

Proceedings of the 2025 Asian Monetary Policy Forum¹

The 12th Asian Monetary Policy Forum (AMPF) was held on 22 and 23 May 2025 in Singapore. It brought together central bankers, academics and private sector analysts to share perspectives on several critical themes, including the inherent tensions between monetary policy and financial stability, the implications of fundamental shifts in geopolitical and economic paradigms, the rise of multipolarity in global trade and financial networks, the decline in US dollar centrality and the crucial need to rebuild trust in economic policies.

This paper presents proceedings of the 12th AMPF². These are:

- Keynote Speech by Professor Raghuram G. Rajan (Katherine Dusak Miller Distinguished Service Professor of Finance, Booth School of Business, University of Chicago) on *Monetary Policy and Financial Stability*,
- Opening Address by Dr Adam S. Posen (President of the Peterson Institute for International Economics (PIIE)) on *The Global Economy After the Peace Dividend is Gone*,
- Commissioned Paper by Professor H el ene Rey (Lord Raj Bagri Professor of Economics, London Business School and Senior Fellow, ABFER) and Vania Stavrakeva on *Interpreting Turbulent Episodes in International Finance*,
- Luncheon Address by Professor Pierre-Olivier Gourinchas (Economic Counsellor and Research Director, International Monetary Fund) on *Changing Global Linkages*,
- Policy Panel on *Financial Markets as Propagators of Global Shocks* chaired by Professor Amit Seru (The Steven and Roberta Denning Professor of Finance, Stanford Graduate School of Business, Stanford University) with panellists Dr Jan Hatzius (Chief Economist and Head of Global Investment Research, Goldman Sachs), Dr Eric Parrado Herrera (Chief Economist and Economic Counsellor of the Research Department, Inter-American Development Bank) and Dr Jeffrey Jaensubhakij (Adviser, GIC); and
- Distinguished Guest Speech by Dr Agust n Carstens (General Manager, Bank for International Settlements (BIS)) on *Reflections on Four Decades in Central Banking*.

1 Monetary Policy and Financial Stability

Summary

In his keynote lecture, Professor Rajan explored the intricate relationship between monetary policy and financial stability, challenged the traditional "separation principle" and examined the various channels through which monetary policy can lead to excessive risk-taking and financial crises. He warned that using monetary policy "too hard" (lower interest

¹ The views expressed herein are the author's and should not be attributed to the Monetary Authority of Singapore.

² The Forum Proceedings are also uploaded on the AMPF website <https://abfer.org/events/abfer-events/asian-monetary-policy-forum/397:ampf2025>

rates for longer) can have adverse financial stability implications that need to be carefully considered.

The Separation Principle and its Challenges

Many central bankers believe in the separation principle, advocating for distinct tools and institutions to address monetary policy and financial stability. This perspective suggests that monetary policy should focus on price stability while other agencies focus on financial stability. However, Professor Rajan questioned the feasibility of this separation, focusing on how sustained and accommodative monetary policy could fuel credit growth and increase risk-taking in the financial sector, raising the probability of financial crises. In turn, when a financial crisis happens, unbridled liquidity interventions could make the financial system increasingly dependent on such interventions. The concern is that eventually, if a political backlash against bailouts occurs and interventions are forced to stop (central banks should not be working to further the interest of a few against the interest of many), the system would eventually collapse. Professor Rajan concluded that monetary policy should play a role in reining in financial risks because it is difficult for macroprudential policies alone to fully offset such risks.

He cited several papers to back up his thesis.

Monetary Conditions, Credit Booms and Financial Crises

Empirical evidence suggests a strong link between monetary conditions and credit booms. Research by Jorda, Schularick, and Taylor (2013) analysing 154 business cycles across 14 countries found that financial crisis-led recessions are more severe and are closely related to the credit intensity of the preceding expansion. Excess credit, defined as higher growth in the credit to GDP ratio relative to its mean, exacerbates the impact of recessions. The more credit expands, the worse the recession, hence the title of the paper "When credit bites back".

Further work by Grimm *et al.* (2023) examines the stance of monetary policy, defined as the real policy rate less a measure of the real neutral rate, and its relationship to financial instability. Their findings indicate that a loose monetary policy stance, accompanied by a significant increase in the credit-to-GDP ratio, is often observed before financial crises. The average stance of monetary policy tends to be looser and credit growth higher before financial crises. In addition, the probability of a crisis increases with looser monetary policy. For instance, a more accommodative stance than normal would increase the probability of financial crises six to eight years ahead. If the stance is within the lowest 20th percentile (most accommodative), the probability of financial crises goes up to 12 to 14%, six to eight years ahead.

However, monetary policy is endogenous, i.e., it reacts to the very variables that it is trying to influence. To truly isolate monetary policy as an exogenous shock, the eurozone's experience before the Global Financial Crisis (GFC) offers a good case study. In the period before the GFC, the ECB set interest rates that were appropriate for the core (Belgium, Denmark, France, Germany, Netherlands) but not the periphery (Ireland, Italy, Portugal, Spain). As a result, the monetary policy stance for the periphery was too loose and this resulted in much higher credit growth and asset prices in the periphery which eventually imploded. This showed that "exogenous" monetary policy shocks have an impact on financial stability.

Transmission Channels for Low Rates

Why does risk-taking increase when interest rates are low? In Jimenez *et al.* (2022), the authors show how low nominal interest rates can precipitate risk-taking through several channels:

- **Wealth effect:** Individuals and institutions may increase risk-taking to maintain a desired level of wealth accumulation when real rates are low.
- **Accounting income/profitability:** Financial institutions might take on more risks to maintain accounting income or profitability, cover fixed liabilities, or enhance bonuses.
- **Wealth redistribution:** Lower rates can redistribute wealth towards those with a higher tolerance for risk.

These mechanisms suggest that easy monetary conditions induce bank risk-taking and raise financial imbalances, resulting in financial crises when the easy conditions reverse. For instance, in Spain, as the nominal interest rate falls, credit growth rises and the volume of non-performing loans falls, but when monetary policy tightens and rates are higher, the reverse happens.

