米国・中国・香港株式市場の連関分析―MSCI 指数を用いた VAR 分析―

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サマリー

本稿は、2020 年以降の米中株式市場間「デカップリング」が単なる収益相関の低下ではなく、伝播メカニズムの崩壊を伴う構造変化であることを実証する。相関の低下は共通ショックや固有ボラティリティの発散によっても生じうるが、伝播の崩壊（グレンジャー因果の消失・インパルス応答の符号反転・分散寄与のゼロ収束）は情報フローの構造的断絶を意味し、両者は概念的に峻別されなければならない。既存研究が米中二国間関係として捉えてきた分析枠組みを批判的に再検討し、香港を資本勘定の完全開放・ドルペッグ制・クロスボーダーアクセスという 3 条件が交差する制度的伝播ハブとして明示する 3 市場体系（米国・香港・中国）のもとで、五つの制度的局面（1993～2026 年）にわたって伝播構造の変容を体系的に追跡する。より具体的には、アジア通貨危機後に国際経済学の標準的枠組みとして定着した国際金融トリレンマを、株式市場の伝播分析に操作化した点が本稿の独自の学術的貢献である。香港をトリレンマのコーナー解（固定為替・完全開放資本勘定・金融独立性の放棄）として位置づけることで、「米国ショックが全局面で中国ショックを上回って香港収益分散を説明する」という検証可能な方向的予測が導かれ、FEVD がその予測を定量的に確認する。

分析には MSCI 月次収益率（MXUS・MXHK・MXCN、1992 年 12 月～2026 年 2 月、N＝390）を用い、VAR(1)モデルに基づくグレンジャー因果検定・累積インパルス応答関数・予測誤差分散分解（FEVD）を組み合わせる。識別は Cholesky 分解（順序：米国→香港→中国）による。この順序は投資可能性と資本勘定開放度の制度的ヒエラルキーを反映しており、米国が情報を即時に組み込み、香港がトリレンマのコーナー解として米国ショックを仲介し、中国が資本規制により遅延調整するという構造に基づく。代替的 Cholesky 順序・Generalized IRF（Pesaran and Shin, 1998）いずれにおいても主要結果は定性的に不変であり、識別仮定が発見を主導していない。サンプルは GFC 以前・GFC 後・ストックコネクト期（P3）・貿易戦争期・金融デカップリング期（P5）の 5 つの局面に制度的根拠に基づいて分割される。

主な結果として、ストックコネクト期（P3）においては中国→香港方向に有意な一方向的グレンジャー因果（χ^2＝6.35、p＝0.012）と VAR 係数 0.549 が確認され、同プログラムが中国から香港への情報伝播チャネルを創出したことが示される。一方、デカップリング期（P5）ではこの因果関係が統計的に消失し（χ^2＝0.010、p＝0.919）、香港収益の自己分散シェアが 46.6%から 85.1%へ上昇する。また、累積インパルス応答における米国→香港チャネルの符号反転（P3：+0.007→P5：−0.005）は相関低下では説明できず、伝播メカニズムの崩壊を直接示す証拠として位置づけられる。この符号反転はレジーム依存的な情報フロー方向の変化を示すものであり、単一の因果メカニズムに帰属するものではない。FEVD では、中国の香港収益分散への寄与が P3 の 14.0%から P5 のほぼゼロへ崩落する一方、米国の寄与も絶

対的に低下する（39.4%→14.9%）が、香港の自己分散シェアが 46.6%から 85.1%へ上昇するという外部伝播全体の減衰を背景に、米国寄与は中国寄与を相対的に上回り続ける（P3：39.4% vs. 14.0%、P5：14.9% vs. ≈0%）。トリレンマは USD ペッグが構造的露出をもたらすことを説明するが、伝播強度の一定性は含意しない。デカップリングが中国の影響を先に消去するという非対称構造はその予測と整合的である。

含意として、金融デカップリングは単なる共変動の低下ではなく、為替制度・資本勘定開放度・クロスボーダー取引アクセスという制度的条件に依存した伝播チャネルの再編成として理解すべきことが示される。香港の制度的伝播ハブとしての機能は国際金融トリレンマの帰結として米国金融条件を自動的に媒介する一方、ストックコネクトに依拠した中国→香港チャネルは規制・地政学リスクに対して構造的に脆弱であることが確認される。投資家にとっては米中間の分散効果が 2020 年以降に実質的に拡大した一方、グレーターチャイナ域内の制度的共変動は引き続き残存する。米中エクスポージャーを削減しても域内の共変動を無視すれば地域集中リスクを過小評価する可能性がある。制度的基盤に支えられた伝播チャネルは地政学的ショックに対して政策的アクセス制度に依存するチャネルより耐久的である。

頑健性の追加確認として、（i）MSCI Net Total Return 指数（MXUSNU・M1HK・M1CN）による再推定ではグレンジャー統計・FEVD・相関係数が基準結果と実質的に同一であり、配当処理が発見を左右しないことが確認された。（ii）グローバル共通因子の簡潔なプロキシとして MSCI ACWI Net Total Return（NDUEACWF）を外生変数として加えた VAR においても中国→香港チャネルの P3 有意・P5 消失という構造は維持されており、デカップリングがグローバル共通ショックに起因しないことが確認された。ただしこの検証は単一の共通因子プロキシを制御したものであり、完全構造的同定ではない。今後の拡張としては、SVAR・Sign restrictions など Cholesky 以外の識別手法の適用、VIX や米ドル/人民元為替レートの追加による外部金融条件の明示的制御、週次データによる高頻度検証および FRB 引き締め局面前後の期間分割分析などが考えられる。

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米国・中国・香港株式市場の連関分析
―MSCI指数を用いたVAR分析―
Financial Decoupling and Changes in Transmission Patterns Evidence from U.S., Hong Kong, and China Equity Markets

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Kanto Branch Meeting, JSIE
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Research Question

What does “financial decoupling” actually mean?

- Standard View: A decline in return co-movement (correlation).
- Our View: A fundamental reconfiguration of transmission mechanisms.
- Key Question: Are the information channels themselves disrupted, or is it just a transient divergence in fundamentals?

→ This paper operationalizes the distinction.

Stylized Fact — Divergence after 2020

A Tale of Two Correlations (Figure 1 in paper)

- U.S.–China: Correlation collapses (0.80 → 0.22).
- China–HK: Correlation remains stable (≒0.78).

Puzzle: Why is fragmentation so asymmetric?
Hypothesis: The "Decoupling" is a regime-dependent reorganization of linkages centered on Hong Kong.

Why focus on Hong Kong?

- Institutional Hub: HK is the "Trilemma corner solution" (Fixed FX, Open Capital Account).
- Gateway Role: It intermediates global capital into Chinese assets via Stock Connect.
- Gap in Literature: Prior studies treat U.S.–China as bilateral, ignoring the institutional hierarchy of transmission. (pp. 4-5)

Conceptual Framework

The "Transmission Breakdown" Criterion

- We define it as the simultaneous:
- Disappearance of Granger causality.
- Collapse of FEVD contributions.
- Sign reversal or attenuation in IRFs. (pp. 1, 12)

Empirical Strategy (VAR)

Recursive VAR Identification:

- Identification logic: Based on the hierarchy of Investability and capital openness. (pp. 5, 15)
- Frequency: Monthly MSCI Returns (1993–2026).
- Regimes: Five institutionally defined periods (Pre-GFC to Decoupling).

Result 1 — The Rise and Fall of Stock Connect

Granger Causality (Table 3)

P3 (2014–18): Significant China HK causality (p=0.12).
P5 (2020–26): All causality disappears (p=0.919). (pp. 22-23)
→ The policy-driven information channel has fundamentally disrupted.

Result 2 — Structural Change in Shocks

- Impulse Response Functions (IRFs)

- P3: Positive and significant HK response to China shocks.
- P5: Response becomes negligible.
- U.S. → HK: Sign reversal (+ to –).

- → Indicates structural reconfiguration, not just correlation decline.

Result 3 — Hong Kong's New Identity

- Variance Decomposition (FEVD)

- China → HK: 14% → ~0%
- U.S. → HK: 39% → 15% (declines but persists)
- HK own variance → 85%

- → Hong Kong becomes self-referential.

Interpretation — Trilemma & Institutions

- Why asymmetry?

- 1. Stock Connect (policy-based) → collapses
- 2. USD peg (structural) → persists

- → Institutions matter more than market size.

