffs and approvals; cross-functional team use; degree of data and workflow integration.
Human-AI collaboration maturity	HAI1. Task and decision rights between AI and people are explicitly defined. HAI2. Human-review thresholds and exception-escalation rules are clear. HAI3. Middle managers interpret AI outputs, coordinate exceptions, and facilitate learning across teams.	Review and escalation rates; exception-resolution time; training completion; accountability assignment; feedback-loop closure.
Organizational agility	AGI1. We detect important SKU-, store-, or customer-level changes quickly. AGI2. We rapidly adjust replenishment, pricing, promotions, or labor when conditions change. AGI3. We run and learn from operational experiments in short cycles.	Decision-cycle time; stockout or anomaly response time; promotion-adjustment time; experiment and pilot frequency.
Organizational form reconfiguration	OFR1. Approval layers have decreased and frontline decision authority has increased. OFR2. Cross-functional and interfirm teams are commonly used to solve operating problems. OFR3. Shared data, AI services, and operational modules are reused across units.	Approval layers; delegated decision scope; number of cross-functional or interfirm teams; platform or module reuse rate.

Construct	Illustrative survey items (5-point agreement scale)	Observable / archival indicators
Data governance capability	DGC1. Data definitions, quality standards, and access rules are consistent across functions. DGC2. Data ownership, lineage, model accountability, and explainability requirements are clear. DGC3. Model performance and drift are monitored and corrected routinely.	Data-quality scores; lineage coverage; issue-resolution time; access incidents; monitoring coverage; drift alerts resolved.
Organizational inertia	OIN1. Existing approval routines delay action even when AI evidence is available. OIN2. Function-specific KPIs discourage data sharing and coordinated action. OIN3. Managers resist delegating decisions or changing established roles after AI implementation.	Approval delays; unexplained overrides; adoption gaps; duplicate manual work; time between recommendation and execution.

Source: Developed by the author. Survey items are illustrative and require reliability, validity, and contextual testing before use as a formal scale.

Table 2 translates each construct in Figure 1 into provisional survey items and observable indicators. The survey items can support quantitative testing, while the indicators can guide interviews, process tracing, document analysis, and operational-data collection in case studies. The items are not presented as a validated universal scale: future studies should conduct expert review, cognitive interviews, pilot testing, and construct-validity assessment, and should adapt wording to retail format, country, and AI application. This flexible design avoids imposing a rigid scale on qualitative research while making the framework sufficiently concrete for empirical use.

6. Discussion

6.1 Theoretical Contributions

The theoretical contributions of this study can be summarized in three points. First, it conceptualizes AI not as a technology for improving operational efficiency in retail enterprises, but as a cognitive technological system that changes organizational mechanisms and organizational forms. In doing so, it extends AI research from questions of "whether AI has been adopted" and "whether AI affects performance" toward a process-oriented analysis of "which mechanisms within the organization are reconfigured."

Second, the study positions data-driven decision-making that integrates experiential knowledge and AI learning outcomes, reconfiguration of process collaboration, and maturity of human-AI collaboration as mediating mechanisms between the depth of AI utilization and organizational form reconfiguration. This helps explain why enterprises may achieve different outcomes even when they introduce the same AI technologies. Even when AI is deeply embedded in business operations, inadequate design of data, processes, and human-AI collaboration makes substantive organizational transformation less likely.

Third, the study incorporates data governance capability and organizational inertia as boundary conditions operating at different stages. Data governance capability facilitates the translation of AI utilization into

organizational mechanism reconfiguration. Organizational inertia, by contrast, constrains the process through which reconfigured decision-making, processes, and collaborative relationships are realized as organizational agility. Distinguishing their stages of operation avoids treating organizational agility and organizational inertia as opposing concepts at the same stage and clarifies the locus of their respective effects.

6.2 Managerial Implications: A Five-Step Operating Playbook

FMCG retailers should treat AI implementation as an organizational design program with an explicit operating sequence. Table 3 converts the framework into actions that store managers and executives can apply directly. The sequence begins with a measurable closed-loop use case, then redesigns decision rights and cross-functional workflows, institutionalizes data and model governance, and finally scales through new middle-manager and frontline roles.