Morais *et al.* (2018) examine the role of foreign banks as conduits for transmitting easy monetary conditions from their home to the host countries, precipitating crises in the latter. They show that the easy monetary policy of the ECB and the Fed are directly transmitted to emerging markets through these foreign banks. For instance, a one standard deviation reduction in foreign monetary policy rates increases credit volume of corresponding foreign banks in Mexico by 2.1%, lengthens loan maturity by 6.7%, and increases probability of future loan delinquencies by 9.8%.

The Unintended Consequences of Central Bank Liquidity Interventions

Thus far, the consensus view amongst central banks on the role of monetary policy in financial stability is encapsulated in what is known as the “Fed put” – that while central banks cannot prevent financial crises, they can mitigate the fallout when it occurs by liquidity interventions. However, unbridled intervention can lead to distortions and moral hazard, undermine the disciplinary role of deposit contracts and encourage excessive leveraging and illiquidity seeking. This was well documented in Schneider (2021), who argues that the Bank of England’s refusal to bail out a large insolvent lender, combined with the provision of liquidity at penalty rates to other distressed institutions in 1866 demonstrated that “long-term benefits derived from refusing to rescue insolvent institutions may outweigh the temporary fruits of cooperation”. Similarly, Bank of England governor Mervyn King highlighted in 2007 how “the provision of large liquidity facilities penalises those financial institutions that sat out the dance, encourages herd behaviour and increases the intensity of future crises”.

Beyond concerns over moral hazard, Professor Rajan explained how central bank liquidity interventions, while meant to stabilize financial markets during crises, can breed “liquidity dependence” if sustained. Sustained liquidity infusions induce banks to think of ways to use the liquidity and take more risks. Banks, knowing that sitting on unused liquidity is costly, would make money by funding themselves with uninsured demand deposits, extending lines of credit to various entities, including corporations and private credit funds, and funding speculative finance such as bond basis swaps. This makes the system more vulnerable to shocks and dependent on the Fed as the “saviour of the first resort”. The liquidity

shocks during September 2019 (repo market spike due to shortage of cash in the repo market), March 2020 (COVID-19 “dash for cash”), and March 2023 (Silicon Valley Bank failure) demonstrated these dynamics.

He cited research by Ferguson *et al.* (2023) which examined whether interventions sowed the seeds of the future crises, using central bank balance sheets and financial crises data from 1587 to 2020. They found that while liquidity support during crises reduced their severity, facilitated asset price recovery, and avoided deflation, it also increased the probability of future boom-bust episodes. Therefore, while central bank interventions can help prevent failures in the short-run, in the long-run, it may also reward bad behaviour and lead to bad outcomes.

The Yin and Yang of Regulations and Interventions

Professor Rajan concluded by describing the “yin and yang” of regulations and interventions. He explained that if the political economy of regulation is about deregulation (yin) (i.e., more risk-taking), the political economy of interventions is about more interventions (yang). As the financial system becomes more dependent on interventions, it becomes more vulnerable. He cautioned that if one day, the political masters cave in to populist pressures and withdrew their support for interventions, the whole system could collapse.

The bottom line is that monetary policy should actively consider potential financial stability risks. Even as other policies such as macroprudential and microprudential policies can play a role, they are not enough.

Discussion between Raghuram Rajan and Steven Davis (Thomas W. and Susan B. Ford Senior Fellow and Director of Research, Hoover Institution, Senior Fellow, Stanford Institute for Economic Policy research, William H. Abbott Distinguished Service Professor Emeritus at the University of Chicago Booth School of Business)

Professor Davis opened the discussion by highlighting the enduring tension between monetary policy and financial stability. He noted that the private sector's appetite for liquidity tends to grow with central bank liquidity provision, creating a self-reinforcing dynamic. Professor Davis emphasised the political economy constraints that make it difficult for central banks to withhold liquidity support, even when doing so might be prudent. He warned that credibility loss – either fiscal or monetary – could eventually constrain central banks' ability to act, as had happened previously.

Professor Rajan agreed, noting that such credibility issues have long plagued emerging markets and could, under certain conditions, affect advanced economies. He critiqued the opacity in central bank interventions, often framed as market stabilization, which in practice can benefit entities like hedge funds, raising populist backlash and political risk. He warned that over-reliance on central bank liquidity could lead to systemic fragility if political support for interventions wanes.

Professor Davis extended the argument, suggesting that unresolved financial imbalances contribute to the rise of populism, with long-term socio-political costs. Professor Rajan concurred, stressing that institutional independence is contingent on political support. He argued that central banks are not truly independent and that political delegitimization can erode their effectiveness.

Turning to international monetary dynamics, Professor Davis reflected on Professor Rajan's examples from the euro area and Mexico, emphasizing that monetary policy alone is

insufficient in open economies due to external financial shocks. He advocated for macroprudential tools, though he noted Professor Rajan's skepticism about their efficacy. Professor Rajan clarified that while macroprudential policies should be used, they are inherently limited and often procyclical. He pointed out that regulatory enthusiasm tends to fade over time, leading to deregulation precisely when vigilance is needed most.

In closing, Professor Davis asked whether adherence to the Taylor Rule would have prevented the GFC. Professor Rajan responded affirmatively to the need for augmented policy rules, citing Claudio Borio's work on the buildup of financial imbalances during prolonged periods of easy monetary policy. He emphasized the importance of incorporating credit expansion and policy duration into policy frameworks, lamenting the limited traction such ideas have gained among central banks despite strong advocacy from institutions like the Bank for International Settlements (BIS).

2 The Global Economy After the Peace Dividend is Gone

Summary

The global economy is entering a new era characterized by the reversal of the "peace dividend", which prevailed after the Cold War and fostered a long period of geopolitical stability, robust international financial arrangements and restrained government intervention. Its reversal signifies a fundamental shift in geopolitical and economic paradigms. Dr Posen outlines the profound implications of this shift on trade policy, global economic growth, inflation, financial stability, and the centrality of the US dollar.

Disruption in US Trade and Economic Strategy

President Macron's statement on March 5, 2025, that "No longer will our generation enjoy the dividends of peace", sets the stage for Dr Posen's analysis. The peace dividend that prevailed provided countries with a "beach house with good insurance", where geopolitical stability fostered a period of economic and financial stability. This era is now ending. The world order is being disrupted and it is shifting towards a new regime of lingering uncertainty, increased global violence and terrorist threats. This transition demands a fundamental repricing of risk and signals a transformation in the global financial system.