Robustness Checks

- Ordering: Robust to alternative Cholesky & GIRFs
- Controls: ACWI (global factor)
- Dividends: Net Total Return indices

- → Core results unchanged

Conclusion

- Decoupling ≠ correlation decline
- → It is a regime-dependent reconfiguration of transmission
- Global channel weakens; regional linkage persists

Implications

- Investors: Better US–China diversification
- But regional concentration risk remains

- Policy: Institutional anchors matter

Data Note & Acknowledgments

- Data: Datastream, Bloomberg
- Access via Kobe University & Rikkyo University

- Errors are author's responsibility

Financial Decoupling and Changes in Transmission Patterns: Evidence from U.S., Hong Kong, and China Equity Markets※

Atsuji Ohara

April 8, 2026

Abstract

U.S.–China equity market integration has undergone a structural transformation since 2020. While the bilateral return correlation collapsed from 0.80 during the 2018–2020 trade war period to 0.22 in the subsequent decoupling phase, the China–Hong Kong correlation remained stable at approximately 0.78. This divergence suggests that recent "decoupling" reflects a reconfiguration of transmission patterns rather than a uniform decline in co-movement. A correlation decline is consistent with diverging fundamentals or common global shocks and need not alter the underlying transmission architecture; a structural transmission breakdown — evidenced by the simultaneous disappearance of Granger causality, sign reversal in accumulated impulse responses, and collapse of variance contributions to near zero — implies that the information channels themselves have been fundamentally disrupted. We argue that Hong Kong's institutional position — characterized by full capital account openness, a USD currency board peg, and regulated cross-border equity access via Stock Connect — makes it an institutional transmission hub through which global financial conditions interact with Chinese assets. Using monthly MSCI equity returns for the United States, Hong Kong, and mainland China across five institutionally defined regimes (1993–2026), we employ a VAR framework combining Granger causality tests, impulse response functions, and forecast error variance decompositions to trace the evolution of cross-market

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linkages. We document three interconnected results. First, the introduction of the Stock Connect program in 2014 generated a statistically significant and economically meaningful transmission channel from mainland China to Hong Kong. Second, this channel collapses after 2020, with Granger causality disappearing, variance contributions declining to near zero, and impulse responses exhibiting sign reversals — patterns inconsistent with a simple reduction in correlation. Third, despite this breakdown, U.S. shocks remain persistently dominant in explaining Hong Kong market dynamics across all regimes, reflecting the structural constraints imposed by Hong Kong's trilemma configuration. Results are robust to alternative Cholesky orderings and order-invariant generalized impulse response functions (GIRFs), confirming that the identification assumption does not drive the findings. Additional robustness checks using MSCI Net Total Return indices (MXUSNU, M1HK, M1CN) yield virtually identical Granger statistics and variance decompositions. Controlling for global common shocks via the MSCI ACWI Net Total Return index (NDUEACWF) as an exogenous regressor leaves the structural P3-to-P5 transmission breakdown intact, confirming that the documented decoupling is not attributable to global common shocks.

Taken together, these findings indicate that financial decoupling is best understood as a regime-dependent reorganization of transmission mechanisms rather than a symmetric disengagement of markets. This finding provides direct evidence that financial decoupling operates through the breakdown of transmission mechanisms rather than merely reduced co-movement. These results have important implications for international portfolio allocation and for the institutional foundations of global financial integration.

Keywords: financial decoupling; equity market linkages; VAR; Granger causality; impulse response functions; Stock Connect; Greater China

JEL Classification: F36; G15; G18; C32

1. Introduction

This paper studies how financial linkages between the United States and China have evolved in the presence of major institutional and geopolitical shifts. Over the past decade, cross-border financial integration expanded through mechanisms such as the Shanghai–Hong Kong Stock Connect, the gradual inclusion of Chinese A-shares in global indices, and rising international capital flows. More recently, however, several indicators suggest a weakening of these linkages, including declining return correlations, heightened regulatory frictions under the Holding Foreign Companies Accountable Act (HFCAA), and reduced cross-border capital activity.

These developments raise a central question: does the recent change reflect a temporary decline in return co-movement, or a more fundamental transformation in the mechanisms through which financial shocks are transmitted across markets?

The distinction is not merely semantic. A correlation decline is consistent with diverging fundamentals or idiosyncratic volatility and need not alter the underlying transmission architecture; it can reverse as conditions normalize. A weakening of transmission linkages — the attenuation of Granger-causal relationships, the diminution of impulse response effects, and the rise in market self-dependence — implies that the channels themselves have been materially altered. If this interpretation holds, financial decoupling is better understood not as a simple decline in co-movement, but as a reconfiguration of transmission patterns that may reflect persistent structural change.

Three limitations in the existing literature prevent a satisfactory answer. First, existing studies typically treat U.S.–China financial linkages as a bilateral relationship, overlooking Hong Kong's structural role as the primary intermediary through which global capital accesses Chinese markets. This omission leads to a misidentification of the direction and locus of transmission. China's A-share market remains partially segmented, while Hong Kong, with its open capital account and institutional investor base, serves as the effective price discovery venue for Chinese-economy assets.

Second, much of the literature relies on full-sample or rolling-window estimators that impose parameter stability across regimes. Major institutional changes — including the introduction of Stock Connect and the post-2020 decoupling episode — alter not only the magnitude but also the direction of spillovers, which constant-parameter models fail to capture.

Third, the dual and time-varying role of Hong Kong — simultaneously a recipient of global financial conditions via its USD peg and a transmitter of those conditions toward mainland China via Stock Connect — has not been jointly characterized within a unified empirical framework. Hong Kong is not a fixed structural intermediary: its gateway function is policy-dependent, shaped by the currency board arrangement, the openness of the capital account, and the regulatory perimeter governing Stock Connect flows. As institutional and geopolitical conditions change, Hong Kong's position in the transmission chain changes with them. This regime-contingency of the gateway role is precisely what prior studies — which treat spillovers as time-invariant or reduce the system to bilateral U.S.–China linkages — are unable to capture.

Hong Kong's role as an institutional intermediary is further grounded in open-economy macroeconomics. The Mundell–Fleming model, which became a cornerstone of international macroeconomics through the lens of European monetary integration, and its successor concept — the international financial trilemma, which gained canonical status in the international economics literature following the Asian financial crisis and the work of Obstfeld, Shambaugh, and Taylor (2005) — together provide the theoretical architecture for this paper's empirical design. Under the Mundell–Fleming framework, an economy with a fixed exchange rate and open capital account surrenders monetary independence but gains the capacity to transmit external financial conditions directly into domestic asset prices. Hong Kong exemplifies this configuration: its currency board arrangement has pegged the Hong Kong dollar to the U.S. dollar since 1983, and its capital account is fully open. This combination — the corner solution of the international financial trilemma (Obstfeld, Shambaugh, and Taylor, 2005; Obstfeld and Taylor, 2004) — means that U.S. monetary and financial conditions are transmitted to Hong Kong almost automatically, with no exchange rate buffer to absorb shocks. Mainland China, by contrast, maintains capital controls and a managed exchange rate, placing it at the opposite corner of the trilemma. Hong Kong therefore occupies a structurally unique intermediary position: it faces the full force of global financial conditions, while mainland China remains partially insulated. What this paper contributes is the

operationalization of this trilemma hierarchy — a framework familiar to every international economist — as an empirical organizing principle for tracing the direction, magnitude, and regime-dependence of equity market transmission across three markets occupying distinct corners of the policy trilemma. Any analysis of U.S.–China financial transmission that omits Hong Kong misspecifies the channel through which global shocks reach Chinese-economy assets. This paper contributes to the literature in three ways. First, it provides evidence that U.S.–China financial decoupling since 2020 is associated with significant changes in transmission patterns — not merely a decline in return correlations — thereby advancing the understanding of financial integration as a structural process governed by channels of shock propagation.

Second, it documents a marked weakening of the China-to-Hong Kong transmission channel as a key feature of the post-2020 decoupling episode. While mainland China exerts a significant causal influence on Hong Kong during the Stock Connect period, this channel disappears in the post-2020 period, indicating that decoupling operates through the disruption of intermediary linkages.

Third, it documents an asymmetric pattern in which global linkages weaken while regional integration within Greater China remains comparatively resilient. This finding suggests that financial fragmentation reorganizes global markets along regional lines rather than leading to uniform disintegration.

We analyze monthly returns of MSCI USA (MXUS), MSCI Hong Kong (MXHK), and MSCI China (MXCN) over 1993–2026, divided into five structurally defined subperiods. MSCI indices are constructed on an investability-adjusted basis, ensuring that our measures of market linkage reflect the cross-border transmission that international investors actually face. The recursive ordering U.S. → Hong Kong → China is grounded in the institutional hierarchy of investability: the U.S. incorporates global information contemporaneously; Hong Kong, as an open gateway market, responds to global conditions and intermediates capital flows toward China; and mainland China, as the most access-restricted of the three, adjusts with a lag. Excluding Hong Kong from this ordering — or collapsing the system to two variables — may lead to a misspecification of the transmission mechanism the model is designed to capture.

Figure 1 provides the visual motivation for the paper's framework. The 36-month rolling correlations show a non-monotonic pattern that no single narrative of global integration or fragmentation can explain: U.S.–China correlations rise during the Stock Connect era, remain elevated through the trade war, and collapse sharply after 2020; China–Hong Kong correlations, by contrast, remain stable throughout. This simultaneous global decoupling and regional resilience is the central empirical fact. The paper's transmission-mechanism framework — combining Granger causality tests, accumulated impulse response functions, and forecast error variance decompositions across five subperiods — is designed to explain not just that the pattern exists, but why it takes this asymmetric form.

The analysis uses monthly MSCI returns as the primary observation frequency. Monthly data are appropriate for this study's focus on persistent transmission patterns and regime-level changes across institutionally defined subperiods, rather than intraday or high-frequency price discovery. The baseline results are robust across data frequency (monthly and weekly), model specification (VAR(1) and VAR(2)), variable ordering assumptions, and the inclusion of generalized impulse response functions (GIRFs), which are invariant to ordering. These robustness dimensions are detailed in Section 3.5 and the Appendix. The remainder of the paper proceeds as follows. Section 2 develops the theoretical and empirical foundations on market segmentation, Hong Kong's intermediary role, and VAR-based transmission frameworks. Section 3 describes the data, subperiod structure, and identification strategy. Section 4 presents the empirical results. Section 5 concludes with implications for the theory of financial integration and the policy debate on capital market fragmentation.