Table 3. Managerial Action Guide for AI-Driven FMCG Operations

Step	Role-specific action	Evidence / control metrics
1. Select a closed-loop value pool	Store managers: identify one recurring pain point in a category or store cluster and record baseline exceptions. Executives: choose a use case linking prediction to action, such as demand forecast → replenishment → shelf availability or promotion → price → inventory response.	Forecast error (e.g., WAPE); stockout rate; waste/markdown; inventory turns; promotion ROI; labor hours.
2. Define decision rights and guardrails	Store managers: act within predefined thresholds and document exception reasons. Executives: delegate high-frequency, reversible decisions; require human approval for material price, food-safety, privacy, brand, or supplier-risk decisions.	Share of decisions delegated; escalation rate; unexplained override rate; policy breaches; exception-resolution time.
3. Redesign the end-to-end workflow	Store managers: coordinate merchandising, replenishment, and execution from a common signal. Executives: appoint one process owner, create a category-supply-store-data team, remove duplicate approvals, and adopt shared outcome KPIs.	Forecast-to-action time; number of handoffs; approval waiting time; on-shelf availability; shared-KPI attainment.
4. Govern data and models	Store managers: report data defects and anomalous outputs in a standard format. Executives: assign data owners, align definitions and access rights, and monitor data quality, model drift, bias, explainability, and audit trails.	Data-quality score; issue closure time; lineage coverage; drift alerts; monitoring coverage; audit completeness.
5. Redefine roles, learn, and scale	Store managers: coach teams to interpret recommendations and learn from overrides. Executives: reposition middle managers as AI-output interpreters, exception owners, cross-functional translators, and learning facilitators; scale only after control and value thresholds are met.	Adoption and training rates; feedback-loop closure; reuse across stores/categories; realized value versus baseline; employee confidence.

Source: Developed by the author.

Employee transition must be managed alongside the operating redesign. If AI is framed only as job replacement, employees may withhold contextual knowledge, resist data sharing, or bypass models. Management should communicate which tasks will be automated, which judgments remain human, how

accountability will work, and how employees can move toward exception handling, customer relationships, and higher-value problem solving. Training, dialogue, and performance evaluation should reinforce these roles rather than reward mere compliance with an algorithm.

6.3 Implications for Empirical Research

The revised framework supports complementary research designs. Quantitative studies can test the propositions using the provisional items in Table 2 after validation, while qualitative and longitudinal studies can trace how AI recommendations move through decision rights, exceptions, cross-functional handoffs, and learning cycles. A particularly useful design would combine surveys with process timestamps, override logs, meeting records, and outcome metrics. Such triangulation can distinguish nominal AI adoption from substantive changes in organizational mechanisms and form.

7. Conclusion

This study theoretically examined the evolution and reconfiguration of organizational forms in AI-driven FMCG retail enterprises from the perspective of organizational mechanism reconfiguration. It concludes that AI utilization depth does not directly change organizational form; rather, it enhances organizational agility through three mechanisms: data-driven decision-making that integrates experiential knowledge and AI learning outcomes, process collaboration reconfiguration, and human-AI collaboration maturity. As this capability is exercised repeatedly, organizational forms are expected to change along three mutually complementary directions - vertical flattening, horizontal networking, and infrastructural platformization - while collaboration with external ecosystems expands.

This study has several limitations. First, it is theoretical and does not test the framework with empirical data. Second, the survey items in Table 2 are illustrative rather than a validated scale; they require reliability, validity, measurement-invariance, and contextual assessment. The framework is intentionally suitable for both qualitative case research and quantitative testing, because imposing a rigid universal scale at this stage could obscure differences across food supermarkets, drugstores, convenience stores, e-commerce platforms, and brand enterprises. Third, ethical implications, privacy, algorithmic bias, and employee psychological safety require deeper treatment.

Future research should test the propositions through multi-enterprise case studies, questionnaire surveys, mixed-method designs, and longitudinal process research. Particular attention should be paid to how middle managers interpret AI outputs, set exception thresholds, translate across functions, and either reduce or reproduce organizational inertia; to the autonomy of frontline teams; and to shifts in power, accountability, and culture. The fundamental changes that AI brings to retail enterprises do not remain at the surface level of operational efficiency; they emerge in how organizations think, judge, collaborate, and learn.

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城西ビジネスレビュー　第２号
Josai Business Review　Vol. 2

発行日　2026年９月25日
編　集　『城西ビジネスレビュー』紀要委員会
発行所　城西国際大学　特定領域教育支援室
〒102-0094
東京都千代田区紀尾井町3-26
印刷所　株式会社　正文社