US trade policy has transitioned to a deliberately provocative and transactional model — one aimed at restoring domestic manufacturing, reversing trade imbalances, and leveraging American market power for geopolitical concessions. This approach reflects a broader "mad-man theory" applied to economics: the US attempts to influence global behaviour through erratic and aggressive tactics. However, unlike diplomacy between states, this approach is unlikely to work as global commerce is driven by millions of decentralized actors who react with self-insurance, capital withdrawal and diversification.

Trump 2.0 policies — retaliatory tariffs, supply-chain reshuffling, and escalating barriers to trade and investment — are not reversible or temporary. They represent a permanent departure from the rules-based multilateral framework and a reset to a new and inferior regime, akin to the shift during Brexit. He identified the multiple goals of this policy, which are to address grievances of US citizens, restore US dominance in manufacturing employment, reverse bilateral trade balances with surplus economies, restructure international trade relations to maximize US bargaining power, raise federal revenues to partially offset

corporate tax cuts, leverage US market size to gain non-economic concessions and create a "Commonwealth" of like-minded countries aligned with the US.

Comparing Trump 2.0 to Trump 1.0, Dr Posen said that the first Trump trade war did not lead to global decoupling or even US decoupling. The US reduced direct reliance on China by moving production of some easier-to-shift products to other low and middle-income economies, like Vietnam and Thailand. Total US imports from China trended down after July 2018, while imports from the rest of the world increased. China, in turn, shifted its exports to new markets, with significant growth in exports to low, lower-middle, and upper-middle-income countries between 2013 and 2024. As a result, ASEAN and the EU substantially increased their direct reliance on China, deepening linkages through global value chains.

In contrast, Trump 2.0 aims to decouple from China and inflict harm on the Chinese economy through multiple channels. First, on trade, Dr Posen highlighted that there seems to be no clear "off-ramp" or specific economic concessions that would lead to a cessation of hostile actions against China. Trump 2.0 is about plugging the leakage as reflected in high US retaliatory tariffs on countries like Vietnam, Indonesia, India, Mexico, and South Korea, to prevent re-routing of trade through these countries. The US is also utilizing "Entity Listings" to control tech exports. Second, the US has imposed greater restrictions on inward FDI by Chinese companies and has increased investment security reviews by CFIUS on foreign countries. This contrasts with the EU's increased reliance on Chinese technology.

Regarding Europe, while increased common debt issuance and defense spending will boost European growth and strengthen the euro, it is unclear if this will lead to sustained productivity improvements. Military spending may also detract from structural reforms which are needed for broader productivity gains.

The reversal of the peace dividend is expected to have significant macroeconomic and financial consequences:

- Inflation is being fuelled not just by policy shifts, but by underlying structural fragmentation. Supply chain dislocations, tariff pass-through, and labour shortages – exacerbated by strict immigration controls – are reducing productive capacity and pushing prices upward.
- Growth is expected to weaken in most economies, even among G20 nations, with long-term output declines projected in both the US and China. Long-term real interest rates are likely to remain 0.5–1.0 percentage points above pre-2020 norms due to elevated defence and industrial spending, financial fragmentation, and constrained global savings flows.
- Global financial repression is increasing, with governments exerting greater control over capital and banking systems to absorb rising deficits and shocks.
- A tiering effect is becoming more visible, as larger, geopolitically significant emerging markets – India, Indonesia, Brazil, Turkey, and Mexico – show greater resilience and room for policy flexibility. These economies are actively decoupling from over-reliance on traditional financial centres and forming alternative trade and investment corridors.
- The dominance of the US dollar as the world's reserve currency is being challenged. Historically, its strength was underpinned by US leadership in global security and financial norms, but with its growing retreat from international engagement and rising uncertainty, these pillars are eroding.

- Other economies, especially in Europe and Asia, are reevaluating the over-concentration of their reserves in US dollars and reducing their exposure. Central Bank Digital Currencies (CBDCs) are emerging as serious competitors to traditional reserve assets. Nations are accelerating development and adoption of digital currencies designed to bypass US monetary surveillance and sanctions, notably the digital euro.
- In parallel, stablecoins and blockchain-based financial instruments are gaining traction — not just as speculative vehicles but as alternatives for payments, remittances, and cross-border transfers.
- The competition between CBDCs and decentralized finance innovations will shape the future of global capital flows. The fragmentation of trust in traditional institutions is encouraging a shift to algorithmically governed and regionally backed assets.
- Nations are building their own financial insurance mechanisms: accumulating reserves and participating in regional arrangements like the Chiang Mai Initiative.
- Central banks are under increasing pressure to finance growing deficits via direct debt purchases, straining independence and credibility.

Withdrawal of the US from international standards setting, networks, and rules would mean fragmenting international standards setting and there is no one clear leader to fill the gaps. In addition, by pulling out of the Paris agreement and other climate actions, the US is becoming an “anti-green Galapagos” — isolating itself on environmental policy.

Overall, Dr Posen painted a bleak picture of a global economy grappling with a fundamental shift away from the post-Cold War peace dividend. The implications for trade, finance, inflation, growth, and the international monetary system are profound, necessitating a rethinking of economic policies and assumptions in this new era of heightened geopolitical risk and uncertainty.

3 Interpreting Turbulent Episodes in International Finance

Summary

This commissioned paper by Professors Rey and Stavrageva offers a novel framework and high-frequency proxies to explore the interplay between foreign investor holdings, exchange rates, and local asset prices, particularly during episodes of financial turbulence. The research highlights the increasing importance of cross-border equity positions relative to debt for both Emerging Markets (EMs) and Advanced Economies (AEs).

Introduction

Exchange rate and asset price movements, especially during stress periods, matter for policymakers as these affect monetary, fiscal, and macroprudential policy decisions. However, the mechanisms through which financial shocks affect exchange rates, equity prices and long-term yields are still not well-established. This question has gained renewed relevance in the wake of recent global events, such as the sizeable tariff announcements by the Trump administration, which triggered abrupt shifts in global capital flows and currency valuations.

The paper identifies three key challenges in addressing this issue:

- Conceptually, there is a lack of consensus over whether to use a financial markets-centred perspective or traditional macroeconomic model as the theoretical framework; Each approach typically relies on strong and often untestable assumptions.
- The historical reliance on holdings data from subsets of investors, particularly for non-US investors, to measure changes in investor demand is far from ideal.
- There is an inherent difficulty in identifying exogenous demand shocks in foreign exchange (FX) markets or isolating shifts in financial asset demand in response to news, as these movements are often driven by endogenous dynamics.