2. Literature Review

2.1 Stock Market Integration, Segmentation, and Investability

The theoretical foundation for analyzing cross-border equity market linkages rests on the distinction between integrated and segmented capital markets. In a fully integrated market, assets with identical risk characteristics command identical expected returns regardless of domicile; segmentation arises when barriers to cross-border investment drive a wedge between domestic and

international pricing. Within this framework, financial decoupling is understood not as a simple decline in return correlations, but as a weakening or breakdown of the transmission mechanisms through which shocks propagate across markets. Correlations can fall due to diverging fundamentals or idiosyncratic volatility without altering the underlying transmission architecture; a structural transmission breakdown, by contrast, implies that the channels themselves have been fundamentally disrupted. The empirical literature on East Asian equity markets, and on China in particular, is best understood as a sustained inquiry into where along this integration-segmentation spectrum individual markets reside — and how institutional reforms and geopolitical shocks shift that position over time. Standard open-economy frameworks offer a useful organizing lens. The Mundell–Fleming model predicts that under fixed exchange rates and free capital mobility, domestic asset prices are tightly linked to external financial conditions; the international trilemma formalizes the constraint that an economy cannot simultaneously maintain a fixed exchange rate, open capital account, and independent monetary policy (Obstfeld, Shambaugh, and Taylor, 2005). These frameworks imply a clear hierarchy of financial integration: Hong Kong, with its currency board peg to the U.S. dollar and fully open capital account, sits at one extreme; mainland China, with capital controls and a managed exchange rate, sits at the other. This institutional polarity defines the transmission architecture this paper investigates.

A central analytical distinction that this literature frequently conflates is the difference between market scale and investability. Market capitalization determines an economy's weight in global portfolios from a benchmark perspective, but it does not determine the degree to which foreign investors can access, trade, and repatriate returns from that market. China's A-share market illustrates this gap acutely: by capitalization it ranks among the world's largest equity markets, yet its effective investability has historically been constrained by capital repatriation restrictions, custody and asset segregation requirements, tax uncertainty, trading suspension practices, and quota-based foreign access through the Qualified Foreign Institutional Investor (QFII) and Renminbi QFII (RQFII) programs. These barriers function as shadow costs that raise the effective cost of cross-border investment and suppress the integration that market size alone would predict.

The empirical record reflects this institutional reality. Huyghebaert and Wang (2010), examining daily data across seven East Asian exchanges around the 1997–1998 Asian financial crisis, found that Hong Kong and Singapore responded significantly to shocks across the region while mainland

Chinese markets remained structurally decoupled in all sub-periods. Wang (2014) reached an analogous conclusion for the 2007–2009 global financial crisis: regional integration strengthened broadly, yet mainland China retained its peripheral position. Mateus, Bagirov, and Mateus (2024), using forecast error variance decompositions in a generalized VAR framework from 2003 to 2021, confirmed that the Chinese stock market exhibits the lowest return connectedness with regional peers, consistent with the persistence of investability constraints even after partial liberalization. Importantly, Wu (2020) demonstrated that a substantial share of apparent integration among ASEAN5+4 markets is attributable to shared global factor exposure rather than genuine bilateral linkages — a methodological caution implying that earlier studies may have overstated the degree of China's integration by failing to orthogonalize global common variation.

The decisive institutional intervention was the 2014 Shanghai–Hong Kong Stock Connect, extended to Shenzhen in 2016, which created a regulated two-way equity flow channel that bypassed the administrative constraints of QFII and RQFII. Rather than conferring direct market access, Stock Connect embedded cross-border trading within existing domestic custody structures, effectively reducing the shadow cost of investability at the margin. MSCI's 2018 partial inclusion of A-shares made the analytical stakes explicit: the decision was conditioned on investability improvements — specifically the reform of trading suspension practices and the accessibility afforded by Stock Connect — rather than on market capitalization. This episode operationalizes the theoretical distinction precisely: size is necessary but not sufficient for integration; investability is the binding constraint. Sheng et al. (2024) documented a discernible intensification of asymmetric volatility spillovers across Shanghai, Hong Kong, and the U.S. following the Connect program, providing empirical support for the proposition that liberalization events function as structural breaks in transmission intensity. Du et al. (2023), employing TVP-VAR-SV and copula models, showed that systemic risk spreads more rapidly from Hong Kong to mainland markets following Connect expansion, confirming that the institutional channel and the statistical spillover are causally linked rather than coincidentally correlated.

The implication for empirical strategy is that treating China's A-share market as a homogeneous entity across time periods conflates structurally distinct regimes. Any unified analysis of U.S.–China–Hong Kong linkages must accommodate the segmentation-to-integration trajectory as a time-varying feature of the data-generating process.

2.2 Liquidity, Price Discovery, and Hong Kong's Intermediary Role

The mechanism connecting market segmentation to measured spillovers runs through liquidity and price discovery. In the microstructure literature, price discovery refers to the process by which new information is incorporated into transaction prices; in multi-market settings, the question of where price discovery occurs depends on which venue offers superior liquidity, lower trading costs, and broader participation by informed institutional investors. Markets that satisfy these conditions attract order flow and thus incorporate information more rapidly, leading other less liquid venues in a systematic lead-lag relationship.

Hong Kong occupies a structurally distinctive position in this framework. As an internationally open market with deep institutional participation, high free-float ratios, and settlement infrastructure integrated with global custodians, it satisfies the theoretical prerequisites for price discovery in Chinese-economy equities more completely than the A-share market, which remains characterized by retail-dominated trading, periodic suspension practices, and limited foreign participation. The dual listing of Chinese firms as H-shares on the Hong Kong Stock Exchange and as A-shares on mainland exchanges provides a natural laboratory: under full integration, the law of one price would hold; under segmentation, persistent H-share discounts or premiums reflect the shadow cost of cross-border arbitrage. Jin (2015), using VAR-BEKK models over daily data from 1993 to 2013, found evidence of return and volatility spillovers among Greater China markets with market-specific dynamics, consistent with the hypothesis that price discovery is distributed unevenly across venues. Huang, Lai, and Bessler (2018) employed structural VAR with non-Gaussian identification to show that Shanghai A-shares became the dominant information source in the most recent sub-period of their 1995–2014 sample — a finding that must be interpreted carefully, as domestic dominance in information origination for the domestic market does not imply price discovery leadership for internationally priced Chinese assets.

Hong Kong's intermediary role is thus theoretically distinct from its role as a bilateral trading partner. As a financial gateway, it serves as the venue through which global capital — priced by U.S. market conditions, global risk appetite, and dollar funding costs — gains exposure to Chinese economic fundamentals. This dual exposure implies that Hong Kong functions not merely as a market node but as a transmission hub: U.S. financial shocks enter via Hong Kong into Chinese-

economy assets, while China-specific information is globally priced through the Hong Kong market before reaching mainland valuations. Xu and Li (2023), using VAR- and QVAR-based Diebold–Yilmaz analysis alongside network methods, found that the U.S. and Hong Kong are the dominant net risk transmitters into foreign capital flows directed at Chinese equities, precisely consistent with the gateway hypothesis. Zheng, Jiang, and Long (2019) applied TVP-VAR to show that exchange rate–equity connectedness differs systematically between mainland-domiciled and Hong Kong-domiciled listings, with the mechanism reflecting differences in asset-denominated currency exposure — a microstructural result that supports the theoretical case for treating Hong Kong as analytically distinct from the mainland.

The intermediary role is not static. During normal market conditions, Hong Kong may function primarily as a price discovery center, with information flowing from U.S. institutional investors through Hong Kong into mainland valuations. During crisis periods or episodes of heightened policy uncertainty, the transmission dynamics can invert or intensify: capital outflows from mainland markets may pressure Hong Kong liquidity, or U.S. financial stress may propagate through Hong Kong before mainland capital controls slow its onward transmission. Sheng et al. (2024) documented precisely this regime-dependent asymmetry, finding that negative spillovers intensify under high-volatility regimes and that the Connect program amplified this asymmetry by creating a more direct capital flow channel. This time-variation in the intermediary role motivates the adoption of time-varying empirical frameworks, as a single-regime model will average across structurally distinct states and mischaracterize the transmission mechanism in each.

2.3 Spillovers, Connectedness, and VAR-Based Frameworks

The empirical literature on cross-market spillovers has evolved through three methodological generations, each addressing limitations exposed by its predecessor and each more capable of capturing the time-varying, direction-specific transmission structure that theory predicts.

The foundational VAR framework with Cholesky-identified impulse response functions and forecast error variance decompositions established the basic empirical vocabulary of shock transmission. Jayasuriya (2011) used this approach to show that shocks originating in China were detectable in neighboring emerging markets when foreign investor returns were separately

identified. Apostolakis (2016) employed generalized VAR impulse responses to document that China served as the dominant financial stress transmitter across five Asian economies during turmoil periods. However, the Cholesky identification scheme imposes a recursive causal ordering on contemporaneous relationships that is economically arbitrary in multi-market settings: the choice of which market leads contemporaneously determines the attribution of spillover magnitudes, rendering conclusions sensitive to prior assumptions rather than data. The full-sample parameter stability assumption compounds this limitation, as it treats pre-liberalization and post-liberalization periods as belonging to the same data-generating process.

The Diebold–Yilmaz connectedness framework addressed the ordering sensitivity by grounding variance decompositions in the generalized formulation of Pesaran and Shin (1998), which produces order-invariant decompositions by allowing correlated shocks and attributing effects proportionally. This yields a system-wide connectedness index alongside directional bilateral and net spillover measures, enabling a network-theoretic characterization of who transmits and who receives shocks across the market system. Zhou, Zhang, and Zhang (2012) applied this framework to China–world equity linkages and documented that Chinese volatility acquired global influence after 2005 while remaining relatively insulated from the 2008 crisis — a dual asymmetry consistent with the investability constraint operating in both directions. Mateus, Bagirov, and Mateus (2024) used structural break detection alongside rolling-window connectedness to show that Singapore and Hong Kong are consistent net transmitters while China remains a net recipient throughout a two-decade sample, with spillover intensity rising sharply during crisis episodes and returning to pre-shock levels during stable periods. Wiesen et al. (2024) advanced this further by demonstrating through a two-step VAR procedure that volatility shocks are themselves endogenous drivers of connectedness: impulse responses from the second-stage VAR confirmed that volatility shocks from Hong Kong and China affect system-wide connectedness most strongly, while China's direct bilateral effect on individual market volatilities remains modest — precisely the pattern predicted by a model in which China is scale-relevant but investability-limited.

The remaining limitation of static connectedness models — even those estimated over rolling windows — is that they impose constant parameters within each estimation window and cannot capture smooth time variation in transmission dynamics. TVP-VAR models, which allow all parameters to evolve continuously according to a state-space process, provide the appropriate

solution when the underlying transmission mechanism is subject to gradual institutional change, shifting liquidity regimes, and episodic external shocks. Lin and Chen (2021) employed TVP-SV-VAR to characterize dynamic connectedness between Chinese and American financial markets, finding the U.S. stock market at the core of information spillovers and documenting time variation consistent with evolving bilateral integration. He, Lucey, and Wang (2021) used TVP-SV-VAR to show that U.S. trade policy uncertainty exerts time-varying and asymmetric effects on U.S. and Chinese equity markets, with the asymmetry — positive for U.S. equities, negative for Chinese ones — shifting in intensity around the 2018 tariff escalation. Wang et al. (2026) further showed that economic policy uncertainty's transmission through short-term capital flows to systemic financial risk carries heterogeneous lag structures that only time-varying models can recover. These studies collectively establish that parameter evolution in VAR-based frameworks reflects genuine economic regime change — a finding that directly motivates the multi-period subperiod structure employed in this paper.

Against this backdrop, a critical gap remains in the existing literature. First, studies examining bilateral U.S.–China equity spillovers typically treat this relationship as direct, omitting Hong Kong's structural role as the primary intermediary through which global capital accesses Chinese markets. This omission leads to a misidentification of the direction and locus of transmission. Second, most empirical studies rely on full-sample or rolling-window estimators that impose parameter stability across regimes, failing to capture how major institutional changes — including the introduction of Stock Connect and the post-2020 decoupling episode — alter not only the magnitude but also the direction of spillovers. Third, the dual and time-varying role of Hong Kong — simultaneously as a recipient of U.S. financial conditions and as a transmitter toward mainland China — has not been jointly characterized within a unified empirical framework. Critically, no existing study has systematically distinguished between a correlation decline and a structural transmission breakdown in the context of U.S.–Hong Kong–China equity market linkages across multiple institutional regimes.

This paper makes three contributions. First, it demonstrates that the post-2020 U.S.–China financial episode is better characterized as a structural transmission breakdown than as a simple correlation decline. We define transmission breakdown operationally as the joint occurrence of: (i) disappearance of Granger causality, (ii) collapse of FEVD contributions toward zero, and (iii)

attenuation or sign reversal in accumulated impulse responses — a composite criterion grounded in the VAR-based spillover literature (Diebold and Yilmaz, 2012; Pesaran and Shin, 1998). The empirical signature across all three dimensions — simultaneous disappearance of Granger causality, near-zero impulse responses, sign reversal in the U.S.-to-Hong Kong accumulated response, and near-zero China contribution to Hong Kong return variance — is collectively inconsistent with transient co-movement variation. Second, it operationalizes the international financial trilemma — a framework standard in international economics since the Asian financial crisis period — as an organizing principle for equity market transmission analysis. By positioning Hong Kong as the trilemma corner solution (fixed exchange rate, open capital account, no monetary independence), the paper derives a testable prediction: U.S. financial shocks should dominate Chinese shocks in explaining Hong Kong return dynamics across all regimes, and the asymmetric vulnerability of the China–Hong Kong channel (built on Stock Connect rather than institutional anchoring) should make it more susceptible to geopolitical and regulatory disruption. The FEVD results confirm both predictions quantitatively: U.S. shocks account for 39.4 percent of Hong Kong return variance in P3 versus 14.0 percent for China, and this asymmetry sharpens rather than disappears under decoupling — China's contribution collapses to near zero while a residual U.S. effect persists (14.9 percent in P5). Third, it documents structurally asymmetric fragmentation: global transmission channels weaken sharply, while the China–Hong Kong linkage remains intact (correlation 0.778 in P5), implying that decoupling reorganizes markets along regional lines rather than producing uniform disintegration. Results are robust across data frequencies, model specifications, and ordering assumptions including order-invariant generalized impulse responses.

3. Data and Methodology

3.1 Data

We use monthly equity index data from MSCI for the United States (MXUS), Hong Kong (MXHK), and mainland China (MXCN) over the period from December 1992 to February 2026. Returns are computed as logarithmic differences of index levels. The use of MSCI indices ensures consistency in coverage and methodology across markets. MSCI Hong Kong (MXHK) represents the investable Hong Kong equity market on a free-float-adjusted basis. It captures Hong Kong as an international financial hub — dominated by financial institutions, property companies, and

internationally oriented firms domiciled in Hong Kong — and is not a proxy for the mainland Chinese economy. Its composition reflects the gateway character of the Hong Kong market: broadly accessible to foreign institutional investors, settlement-integrated with global custodians, and structurally distinct from the partially segmented mainland A-share market tracked by MXCN.

To capture structural changes in market linkages, we divide the sample into five subperiods based on major global and regional events: P1 (Pre–Global Financial Crisis, 1992M12–2008M09), P2 (Post-GFC, 2008M10–2014M10), P3 (Post–Stock Connect, 2014M11–2018M02), P4 (Trade War, 2018M03–2020M01), and P5 (Financial Decoupling, 2020M02–2026M02). These subperiods are defined by major institutional and geopolitical events rather than by statistically estimated breakpoints. This approach follows an established literature that aligns sample segmentation with discrete policy and regulatory changes, including Huyghebaert and Wang (2010) and Mateus, Bagirov, and Mateus (2024), who structure their analyses around crisis episodes and liberalization events. The subperiod boundaries are motivated by events with well-documented effects on cross-border capital flows and market access: the 2008 global financial crisis, the 2014 Stock Connect launch, the 2018 U.S.–China tariff escalation, and the 2020 onset of regulatory and geopolitical pressures under the HFCAA framework. We do not claim these dates represent statistically optimal breakpoints; rather, they define institutionally coherent regimes within which the VAR parameters are assumed to be approximately stable. Empirical results are interpreted as regime-consistent patterns conditional on these institutional boundaries. Formal structural break testing — including endogenous breakpoint estimation — remains a direction for future research.

3.2 VAR Specification

We estimate a three-variable vector autoregression (VAR) model of the form:

$$Yt = A0 + A1\ Yt-1 + \varepsilon t$$

where Yt = (R_MXUS, R_MXHK, R_MXCN)' is the vector of monthly returns, A0 is a vector of constants, A1 is the matrix of autoregressive coefficients, and εt is a vector of innovations.

Lag length selection based on standard information criteria (FPE, AIC, SC, HQ) suggests a lag order of zero, reflecting the near white-noise properties of monthly return series. However, adopting a VAR(0) specification would preclude any dynamic transmission across markets by

construction. We nevertheless employ a VAR(1) model as a minimal dynamic extension, not because it is statistically preferred over VAR(0), but to allow the data an opportunity to reveal lagged predictive relationships if they exist. In unreported likelihood ratio tests, VAR(1) is not rejected relative to VAR(0), and robustness checks using VAR(2) yield qualitatively identical results. Importantly, the paper's core findings do not depend on lagged predictability alone: the strong contemporaneous co-movement between China and Hong Kong in P3 (correlation = 0.841, Table 1) independently supports the integration narrative, while its persistence into P5 (correlation = 0.778) is consistent with continuing regional linkages despite attenuating global transmission.

3.3 Identification Strategy

To identify structural shocks, we employ a recursive (Cholesky) decomposition with ordering R_MXUS → R_MXHK → R_MXCN. This ordering reflects an institutional hierarchy of investability and capital account openness: the U.S. market incorporates global information contemporaneously; Hong Kong, as the trilemma corner solution with fully open capital account and USD peg, intermediates global shocks toward China; and mainland China, subject to capital controls and partial segmentation, adjusts with a lag. Results are robust to the alternative ordering (U.S. → China → Hong Kong) and to order-invariant generalized impulse response functions (GIRFs; Pesaran and Shin, 1998), confirming that the identification assumption does not drive the findings.

3.4 Empirical Framework

We assess market linkages using four complementary approaches. First, correlation analysis provides a descriptive measure of co-movement across markets and subperiods. Second, Granger causality tests examine the direction of predictive relationships among markets. Third, impulse response functions (IRFs) trace the dynamic effects of shocks across markets over time. We report accumulated IRFs over a 12-period horizon. To address small-sample concerns, particularly in subperiod P3, we compute bootstrap confidence intervals based on 1,000 replications. Fourth, forecast error variance decomposition (FEVD) quantifies the contribution of each market to the variance of forecast errors in other markets, with standard errors obtained via Monte Carlo simulation.