To tackle these challenges, the paper builds upon the framework introduced in Rey and Stavrakeva (2024), which links exchange rates to asset price movements via market-clearing accounting identities. This approach is rooted in the portfolio balance models tradition (Kouri, 1976; Branson and Henderson, 1985) but is notably free of structural assumptions, making it well-suited for empirical implementation.

The Evolving Global Map of Equity and Debt Ownership

The paper documents significant shifts in the global financial landscape using IMF's Portfolio Investment Positions by Counterpart Economy (formerly CPIS) dataset, which captures the universe of cross-border bilateral holdings (both equity and debt holdings). The authors analyse data for 32 currency areas, constructing network graphs for 2008 and 2023. The following are the key observations:

- From a tripolar to a multipolar world: Currencies such as AUD, CAD, KRW, CNH, HKD, TWD, and INR became more prominent in equity and debt financing between 2008 and 2023, even as the USD, EUR, and GBP remained key borrower currencies.
- Deeper cross-border capital market linkages: Total equity and debt liabilities increased significantly as a share of US GDP across all countries between 2008 and 2023. The growth in equity liabilities has been particularly striking, with the ratio of US equity liabilities to GDP surging from 13% in 2008 to 43% in 2023.
- Growing importance of equity financing: A significant shift from debt-to-equity financing occurred in advanced economies (USD, EUR, GBP, JPY, CAD, SEK, AUD) between 2008 and 2023. For emerging markets, equity was already the dominant financing source in 2008, and it has grown in importance since then.
- From net equity creditors to net equity debtor: Both the US and the Euro Area have transitioned from being net equity creditors to more mixed positions. In 2008, the US and Euro Area were net equity creditors with 20 (out of 29) countries each. By 2023, this number had decreased to 15 for the US and 12 for the Euro Area. The US became a net equity debtor to the Euro Area while remaining a net equity creditor to most emerging markets. The Euro Area, in contrast, became a net equity debtor to several emerging markets.

The paper confirms that the rising share of equities in cross-border portfolio positions is a consistent trend and not an aberration. For the US, total portfolio assets and liabilities rose from roughly 25% and 30% of US GDP in 2003 to 40% and 60% by end 2023, with equity driving this rise. Similar trends driven by equity, are observed in EMU, ASEAN, developed Asian nations, and South & Central America.

From the perspective of recipient countries (i.e., net recipients of cross-border portfolio investment flows), in general, the greater a country's total portfolio liabilities, the higher the share of equity borrowing in those liabilities. Six countries – US, Europe, UK, Japan, Hong Kong and Singapore – account for most of the cross-border portfolio financing, with US, Europe and UK being major sources across both asset classes.

Methodologies for Deriving Demand-Based Measures of Asset Holdings

To solve the identification problem, the authors explore various proxies for asset demand and cross-check them for consistency. The first proxy is the change in holdings of equities and long-term debt calculated from CPIS data. The second is derived using the CPIS data and a market clearing identity to construct a market prices-based proxy for the daily growth in foreign investor holdings for each national stock market and long-term debt market. By way of confirmation that this is a useful indicator, they show that this proxy co-moves strongly with final investor flows through exchange-traded funds (ETFs).

Using the first two proxies of foreign equity demand, they find that an increase in foreign equity holdings is positively correlated with local currency appreciation for most currencies. Consistent outliers where increased foreign equity holdings are linked to depreciation included the USD, JPY, CHF, and HKD (pegged to USD). These findings corroborate earlier work by the authors using Morningstar Direct data. For long-term debt markets, higher foreign holdings of local debt were almost universally associated with stronger local currency appreciation, with more pronounced effects than in equity markets for most countries.

Regarding the impact on asset prices (in local currency), greater foreign holdings of both equities and long-term debt are associated with higher asset prices. For long-term debt markets, the relationship between CPIS-based foreign holdings and local bond prices is much more heterogeneous and less statistically significant, with often negative coefficients. This contrasts with the clearer exchange rate response. This weaker link is attributed to limitations of CPIS data for debt (e.g., not isolating sovereign debt and not accounting for new issuance).

In the third method, the authors construct an instrument variable (IV) for foreign equity holdings using the 30-day growth rate of outstanding shares in BlackRock MSCI iShare ETFs. The instrument is constructed by taking the residual from a regression of the growth in ETF shares outstanding on contemporaneous and past VIX growth rates (proxy for global risk aversion/financial cycle) and past ETF performance (NAV changes).

The residual, which is the instrument, is interpreted as capturing ETF investors' idiosyncratic beliefs about country-specific news (cleaned of past performance effects) and exogenous demand shocks (e.g., liquidity shocks). The regression results show that higher VIX is associated with ETF outflows, while positive past performance is linked to inflows.

Using the instrument, the authors find similar results (same signs and roughly similar magnitudes) as the non-instrumental variable approach, reinforcing the framework's validity:

- For most countries, a 1% increase in foreign equity holdings (due to US ETF investor demand) causes both local currency appreciation and local stock market price appreciation.
- The impact on local stock market prices tends to be larger than the impact on the exchange rate index. This may be linked to managed exchange rates, forcing stronger price adjustments in the equity market.

- Countries like ZAR, AUD, and CAD, which have high equity shares in liabilities and are primarily funded by USD and EUR investors, show the largest exchange rate appreciations in the instrumental variable (IV) regressions. HKD, being pegged, is at the other extreme.
- Japan (JPY) stands out as the only country where the IV regression indicates that higher foreign equity demand leads to a statistically significant currency depreciation. The authors speculate this could be due to coincident outflows from Japanese long-term debt markets, given the yen's higher sensitivity to debt flows.

Interpreting Turbulent Episodes

Using the demand-based measures, the authors examine investor behaviour during significant global financial shocks, focusing on relative changes in holdings and exchange rates against the USD.