By combining these approaches within a unified VAR framework, we are able to distinguish between simple co-movement and underlying transmission mechanisms, thereby providing a more comprehensive assessment of financial integration and decoupling.

3.5 Robustness Checks

To assess the stability of the baseline findings, we conduct a set of robustness checks focusing on lag specification, variable ordering, impulse response identification, and variance decomposition across subperiods. Full results are reported in the Appendix.

First, the VAR model is re-estimated with two lags (VAR(2)) for the baseline subperiods P3 (2014M11–2018M02) and P5 (2020M02–2026M02), using two lags (VAR(2)). The key result remains unchanged: in P3, the transmission from China to Hong Kong remains statistically significant (coefficients of 0.350 at lag 1 and 0.292 at lag 2, both significant at the 1% level), while in P5 this relationship disappears entirely ($p > 0.80$ at both lags). The breakdown of China-to-Hong Kong transmission is not sensitive to lag length specification.

Second, we re-estimate under an alternative Cholesky ordering (U.S. → China → Hong Kong), reversing the baseline ordering of U.S. → Hong Kong → China. The results are qualitatively identical across both subperiods, confirming that the core findings are not driven by the recursive identification assumption.

Third, we examine impulse response functions to trace the dynamic response of Hong Kong returns to a one-standard-deviation China shock. In P3, the initial response is 0.30, decaying to near zero within two periods. In P5, the initial response falls to 0.03 — a tenfold reduction — and dissipates immediately. This sharp attenuation is consistent with the Granger causality and coefficient evidence.

Fourth, forecast error variance decomposition (FEVD) under the baseline VAR(1) specification confirms that U.S. shocks account for 39.4% of Hong Kong return variance in P3, while China shocks account for 14.0%. In P5, the China contribution collapses to near zero (0.02%), while U.S. shocks account for 14.9%. These figures are consistent with Table 4. Under the VAR(2) alternative specification, the directional pattern is preserved — U.S. shocks remain larger than China shocks, and the China contribution collapses from P3 to P5 — though the specific magnitudes differ from the baseline due to the alternative lag structure. Overall, these checks

confirm that the baseline findings are qualitatively unchanged: China-to-Hong Kong transmission is present in P3 but disappears in P5, and Hong Kong market dynamics remain more strongly linked to U.S. shocks than to China shocks across all robustness dimensions.

Fifth, we re-estimate the baseline VAR using MSCI Net Total Return indices — MSCI USA Net Total Return USD (MXUSNU/NDDUUS), MSCI Hong Kong Net USD (M1HK), and MSCI China Net Total Return USD (M1CN) — which account for reinvested dividends net of withholding taxes and thus better reflect the actual returns accruing to foreign investors. The overlap sample covering P3 and P5 (M1HK available from February 2011) yields Granger causality statistics of $\chi^2 = 6.62$ ($p = 0.010$) for CN→HK in P3 and $\chi^2 = 0.014$ ($p = 0.906$) in P5. VAR coefficients, FEVD shares, and pairwise correlations are virtually identical to the price return baseline, confirming that dividend treatment does not drive the reported findings.

Sixth, to address the concern that observed decoupling patterns may reflect global common shocks rather than bilateral U.S.–China structural change — a methodological caution raised by Wu (2020) — we introduce the MSCI ACWI Net Total Return USD index (NDUEACWF) as an exogenous regressor in the baseline VAR. The ACWI serves as a parsimonious proxy for the global common factor in equity returns. Controlling for this global factor leaves the key result unchanged: the CN→HK Granger causality remains significant in P3 and disappears entirely in P5. The FEVD pattern — China's contribution to Hong Kong return variance collapsing from approximately 15% in P3 to near zero in P5, while the relative U.S. share remains larger — is preserved under this specification. These results confirm that the documented transmission breakdown is not attributable to global common shocks. This check is conditional rather than fully structural: it controls for a single global factor proxy and does not rule out all sources of common variation.

4. Empirical Results

4.1 Correlation Analysis

Before estimating the VAR system, we examine pairwise return correlations across five subperiods to characterize the evolution of market co-movement. Table 1 reports selected correlation pairs using monthly MSCI index returns.

Table 1. Pairwise Return Correlations by Subperiod (Monthly, Selected Pairs)

Pair	P1 1992–2008	P2 2008–2014	P3 2014–2018	P4 2018–2020	P5 2020–2026
MXUS–MXCN	0.455	0.454	0.634	0.803	0.216
MXUS–MXHK	0.560	0.550	0.630	0.658	0.365
MXCN–MXHK	0.657	0.717	0.841	0.871	0.778
MXUS–SPX	0.998	0.999	0.999	1.000	0.999

Notes: MXUS = MSCI USA; MXHK = MSCI Hong Kong; MXCN = MSCI China; SPX = S&P 500. Full 6×6 correlation matrices are reported in the Appendix.

Table 1 reveals a non-monotonic pattern in U.S.–China integration that cannot be explained by any single narrative of convergence or fragmentation. The MXUS–MXCN correlation rises from 0.455 in P1 to a peak of 0.803 during the Trade War period (P4) — a counterintuitive result that reflects the elevated global risk sensitivity of both markets during tariff escalation — before collapsing to 0.216 in P5. A correlation of 0.216 indicates that U.S. and Chinese monthly equity returns share less than 5 percent of their variance, a level of co-movement approaching statistical independence. This non-monotonic trajectory is the primary motivation for a multi-regime empirical framework: no full-sample or rolling-window model can capture both the peak integration of P4 and the near-independence of P5 within a single parameter set.

The China–Hong Kong correlation tells the opposite story: consistently high across all five periods (0.657 to 0.871), rising sharply after Stock Connect and remaining elevated through P5 (0.778). The stability of this pair during the same period in which the U.S.–China pair collapses is the central asymmetry that the transmission-channel framework must explain: global decoupling and regional resilience coexist. Finally, the near-unity MXUS–SPX correlation (>0.998 throughout) confirms informational equivalence; the VAR retains MXUS to avoid multicollinearity.

The comparison between subperiod and full-sample correlations reveals an important dynamic pattern. The weekly MXUS–MXCN correlation in the pre-GFC period (P1: 0.253) is substantially lower than the full-sample average (1993–2026: 0.377), reflecting a net increase in average co-movement over the sample period. However, this aggregate figure masks substantial temporal heterogeneity. As the subperiod analysis demonstrates, the correlation rises sharply

during the Stock Connect and Trade War periods before collapsing in the Financial Decoupling period. This non-monotonic evolution indicates that financial integration between the U.S. and China is neither linear nor permanent, but instead highly sensitive to institutional arrangements and geopolitical conditions.

Figure 1 illustrates the evolution of cross-market linkages over time, highlighting a structural divergence in correlation dynamics across market pairs. We plot 36-month rolling correlations of monthly log returns for the U.S., China, and Hong Kong equity markets to capture medium-term dynamics in market integration.

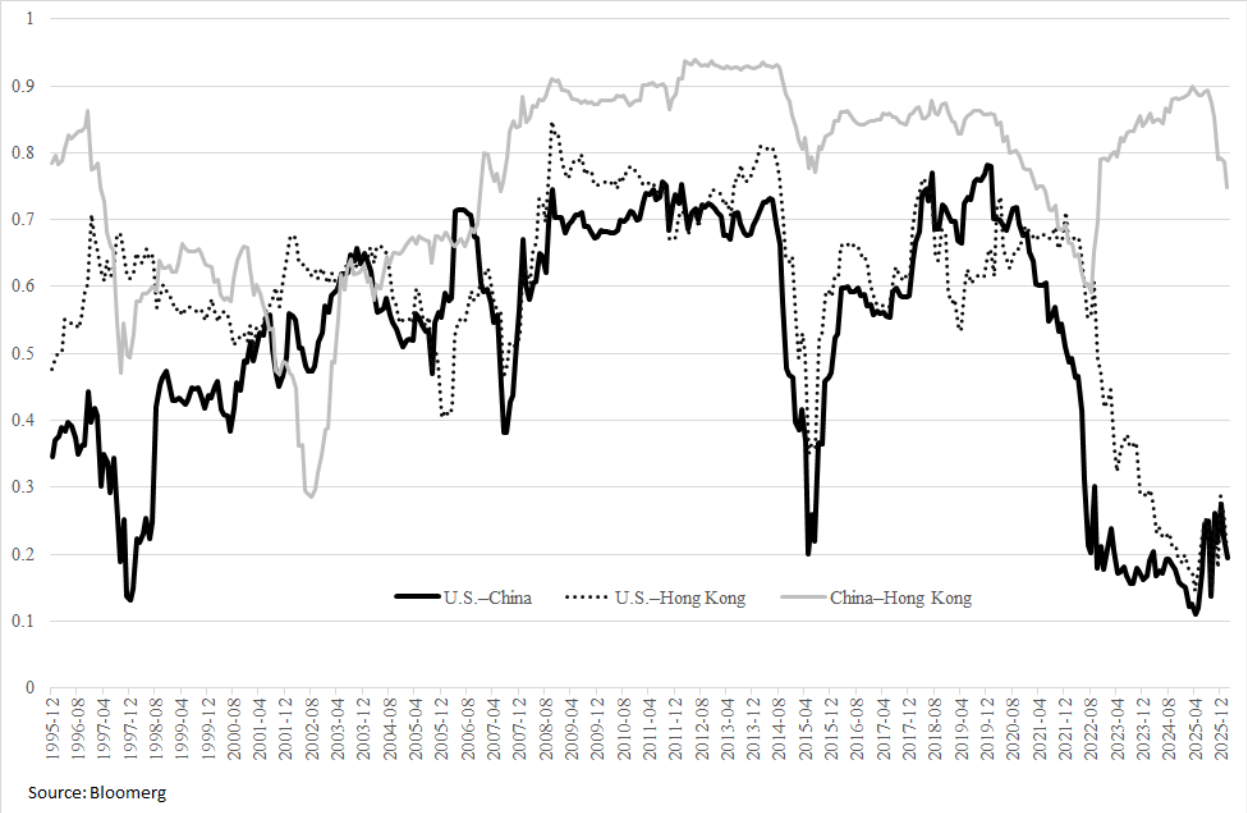

Figure 1. Time-Varying Correlations among U.S., China, and Hong Kong Equity Markets

Notes: The figure plots 36-month rolling correlations of monthly log returns for the U.S. (MSCI USA), China (MSCI China), and Hong Kong (MSCI Hong Kong) equity markets over the sample period 1992–2026. Returns are computed as continuously compounded (log) returns. The rolling window captures medium-term dynamics and smooths short-term fluctuations in cross-market linkages.

Two key patterns emerge. First, correlations between the U.S. and China markets decline markedly after 2020, indicating a weakening of direct financial linkages. Second, in contrast, the correlation between China and Hong Kong remains relatively stable, suggesting the persistence of regional integration despite broader geopolitical tensions. The U.S.–Hong Kong correlation exhibits an intermediate pattern, declining but less sharply than the U.S.–China pair. Importantly, the observed decline in correlations is not uniform across market pairs, underscoring the asymmetric nature of financial decoupling.

Taken together, these patterns provide evidence of a structural reconfiguration of global financial linkages rather than a uniform fragmentation. In particular, the results suggest that while direct transmission between the U.S. and China weakens, Hong Kong continues to function as a regional conduit, maintaining its linkage with mainland China.

While rolling correlations are descriptive and do not establish causal relationships, they provide important evidence of structural changes that are further examined within the VAR framework. Changes in correlation may reflect shifts in volatility or common global shocks. We therefore complement this analysis with structural VAR and impulse response analyses in the subsequent sections.

4.2 Lag Order Selection

Lag order selection for the three-variable VAR system is conducted over the full sample (1992M12–2026M02, N = 390) using five information criteria. The FPE, AIC, SC, and HQ criteria all select lag order zero, reflecting the near-white-noise properties of monthly return series. The LR sequential test selects lag 7. Although the information criteria select lag zero, this result primarily reflects the near white-noise nature of monthly equity returns rather than the absence of economically meaningful transmission. Following standard practice in empirical finance, we nevertheless adopt VAR(1) as a minimal dynamic extension, acknowledging that this specification is not selected by standard information criteria. The purpose is to allow for any latent lagged predictive relationships without imposing a highly parameterized model on the shorter subperiods. Robustness checks using VAR(2) yield qualitatively identical results. A footnote reports that contemporaneous pairwise correlations in P3 and P5 are consistent with the main findings, confirming that the core narrative does not depend on the VAR(1) lag structure alone.[1] [1] In P3, the contemporaneous MXCN–MXHK correlation is 0.841, consistent with strong regional

integration during the Stock Connect period. In P5, this correlation remains 0.778, while the MXUS–MXCN correlation falls to 0.216, consistent with attenuation of global transmission. These contemporaneous patterns reinforce the lagged VAR evidence without depending on it.

4.3 VAR Estimates

Table 2 summarizes key coefficient estimates from VAR(1) estimated over the full sample and the two focal subperiods: P3 (Stock Connect, N = 40) and P5 (Financial Decoupling, N = 73). In the full-sample model, only R_MXCN(−1) exerts a statistically significant effect on R_MXHK (coefficient = 0.125, t = 2.25), with all other lag coefficients insignificant. The low R^2 values (0.003–0.015) across all three equations are consistent with near-efficient monthly equity return data, and are comparable to those reported in related studies of cross-border equity linkages (Mateus, Bagirov, and Mateus, 2024). The analysis does not depend on within-period explanatory power; it relies on the cross-period evolution of coefficient magnitudes, Granger causality statistics, impulse response profiles, and variance decomposition shares. The economically relevant question is whether these quantities change systematically across regimes — and the evidence below shows that they do.

Table 2. VAR(1) Key Coefficient Estimates: Full Sample, P3, and P5

	Full Coef.	Full t-stat	P3 Coef.	P3 t-stat	P5 Coef.	P5 t-stat
R_MXCN(−1) → R_MXHK	0.125	[2.25]**	0.549	[2.52]**	0.017	[0.10]
R_MXUS(−1) → R_MXUS	−0.020	[−0.33]	−0.426	[−2.02]**	−0.044	[−0.34]
R_MXUS(−1) → R_MXHK	−0.054	[−0.56]	−0.474	[−1.48]	0.212	[1.31]
R_MXUS(−1) → R_MXCN	−0.088	[−0.70]	−0.459	[−1.03]	0.314	[1.66]

R^2 (MXUS/MXHK/MXCN)	0.003/0.015/0.007	—	0.130/0.167/0.087	—	0.024/0.029/0.043	—

*Notes: Full sample = 1992M12–2026M02 (N = 390); P3 = 2014M11–2018M02 (N = 40); P5 = 2020M02–2026M02 (N = 73). Cholesky ordering R_MXUS → R_MXHK → R_MXCN. ** p < 0.05.*

The subperiod estimates reveal a pronounced regime shift. During P3, R_MXCN(−1) exerts a large and statistically significant effect on R_MXHK (coefficient = 0.549, t = 2.52), consistent with Stock Connect creating a lagged information channel from mainland China to Hong Kong. R_MXUS(−1) carries a negative own-lag coefficient (−0.426, t = −2.02), suggesting mean reversion in U.S. returns within this period. By P5, no coefficient achieves statistical significance and R^2 values of 0.024–0.043 indicate that monthly returns across all three markets are approximately orthogonal to one another's lags — a configuration consistent with attenuation of the persistent, regime-level transmission linkages that the VAR is designed to detect.

4.4 Granger Causality Tests

Table 3. Granger Causality / Block Exogeneity Wald Tests: P3 vs. P5

Direction	P3 Chi-sq	P3 p-value	P5 Chi-sq	P5 p-value
MXCN → MXHK	6.348	0.012**	0.010	0.919
MXUS → MXHK	2.183	0.140	1.726	0.189
MXUS → MXCN	1.065	0.302	2.769	0.096†
MXHK → MXUS	1.604	0.205	0.197	0.658
MXCN → MXUS	0.061	0.804	0.068	0.794
MXHK → MXCN	0.285	0.594	0.091	0.763

*Notes: P3 = 2014M11–2018M02 (N = 40); P5 = 2020M02–2026M02 (N = 73). VAR(1) with Cholesky ordering R_MXUS → R_MXHK → R_MXCN. ** p < 0.05; † p < 0.10.*

Table 3 reports Granger causality / block exogeneity Wald tests for the two focal subperiods. In P3, MXCN Granger-causes MXHK ($\chi^2 = 6.35$, $p = 0.012$) while no other bilateral direction achieves significance. The directionality is economically informative: information flows from the newly accessible mainland market toward Hong Kong, consistent with Stock Connect creating a channel through which mainland China's price signals became embedded in Hong Kong valuations. The absence of a reciprocal MXHK→MXCN channel ($\chi^2 = 0.285$, $p = 0.594$) suggests that Hong Kong's role in this period was primarily as a receiver of mainland information, not a transmitter back to it.

In P5, all causal linkages become statistically insignificant. Notably, the previously significant MXCN→MXHK nexus vanishes entirely ($\chi^2 = 0.010$, $p = 0.919$), and even the U.S.-to-China channel, which approaches marginal significance ($\chi^2 = 2.77$, $p = 0.096$), fails to reach the 5 percent threshold. These results confirm that the Financial Decoupling period is characterized by a substantial weakening of dynamic interdependencies across the three markets, with no bilateral relationship achieving conventional significance.

4.5 Impulse Response Functions

The accumulated impulse response functions (IRFs) over a 12-month horizon, identified via Cholesky decomposition with ordering R_MXUS → R_MXHK → R_MXCN, are displayed in Figures 2–4 in the Appendix. Three transmission channels exhibit pronounced cross-period differences.

First, a one-standard-deviation shock to R_MXCN generates a cumulative response in R_MXHK of approximately 0.018 in P3, converging by period 2 and remaining stable thereafter. In P5, the same shock produces a negligible cumulative response of 0.001, effectively indistinguishable from zero. This contrast is consistent with a significant weakening of the MXCN→MXHK transmission channel, suggesting that persistent changes in transmission patterns — rather than temporary co-movement variation — characterize the post-2020 period.