They find that following the Trump tariff announcement on April 2, there was a notable shift in investor behaviour from the traditional “flight to safety” pattern to a shedding of USD assets (both equity and debt) leading to a sharp depreciation in the USD. This sharply contrasted with previous stress episodes of USD appreciation as outlined below:

- COVID-19 Shock (post-US closure, March 5, 2020): Post-US closure, most non-US markets experienced a bigger drop in foreign equity demand than did the US stock market. A similar trend occurred for long-term government debt. This represented a classic flight to safety, where foreigners shifted disproportionately into US long-term government debt and disproportionately less out of US stocks, leading to USD appreciation.
- Global Financial Crisis (GFC) (post-Lehman failure, September 15, 2008): Patterns were very similar to COVID-19, with a relative shift into USD equity and debt markets and USD appreciation. However, there was also some limited evidence of a shift towards Asian assets, possibly because the crisis originated in the US, and Asia appeared more insulated.

Conclusion

The paper makes several important contributions:

First, it documents the structural shifts in international finance – growing multipolarity, deepening of cross-border markets, rising importance of equity financing, and the shift of the US and Euro Area to become net equity borrowers. These findings have significant implications for understanding international financial stability, currency dynamics, and the global role of major currencies, particularly the USD. The increased reliance on equity financing, for instance, could have implications for risk-sharing and financial stability.

Second, the paper provides a robust empirical foundation for further research into the drivers and consequences of international capital flows. It finds strong co-movements between portfolio positions (equity and debt) and both asset prices and exchange rates, with different magnitudes. The outliers were JPY, HKD, CHF, USD, CNH and SGD, where increases in foreign investor equity holdings were associated with currency depreciations rather than appreciations.

Third, the development of high-frequency proxies for foreign holdings, validated by an IV strategy, allows for a causal interpretation of the impact of foreign demand on asset prices

and exchange rates. This framework proves valuable in dissecting investor behaviour during major financial shocks. The contrasting responses during the COVID-19 pandemic (flight to USD safety) versus the Trump tariff announcement (flight from USD assets) are particularly insightful. The authors suggest that their novel high-frequency proxy will be a useful tool for further research on the persistence of these trends in portfolio flows.

Discussant Comments by:

Professor Menzie D. Chinn (Professor of Public Affairs and Economics, Robert M. La Follette School of Public Affairs, University of Wisconsin-Madison)

Professor Chinn commended Professor Rey's paper for providing insights into an important topic of how investors' portfolio allocation affects exchange rates and asset prices. He summarised the core messages of Professor Rey's research as follows:

- Cross-border equity holdings now form a greater proportion of international holdings than debt securities. This marks a significant shift in the landscape of global finance.
- The international financial system is increasingly characterised by multipolarity. This implies a diffusion of financial power and influence beyond a single dominant currency or economy.
- Greater foreign equity holdings are associated with local currency appreciation and asset price increases.
- Crucially, an instrumental variable approach to deal with endogeneity confirms that greater foreign equity holdings cause exchange rate appreciation and stock price increases.

He argued that the observed shift in capital flows from debt to equity is altering the transmission mechanisms of international financial shocks. This evolution necessitates a reevaluation of the traditional focus on debt and sovereign bond markets. He further noted that since this shift occurred without significant capital account liberalisation between 2001 and 2017, its underlying drivers warrant closer examination.

An important empirical contribution of the paper, as interpreted by Professor Chinn, lies in establishing a causal link between foreign equity holdings and domestic exchange rate and price movements. He explored the robustness of the findings in the paper by comparing the size of the regression coefficients from different approaches and data frequencies. Overall, the results appear robust.

Professor Chinn examined plots of the trade-weighted dollar against Ten-Year TIPS yields during three stress episodes: "Lehman Brothers", "COVID-19" and "Liberation Day". He confirmed Professor Rey's finding that the usual positive correlation between changes in the value of the USD and yields had turned negative, i.e., higher yields were associated with a depreciation of the USD.

In addition, he examined the charts of exchange rate changes against asset holdings during two episodes of financial market stress: "Liberation Day" and "Bleach Day" (when Trump said that drinking bleach might be a cure for COVID-19). He found that changes in equity holdings were associated with an appreciation of the dollar during "Bleach Day" but turned into a depreciation during "Liberation Day". This corroborated Professor Rey's findings.

Professor Olivier Jeanne (Professor of Economics, Department of Economics, Johns Hopkins University)

Professor Jeanne proposed a theoretical framework to interpret Professor Rey's findings. The central question is how an increase in the dollar value of foreign investors' holdings of a local asset would affect the quantity of the asset, the local currency price, the exchange rate and the local asset price. The focus here is on the quantity, which was not covered in Professor Rey's paper.

He made two suggestions to extend the paper. The first is to include short-term bonds in the analysis to draw implications for monetary policy and forex interventions. The second is to examine quantities and the role domestic investors play in offsetting foreign investor demand, as this can make a difference between quantity volatility and price volatility. Using his framework, he examined the link between changes in foreign demand and quantity versus price across short-term bonds, long-term bonds and equities.

For short-term bonds, the local currency price is pinned down by domestic monetary policy (interest rates), leaving only the exchange rate or quantities to change. Therefore, a surge in foreign demand must be accommodated by either an appreciation of the local currency or by domestic residents selling their holdings. In financially developed markets, this offsetting is largely done by the private sector. The sale of bonds by the central bank is equivalent to a foreign exchange intervention.

For long-term bonds, the price is not pinned down by monetary policy due to the term premium. However, like short-term bonds, the exchange rate impact of foreign demand should be minimal if local investors provide an offsetting sale of their assets, i.e., more movement in quantity and less movement in price.

For equities, if there is no offsetting sale from local investors, a surge in foreign demand not only increases the dollar value of local equity holdings but also spills over into an increased dollar value of local bond holdings, i.e., less movement in quantity but more movement in price.

In summary, the price impact of foreign demand shocks depends on the presence and capacity of domestic investors to provide an offsetting position. This "natural buffering" by home investors underscores the importance of financial development and raises questions about the optimal degree of capital account liberalisation. While forex interventions can be a useful tool to reduce exchange rate volatility, their effectiveness may depend on the source of the shock (e.g., bonds vs. equities). Professor Jeanne posits that for equity market shocks, countervailing interventions by sovereign wealth funds might be more efficient than traditional forex interventions.