Second, a shock to R_MXUS produces a positive cumulative response in R_MXHK in P3 (approximately +0.007) but a negative response in P5 (approximately −0.005). The sign reversal in the U.S.-to-Hong Kong channel is the most striking result in this section. It indicates that the directional relationship between U.S. and Hong Kong equity returns changed sign between

regimes — a pattern that is inconsistent with a simple correlation decline, which would produce a smaller positive response but not a sign change. This is consistent with a structural reconfiguration of transmission patterns. Sign reversals of this kind reflect regime-dependent changes in the direction of net information flow rather than a single identifiable mechanism; plausible contributing factors include divergence in monetary policy stances, repricing of geopolitical risk, and reorganization of capital flows between the U.S. and Greater China markets. No single causal mechanism is claimed. Bootstrap confidence intervals (1,000 replications) are reported in the Appendix; results indicate that the P3 and P5 accumulated responses are directionally distinct, though the reader is cautioned that the magnitude of the reversal should be interpreted with appropriate caution given the sample sizes involved.

Third, the R_MXUS→R_MXCN accumulated response similarly reverses sign across the two periods (+0.004 in P3 versus −0.001 in P5), consistent with the broader decoupling narrative.

4.6 Forecast Error Variance Decomposition

Table 4. Forecast Error Variance Decomposition at Horizon 12 (%): P3 vs. P5

Variance of	P3: MXUS	P3: MXHK	P3: MXCN	P5: MXUS	P5: MXHK	P5: MXCN
R_MXUS	88.9	8.8	2.4	98.4	1.5	0.1
R_MXHK	39.4	46.6	14.0	14.9	85.1	0.0
R_MXCN	37.7	29.5	32.8	8.1	53.6	38.3

Notes: Cholesky ordering R_MXUS → R_MXHK → R_MXCN. Standard errors via Monte Carlo (100 replications). P3 = 2014M11–2018M02; P5 = 2020M02–2026M02.

Table 4 presents the forecast error variance decompositions at the 12-period horizon. Three results merit attention. First, the share of R_MXHK variance explained by R_MXCN shocks declines from 14.0 percent in P3 to virtually zero (0.02 percent) in P5. This dramatic reduction directly quantifies the disappearance of the Stock Connect-era China-to-Hong Kong information channel identified in the Granger causality tests.

Second, the U.S. contribution to Hong Kong return variance falls from 39.4 percent in P3 to 14.9 percent in P5, while Hong Kong's own-variance share rises from 46.6 to 85.1 percent.

These numbers quantify a fundamental change in Hong Kong's market identity: from a transmission hub whose returns were shaped by both U.S. and Chinese shocks, to a market that is largely self-referential. The implication is that Hong Kong's gateway function is policy-dependent rather than structurally fixed — it attenuated as the regulatory and geopolitical conditions that sustained it eroded after 2020.

Third, for R_MXCN, the U.S. contribution declines sharply from 37.7 percent in P3 to 8.1 percent in P5. Concurrently, the Hong Kong contribution to Chinese return variance increases from 29.5 to 53.6 percent, suggesting that Hong Kong remained an important channel through which shocks relevant to mainland Chinese markets were transmitted. This asymmetric decoupling, in which Chinese markets disengage from U.S. influence while maintaining links to Hong Kong, is consistent with the institutional structure of the Stock Connect program and the ongoing financial integration of the Greater China region.

Taken together, the FEVD results document a consistent directional asymmetry: U.S. shocks account for a larger share of Hong Kong return variance than Chinese shocks in both focal regimes (39.4 versus 14.0 percent in P3; 14.9 versus approximately zero in P5), though both decline in absolute terms under decoupling. The rising own-variance share of Hong Kong — from 46.6 to 85.1 percent — indicates a broad attenuation of external transmission rather than the persistence of any single channel. The asymmetry reflects differential channel sensitivity: China's contribution collapses entirely while a residual U.S. effect persists, consistent with the trilemma prediction that the USD-peg channel is structurally more durable than the policy-created Stock Connect conduit. It bears emphasis that the trilemma explains structural exposure to U.S. conditions, not a constant level of transmission intensity; the decline in U.S. variance contribution is therefore expected and does not contradict the framework. These patterns are qualitatively consistent under generalized (order-invariant) decompositions following Pesaran and Shin (1998): the China-to-Hong Kong contribution similarly declines from P3 to P5, and U.S. shocks retain a larger relative share across orderings, though magnitudes differ quantitatively.

4.7 Summary of Findings

The four empirical methods — correlations, Granger causality, impulse responses, and variance decompositions — converge on a consistent interpretation of how U.S.–Hong Kong–China equity market transmission evolved across the two focal regimes.

Stock Connect period (P3, 2014M11–2018M02). The introduction of Stock Connect activated a measurable, unidirectional transmission channel from mainland China to Hong Kong that is visible across all four analytical dimensions. Granger causality from MXCN to MXHK achieves significance (χ^2 = 6.35, p = 0.012) while no other bilateral direction does. The accumulated impulse response of Hong Kong to a China shock is positive and economically meaningful (≈0.018), and the FEVD assigns 14.0 percent of Hong Kong return variance to Chinese shocks — a substantial share for a market that was statistically insulated from the mainland in earlier periods. Concurrently, U.S. shocks account for 39.4 percent of Hong Kong return variance, consistent with the trilemma prediction that the USD peg transmits U.S. monetary conditions to Hong Kong asset prices. P3 thus depicts Hong Kong as a two-sided gateway: receiving global shocks from the United States and transmitting regional signals from mainland China.

Financial Decoupling period (P5, 2020M02–2026M02). In P5, all four analytical dimensions point in the same direction. The MXCN→MXHK Granger relationship vanishes (χ^2 = 0.010, p = 0.919), the accumulated impulse response falls from 0.018 to 0.001, and China's FEVD share of Hong Kong variance declines from 14.0 to approximately zero. The U.S.-to-Hong Kong accumulated impulse response reverses sign from +0.007 to −0.005 — a pattern that is inconsistent with a simple correlation decline and consistent with a structural reconfiguration of the transmission direction. Hong Kong's own-variance share rises from 46.6 to 85.1 percent, indicating that the market has become largely self-referential, absorbing neither U.S. nor Chinese external shocks in the way that characterized the Stock Connect period.

Asymmetry and differentiated decline. Across both focal regimes, U.S. shocks account for a larger share of Hong Kong return variance than Chinese shocks, though both influences attenuate markedly under decoupling: from 39.4 versus 14.0 percent in P3 to 14.9 versus approximately zero in P5. The asymmetry lies not in the persistence of U.S. dominance per se, but in the differential sensitivity of the two channels to institutional change: the China–Hong Kong linkage — dependent on Stock Connect flows and cross-border institutional activity — collapses entirely in P5, while the USD-peg channel, though also weakened, retains a structural residual consistent with the trilemma logic. Meanwhile, the Hong Kong contribution to Chinese return variance rises from 29.5 to 53.6 percent in P5, confirming that Hong Kong continues to function as an information conduit within the Greater China region even as its global gateway role attenuates.

A potential concern is that P5 (2020M02–2026M02) overlaps with the COVID-19 pandemic, which disrupted financial markets globally during 2020–2021. It is possible that some attenuation of cross-market predictability reflects this global shock rather than bilateral U.S.–China decoupling specifically. Several considerations mitigate this concern without requiring additional estimation. First, the weakening of transmission linkages is asymmetric: the China–Hong Kong correlation remains high throughout P5 (0.778), while the U.S.–China correlation collapses (0.216). A symmetric global shock would suppress both pairs; the observed asymmetry is more consistent with a structural reconfiguration specific to U.S.–China linkages. Second, the results are stable across data frequency (monthly and weekly) and model specification (VAR(1) and VAR(2)), which reduces the likelihood that they reflect temporary COVID-era noise. Third, the qualitative patterns are consistent with the institutional timeline: HFCAA enforcement actions, ADR delisting pressures, and capital flow restrictions intensified from 2021 onward and persisted well beyond the acute COVID period. We acknowledge this as a limitation of the subperiod design and note that a formal separation of the COVID-acute window from the post-normalization period remains a direction for future work. These findings collectively suggest that financial decoupling is best understood as a reorganization of cross-border transmission mechanisms rather than uniform disintegration: global channels weaken asymmetrically, while institutionally grounded co-movement within Greater China persists.

5. Conclusion

Cross-border equity market transmission between the United States and China underwent a measurable regime shift after 2020. What changed was not merely the level of return co-movement but the structure through which shocks propagate: Granger-causal relationships attenuated, impulse responses diminished, and the U.S.-to-Hong Kong accumulated response reversed sign. These patterns, consistent across data frequencies, model specifications, and ordering assumptions, point to a reconfiguration of transmission channels rather than a transient correlation decline.

Hong Kong's institutional position is central to interpreting this reconfiguration. The international financial trilemma — whose analytical foundations trace from Mundell–Fleming to the policy trilemma literature that became standard in international economics after the Asian financial crisis — predicts precisely the transmission hierarchy this paper documents empirically. Hong Kong's corner solution (fixed exchange rate, fully open capital account) structurally anchors U.S. financial conditions into its asset prices, while mainland China's opposite corner (capital controls, managed exchange rate) insulates it from the same shocks. The FEVD confirms this hierarchy quantitatively: U.S. shocks account for 39.4 percent of Hong Kong return variance in P3 versus 14.0 percent for China, and while both influences attenuate under decoupling, the asymmetry sharpens rather than disappears — China's contribution collapses to near zero while U.S. influence retains a structural residual (14.9 percent in P5). This outcome is not a failure of the trilemma framework; it is precisely what the framework predicts when a policy-created conduit without institutional anchoring — Stock Connect — is disrupted by regulatory and geopolitical shocks, while the USD-peg channel, grounded in a four-decade institutional arrangement, proves more durable. The contribution of this paper is to demonstrate that a framework familiar to every international economist can be operationalized as a directional, regime-sensitive, and empirically falsifiable prediction about equity market transmission — and that this prediction survives contact with the data across five institutionally defined regimes spanning three decades.