Commenting on the results, he pointed out a few interesting findings from the paper:

For Brazil, the results indicate that a one per cent increase in foreign holdings of long-term bonds leads to a significant currency appreciation but a smaller impact on the local price. The impact is larger for long-term bonds than for equities. Conversely, for equities, the impact on the local price is larger than the currency appreciation.

Countries with the smallest exchange rate response to equity shocks include Taiwan, China, Singapore, and Hong Kong, which heavily manage their exchange rates, suggesting that FXI in these economies may be effective in offsetting these shocks.

The degree of financial development (between advanced and emerging economies) does not seem to matter much for the results.

Professor Jeanne highlighted the effect of US tariffs, noting their transmission through both trade and financial channels. Drawing a parallel to Obstfeld and Rogoff's (2001)³ thesis that trade integration fosters financial integration, he posited that tariff-induced "trade disintegration" could trigger "financial disintegration." This implies that as tariffs disrupt trade, the international demand for US assets may fall, thereby exerting downward pressure on the US dollar.

4 Changing Global Linkages

Summary

Professor Gourinchas analysed the structural shifts in global economic and financial linkages. He noted a move away from simple de-globalisation towards a more complex fragmentation of trade and investment along geopolitical lines. This fragmentation is creating a significant asymmetry between the trade network, where new poles are emerging, and the financial network, which remains Western-centric. While the US dollar's dominance has persisted, this growing asymmetry poses a risk to the International Monetary System (IMS) should the network externalities supporting the dollar weaken. Consequently, the Global Financial Safety Net (GFSN), which remains heavily reliant on self-insurance through reserve accumulation, must be buttressed to maintain stability in this new environment.

Changing Global Linkages

The global economy is at a pivotal moment, comparable to the creation of the Bretton Woods institutions after WWII or the collapse of the Bretton Woods system in 1971. Current events signal a potential change in the nature and structure of the international monetary and political order.

The global economy is witnessing a significant reset in trade relations, characterised by a sharp increase in trade and investment restrictions since the late 2010s. The number of harmful restrictions has exploded, reaching over 3,000 annually by 2024, with recent US tariff measures pushing effective tariff rates to levels unseen since the 1930s. This has elevated trade policy uncertainty to historic highs, leading to downward revisions in global growth forecasts.

Despite these escalating tensions, the global trade-to-GDP has remained relatively stable since the GFC through to the end of 2024. However, IMF projections anticipate a decline in the ratio, suggesting the start of a more pronounced de-globalisation process.

The more telling story is one of geopolitical fragmentation and realignment. Since Russia's invasion of Ukraine in 2022, trade and foreign direct investment (FDI) have fragmented along geopolitical lines. Analysis through the lens of a gravity model reveals a statistically significant decrease in trade, FDI, and portfolio holdings between countries aligned with opposing geopolitical blocs.

³ Maurice Obstfeld and Kenneth Rogoff (2001), "The Six Major Puzzles in International Macroeconomics: Is there a common cause?", NBER Macroeconomics Annual 2000, Vol. 15; pp. 339–390.

Economic engagement with “connector” countries—such as Vietnam, Indonesia, India, Malaysia, Mexico, Brazil, and Colombia — has increased or remained stable, indicating that global trade is being rerouted through these economies. These connector countries now play a crucial role as intermediaries between rival blocs. For goods subject to US tariffs, these economies have boosted their exports to the US and imports from China, showing that direct trade between the US and China is increasingly being redirected through connector countries.

At the same time, FDI flows are also being redirected to mitigate the impact of tariffs. Rather than “tariff-jumping” on average, FDI from countries facing high tariffs is flowing to countries that face lower export restrictions themselves. While the current reduction in trade between blocs is reminiscent of the Cold War, the magnitude of the decline is still smaller than the collapse seen then.

Importantly, there is a growing asymmetry in international trade and financial linkages, as evident in network centrality measures. Between 2001 and 2023, China has become a “powerhouse in trade” while remaining a relatively peripheral financial player. Conversely, the US has become even more central to the financial network while its trade centrality has not changed significantly. This asymmetry has been sustained by strong network externalities. Throughout this period of growing network imbalance (2001-23), the US dollar has remained the dominant currency across all major metrics, including trade invoicing, FX reserves, international bank claims, and SWIFT transactions.

The concern here is that the rapidly fragmenting geoeconomic environment could weaken the network externalities that support the dollar’s centrality. A disruption to the dollar’s centrality could force a disruptive realignment of trade and financial networks.

The above has important implications for the Global Financial Safety Net (GFSN). The GFSN consists of multiple layers: a country’s international reserves, bilateral swap lines (BSLs), Regional Financing Arrangements (RFAs), and IMF resources. The total firepower is approximately \$20 trillion, of which reserves constitute the vast majority at around \$14.5 trillion. The IMF’s role, while critical for countries in need, is small, accounting for about 5% (or \$1 trillion) of total GFSN resources.

An analysis of recent market shocks (GFC, Taper Tantrum, COVID-19) shows that drawdowns on reserves have been the primary crisis-response tool used by countries, followed by the activation of US dollar swap lines. IMF resources have been comparatively small, though vital for specific cases.

This underscores the continued importance of reserves as a form of self-insurance. In a fragmenting world where access to other layers of the safety net (like BSLs) could be subject to geopolitical considerations, this reliance is likely to persist. However, self-insurance via reserve accumulation is costly and can generate negative global externalities, such as depressing global interest rates. Therefore, a key policy challenge is to buttress the GFSN and explore ways to make the provision and accumulation of safe assets more efficient and less costly.

Dialogue between Professor Gourinchas and Professor Shang-Jin Wei (N.T. Wang Professor of Chinese Business and Economy and Professor of Finance and Economics, Columbia University)

In their discussion, Professors Wei and Gourinchas explored the resilience of the US dollar and the evolving architecture of the GFSN. Professor Gourinchas began by reflecting

on the historical analogy of the 1971 Nixon shock, when the US unilaterally ended the dollar's convertibility to gold and imposed tariffs. Despite initial fears of monetary disorder, the dollar not only retained but strengthened its dominance in the global financial system. This outcome, he argued, was due to a combination of US leadership in multilateral institutions, strategic negotiations with oil-producing countries that reinforced dollar invoicing, and geopolitical shifts such as, eventually, the collapse of the Soviet Union. While historical parallels have limits, these developments suggest that the dollar's continued centrality depends significantly on the US maintaining a proactive and cooperative international stance.

The conversation then turned to the GFSN, where Professor Wei raised concerns about unequal access to some layers. He highlighted that bilateral swap lines—particularly those with the US—are not universally available, leaving many countries to rely heavily on self-insurance through reserve accumulation. For some, especially those unable to count on IMF support or US liquidity, this leads to holding reserves well above what standard models would predict. Professor Gourinchas acknowledged this asymmetry and emphasised that while reserves offer no-questions-asked insurance, their accumulation can generate negative global externalities. A primary concern is the suppression of global real interest rates, which may encourage excessive risk-taking and financial instability.

Professor Gourinchas further noted that for developing countries, the opportunity cost of holding reserves is particularly high, as it diverts resources from productive investment. He argued that the core issue is a global shortage of safe assets, which drives up their price and exacerbates these inefficiencies. To address this, he suggested expanding the supply of safe assets beyond US Treasuries, including through innovative financial instruments that replicate their risk-return profile. While swap lines could theoretically help, their discretionary and politically contingent nature limit their reliability, especially in a world of rising geopolitical tensions. Ultimately, the discussion underscored the need for a more inclusive and robust global financial architecture that can provide equitable access to liquidity and reduce the systemic costs of self-insurance.

5 Policy Panel on Financial Markets as Propagators of Global Shocks

Summary

The panel discussed the recent trade tensions and shifts in monetary policy, highlighting the interconnectedness of the global economy and the role financial markets played in transmitting and amplifying global economic shocks. The panellists reflected on the balance between market optimism and the underlying economic realities. They raised concerns over fiscal sustainability that could exacerbate existing vulnerabilities in the global economy and offered perspectives on how emerging markets might navigate trade tensions and the broader implications for growth in an uncertain economic landscape.

Dr Hatzius said that following the recent de-escalation of tariff tensions between China and the US, the growth forecast for US was revised upwards from 0.5% to 1% and the probability of a recession over the next 12 months reduced from 45% to 35%. The core PCE inflation forecast was lowered from 3.8% to 3.6%. As a result, the prediction of a Fed funds rate cut was pushed back from July to December 2025. However, he cautioned that the ongoing tariff war could reduce US growth by approximately 1 to 1.5 percentage points over the next year. The impact would fall heavily on consumption and investment, heighten uncertainty and tighten financial conditions. For now, financial conditions have eased from

the spike which occurred just after “Liberation Day”. However, he cautioned that the tariff policy outlook remained extremely uncertain and could lead to renewed tightening of financial conditions. In addition, one major issue weighing on investors’ minds was the recent US fiscal policy stance which would put its debt on an unsustainable path. Overall, the growth forecast for most economies had been downgraded.

Dr Parrado likened the trade disruptions to living a “Hotel California moment” where “you can check out anytime you like, but you can never leave”. Trade integration brings benefits during good times but makes countries vulnerable to global disruptions during bad times. He described the nature of the shock as self-inflicted where the real damage for emerging markets comes not just from tariffs but from the uncertainty they generate. This uncertainty affected exchange rates, credit spreads and investor sentiment before any changes in trade volumes were realised. The uncertainty itself would have a significant impact on growth.

He explained that there is a fundamental asymmetry in terms of the nature of the shock. For the US, tariffs act as a supply shock driving the possibility of stagflation, while emerging markets primarily face demand shocks with growth slowdowns and complex price effects. As a result, this complicates policymaking in emerging markets. Higher US interest rates (in response to higher inflation) could lead to capital outflow from emerging markets, leading to depreciation and exchange rate volatility. Consequently, emerging markets would find it difficult to ease policy in the face of weaker growth. Countries in Latin America could face higher debt servicing costs not because of higher risk premiums but because of higher US Treasury yield levels. He showed that, under various risk scenarios, the growth forecast for Latin America ranges from a mild slowdown to a recession, reflecting the region’s large exposure to both the US and China.

Amidst the negative sentiments, there are opportunities in every crisis. Dr Parrado pointed to the supply chain realignments that have accelerated FDI flows to several Latin America countries such as Brazil, Chile and Mexico. The trade war would accelerate this shift. He called for countries to undergo structural reforms to attract more FDI. He also urged countries to foster greater regional trade integration, especially in Latin America where intraregional trade is at only 15% of regional GDP compared to 55% in Asia and 68% in Europe. Countries should continue to build resilience and adaptability amidst the challenging geopolitical and macroeconomic environment.

Dr Jaensubhakij examined market reactions to the tariffs, noting that initial negative responses were followed by recoveries in some sectors. He highlighted three key factors (the three “P”s) that influence market reactions: the “imPulse” or the nature of the original shock, the “Positioning” of market participants prior to the shock, and market expectation of “Policy reaction”. The interplay of these three factors would determine whether financial markets are primed to propagate or absorb shocks. Illustrating this using the April episode, retail investors and corporates (buybacks) helped cushion the shock and completely offset the selling by hedge funds and commodity traders. The level of liquidity of the marginal players in the market played a crucial role. In this case, the retail investors and corporates had enough liquidity. In addition, policy anticipation that the Fed would lower interest rates and provide liquidity support if conditions worsened (or the “Fed put”) helped stabilise financial conditions. Retail investors correctly anticipated that Trump is sensitive to the big stock market corrections, leading him to pause tariffs when cumulative stock price declines reached 20%.

Next, Dr Jaensubhakij raised concerns over the changing perception of US Treasuries as safe assets amidst three risks that have come to the fore. Credit, interest rate and currency

risks have risen, triggered by rising and unsustainable US debt, higher inflation expectations and signals by the Trump administration that they prefer a weaker dollar. From this perspective, US Treasuries could be mispriced and a sharp correction could occur if further shocks materialise as happened in 2021, when the US Treasury market experienced a massive sell-off, which led to a significant rise in Treasury yields. This was a key event in financial markets as it signalled a shift in investor expectations and marked a significant turning point from the ultra-low yield environment that had prevailed for many years.

6 Reflections on Four Decades in Central Banking

Summary

Dr Carstens argued that public trust is a critical ingredient for successful economic policymaking, particularly as the global economy confronts a significant shock from recent shifts in trade policy. He defined trust as society's expectation that policymakers will act predictably to achieve predefined objectives. He posited that recent trade developments are undermining this trust, compounding existing vulnerabilities in the global economy, including fragile inflation expectations, strained fiscal balances, and changing financial stability risks. The key policy priority is to restore predictability and consistency across monetary, fiscal, financial, and structural policies to rebuild trust and ensure a resilient global economy.