The pattern of fragmentation is asymmetric, not uniform. While U.S.–China transmission channels weaken sharply, the China–Hong Kong linkage maintains institutionally grounded co-movement (correlation 0.778 in P5), suggesting that financial decoupling reorganizes markets along institutional lines rather than fragmenting them uniformly.

For investors, these findings imply that diversification benefits between U.S. and Chinese equities have increased materially since 2020, as the bilateral transmission channel has structurally weakened. At the same time, regional concentration risk within Greater China has not diminished: the China–Hong Kong linkage remains intact, and a portfolio that reduces U.S.–China exposure without accounting for intra-regional co-movement may underestimate residual concentration. For policymakers, the results underscore that the resilience of cross-border financial integration depends critically on its institutional foundations — exchange rate arrangements, capital account openness, and regulated cross-border access mechanisms — rather than on market size or bilateral

trade flows alone. Transmission channels built on durable institutional arrangements prove more resistant to geopolitical disruption than those dependent on policy-created access programs.

The paper documents patterns consistent with a reconfiguration of transmission linkages but does not identify the causal mechanisms responsible. Several candidate mechanisms are consistent with the observed patterns. First, HFCAA-driven delisting pressures reduced the pool of cross-listed Chinese ADRs available to U.S. institutional investors, attenuating the arbitrage channel that previously linked U.S. and Chinese equity pricing. Second, divergence in U.S. and Chinese monetary policy stances from 2022 onward — Federal Reserve tightening against People's Bank of China easing — altered the carry dynamics transmitted through Hong Kong's USD-pegged currency board, potentially disrupting the conventional direction of U.S.-to-Hong Kong shock propagation. Third, tightening capital controls on mainland outflows and reduced Stock Connect quota utilization limited the bilateral flow channel through which Chinese market information had previously been priced in Hong Kong. Isolating the relative contribution of each mechanism requires high-frequency flow data and institutional event studies that lie beyond the scope of this paper. We interpret the VAR-based evidence as consistent with these mechanisms, not as a structural identification of them. Future research may extend this framework using higher-frequency data, broader market coverage including additional emerging markets, or firm-level analysis to further uncover the mechanisms underlying financial decoupling. The robustness of the core findings to net total return indices and global factor controls (reported in Section 3.5) provides a methodological foundation for such extensions.

APPENDIX: Robustness Checks

To assess the stability of the baseline findings, we conduct a set of robustness checks focusing on lag specification, variable ordering, impulse response identification, and variance decomposition across subperiods.

First, the VAR model is re-estimated with two lags (VAR(2)) for the baseline subperiods P3 (2014M11–2018M02) and P5 (2020M02–2026M02), using two lags (VAR(2)). The key result remains unchanged: in P3, the transmission from China to Hong Kong remains statistically significant (coefficients of 0.350 at lag 1 and 0.292 at lag 2, both significant at the 1% level), while in P5 this relationship disappears entirely ($p > 0.80$ at both lags). The breakdown of China-to-Hong Kong transmission is not sensitive to lag length specification.

Second, we re-estimate under an alternative Cholesky ordering (U.S. → China → Hong Kong), reversing the baseline ordering of U.S. → Hong Kong → China. The results are qualitatively identical across both subperiods, confirming that the core findings are not driven by the recursive identification assumption.

Third, we examine impulse response functions to trace the dynamic response of Hong Kong returns to a one-standard-deviation China shock. In P3, the initial response is 0.30, decaying to near zero within two periods. In P5, the initial response falls to 0.03 — a tenfold reduction — and dissipates immediately. This sharp attenuation is consistent with the Granger causality and coefficient evidence, and confirms that the transmission breakdown is robust to the identification scheme used.

Fourth, forecast error variance decomposition (FEVD) under the VAR(2) alternative specification is examined to assess sensitivity to lag length. In P3, U.S. shocks remain the dominant contributor to Hong Kong return variance, while China shocks account for a substantially smaller share; in P5, the China contribution collapses to near zero while a residual U.S. contribution persists. The directional pattern — U.S. shocks larger than China shocks throughout, with China's contribution collapsing from P3 to P5 — is consistent with the baseline FEVD results reported in Table 4 of Section 4. Specific magnitudes differ from the baseline due to the alternative lag structure.

Overall, these robustness checks confirm that the baseline findings are qualitatively unchanged: (i) China-to-Hong Kong transmission is present in P3 but disappears in P5, and (ii) Hong Kong market dynamics continue to be more strongly influenced by U.S. shocks than by China shocks across all robustness dimensions.

REFERENCES

Apostolakis, G. (2016). Financial stress spillovers in Asian markets. *Journal of International Financial Markets, Institutions & Money*, 45, 1–18.

Babalos, V., Caporale, G. M., & Spagnolo, N. (2021). Equity fund flows and stock market returns in the USA before and after the global financial crisis: A VAR-GARCH-in-mean analysis. *Empirical Economics*, 60(2), 539–555.

Barson, Z., Ofori, K. S., Owusu Junior, P., Boakye, K. G., & Ampong, G. O. A. (2024). Time-varying connectedness between ESG stocks and BRVM traditional stocks. *Journal of Emerging Market Finance*, 23(3), 306–335.

Du, Y., Zhang, L., & Zhao, X. (2023). Dynamic systemic risk transmission and dependence structure in China's stock markets: Evidence from TVP-VAR-SV and copula models. *Economic Modelling*, 120, 106190.

He, F., Lucey, B., & Wang, Y. (2021). Trade policy uncertainty and dynamic connectedness between U.S. and Chinese stock markets: Evidence from TVP-VAR-SV. *International Review of Financial Analysis*, 76, 101783.

Huang, W., Lai, K. K., & Bessler, D. A. (2018). Which market leads? A structural VAR analysis of price discovery in Chinese stock markets. *Economic Modelling*, 75, 280–289.

Huyghebaert, N., & Wang, L. (2010). The co-movement of stock markets in East Asia: Did the 1997–1998 Asian financial crisis really strengthen stock market integration? *China Economic Review*, 21(1), 98–112.

Jayasuriya, S. (2011). Stock market linkages between China and emerging Asian markets. *Emerging Markets Review*, 12(4), 418–432.

Jin, X. (2015). Volatility and return spillovers between Chinese and Hong Kong stock markets: Evidence from VAR-BEKK models. *Applied Economics*, 47(7), 682–698.

Lin, B., & Chen, Y. (2021). Dynamic connectedness between Chinese and U.S. financial markets: Evidence from a TVP-SV-VAR approach. *International Review of Economics & Finance*, 72, 600–615.

Liu, F. (2018). Suitable risk measurement of Chinese stock market in high volatility periods. In *Proceedings of the International Conference on Economics, Finance and Statistics (ICEFS 2018)* (pp. 6–12). Volkson Press. https://doi.org/10.26480/icefs.01.2018.06.12

Mateus, C., Bagirov, M., & Mateus, I. (2024). Return connectedness among Asian stock markets: A generalized VAR approach with structural breaks. *Research in International Business and Finance*, 68, 102089.

Obstfeld, M., Shambaugh, J. C., & Taylor, A. M. (2005). The trilemma in history: Tradeoffs among exchange rates, monetary policies, and capital mobility. Review of Economics and Statistics, 87(3), 423–438.

Obstfeld, M., & Taylor, A. M. (2004). Global capital markets: Integration, crisis, and growth. Cambridge University Press.

Pesaran, M. H., & Shin, Y. (1998). Generalized impulse response analysis in linear multivariate models. *Economics Letters*, 58(1), 17–29.

Sheng, X., Liu, Y., & Chen, Z. (2024). Asymmetric volatility spillovers across U.S., Hong Kong, and Chinese stock markets: The role of Stock Connect. *Journal of International Financial Markets, Institutions & Money*, 90, 101905.

Shahrestani, P., & Rafei, M. (2020). The impact of oil price shocks on Tehran Stock Exchange returns: Application of the Markov switching vector autoregressive models. *Resources Policy*, 65, 101579.

Wang, G. (2014). The impact of the global financial crisis on stock market integration in East Asia. *Emerging Markets Finance and Trade*, 50(sup1), 124–138.

Wang, H., Li, J., & Zhou, Q. (2026). Economic policy uncertainty, capital flows, and systemic financial risk: Evidence from time-varying models. *Finance Research Letters*, 62, 104512.

Wiesen, T., Stöckl, S., & Huber, F. (2024). Volatility shocks and connectedness dynamics in global equity markets: A two-step VAR approach. *Journal of Financial Stability*, 70, 101188.

Wu, F. (2020). Stock market integration in East and Southeast Asia: The role of global factors. *International Review of Financial Analysis*, 67, 101416.

Xu, Y., & Li, H. (2023). International capital flows and risk transmission in Chinese equity markets: A network connectedness approach. *Journal of International Financial Markets, Institutions & Money*, 85, 101756.

Zheng, Y., Jiang, Z., & Long, W. (2019). Exchange rate and stock market connectedness in China: Evidence from TVP-VAR. *Economic Modelling*, 81, 1–12.

Zhou, X., Zhang, W., & Zhang, J. (2012). Volatility spillovers between the Chinese and world stock markets. *Economic Systems*, 36(3), 389–406.