Trust and Policymaking

Trust is a cornerstone of effective policymaking. It is defined as society's expectation that policymakers will act predictably in pursuit of clearly announced goals and achieve them. By achieving their objectives over time, policymakers earn trust. The presence of trust creates a virtuous cycle: the public incorporates policy actions into its behaviour, making policy objectives more attainable. Moreover, the public will be more willing to accept measures that have short-term costs but deliver long-term benefits. But the dynamics could also work in reverse. Trust can be lost quickly, undermining future policy effectiveness. This dynamic is central to navigating the current economic challenges.

The global economic outlook has darkened considerably against a backdrop of underlying vulnerabilities. Radical and unpredictable shifts in US trade policy have introduced a significant shock, jeopardising the post-pandemic recovery. While trade tensions and a rise in non-tariff barriers are not new, the current scale of change is much greater and extends beyond trade to broader geopolitical realignments. The effects have been most evident in financial markets, where volatility spiked in early April as announced US tariffs exceeded market expectations. Financial conditions tightened as credit spreads widened and equity prices fell. Notably, the US dollar depreciated even as yields on US government debt rose, a contrast to previous episodes of turmoil.

The effects of the trade war on the real economy have not been fully felt because of the front-loading of orders to pre-empt tariffs. Trade flows rose and consumption, investment and employment have remained resilient in most countries thus far. However, this is temporary. Consumer and business confidence have weakened and professional forecasters have significantly cut near-term growth projections. In addition to the direct effects of trade restrictions, lingering uncertainty about their size and persistence will also dent growth.

These challenges occur amidst growing global vulnerabilities. First, continued fragility in near-term inflation expectations. Although central banks successfully contained the post-

COVID inflation surge, expectations may be less anchored than before the pandemic. The global economy is in a more volatile inflationary environment, with potential shocks from tariffs, geopolitical tensions, and climate events. A recent BIS survey found that households' perceptions of past price increases correlate with their expectations of future inflation. This persistence could unhinge inflation expectations.

Second, the crises of the recent decade have left public debt at levels close to peacetime highs in many countries. This leaves little room for manoeuvre in response to shocks and geopolitical realignments. Fiscal space could shrink further as rising concerns over fiscal sustainability would raise borrowing costs. Rising long-term rates and the repricing of government debt could lead to losses for banks and non-bank financial intermediaries with large debt holdings, setting up a doom-loop where credit risk of sovereigns and banks reinforce each other.

Third, structural change in the financial system affects how risks build up and potentially amplify financial shocks. Since the GFC, a large share of financial intermediation has shifted from banks to non-bank financial intermediaries (NBFIs) including asset managers. The increased role of non-banks, including the shift towards financing public debt, brings stronger international transmission of financial conditions and financial stability risks.

In core government bond markets, the increased presence of investment and hedge funds has led to market stress, "fire sales", and liquidity problems that can spread globally, even without changes in the perceived risk of the debt itself. Dr Carstens also warned that trade tensions and uncertainty could harm economic growth and tighten financial conditions, potentially exposing solvency issues in non-financial corporations with weak balance sheets. He highlighted the rapid, sentiment-driven growth of the private credit sector. While funded by long-term investors, this sector is young, opaque, and may contain hidden vulnerabilities that have yet to be tested.

Taken together, these vulnerabilities meant that even relatively small changes in the outlook can create large swings in financial markets and increase the likelihood of stress feeding to the real economy. This is why creating a predictable environment through sound public policy is critical.

How should policymakers respond? Policymakers must reduce uncertainty by re-establishing predictable and consistent policies, anchored in the principle: "First, do no harm". For monetary policy, this means maintaining a clear, symmetric, and medium-term focus on price stability. Central banks, supported by strong institutional frameworks, should communicate their actions and be consistent with the price stability objective. Trust in the institutional independence of central banks must also remain intact. In the case of fiscal policy, governments in high-debt countries must pursue fiscal consolidation to restore credibility and sustainability of public finances. This is necessary to create space for stabilisation policies and accommodate new spending needs, including defence spending. For countries with current account deficits, fiscal consolidation can increase national savings and help lower trade imbalances. For surplus countries with ample fiscal space, a less restrictive stance can help rebalance trade. While tariffs tend to depress growth in trade flows, it has a smaller effect on trade balances. Policies that directly affect the gap between savings and investment are likely to be more effective.

Financial regulation must be holistic to address risks shifting between sectors, requiring the full implementation of Basel III for banks and enhanced regulation for NBFIs. Finally, structural policies that foster competition and economic flexibility can encourage private

investment, and new trade agreements can contribute to economic dynamism even amid rising protectionism.

Dr Carstens used the example of monetary policy frameworks, which are the backbone of trust in the value of money to illustrate how the stability and predictability of policy frameworks can help maintain trust in public policy. The adoption of inflation targeting – the monetary policy framework of choice for most advanced economies and a growing number of emerging markets, has brought lower inflation to many. The success of inflation targeting stems from trust. Inflation targeting not only implies a clear inflation objective but also provides the framework for explaining policy decisions and for being predictable. Research on the formation of inflation expectations also shows that through communication, central banks can increase the public's understanding of the central banks' commitment to deliver price stability.

In the BIS survey mentioned previously, households that either knew about the central bank or about its price stability objective have a lower and typically more accurate perception of inflation. This awareness about the key tenet of macroeconomic policy helps to anchor inflation expectations and given the large influence of expectations on current price and wage setting, contributes to price stability.

However, only a minority of households know about the price stability goal of central banks. Therefore, he proposed that central banks should increase their outreach to the communities that they serve.

Conclusion

Policymakers have navigated the global economy through many turbulent periods with prompt policy actions, building on trust in public policies that have been earned over decades. However, in the past few months, trust has been put to a severe test. Longstanding trade and political arrangements are being upended and rules-based policies questioned. He stressed the importance of rebuilding trust by restoring predictability and consistency in not just trade policy but also across key policy areas of macroeconomics, financial, monetary, fiscal and financial regulation and supervision. This is the only way to ensure a resilient global economy.