Context

Emerging Markets (EM) capital flows are volatile, procyclical, risk sensitive, tail-dependent, and have asymmetric outcomes with changing global financial conditions. The evolving nature of capital flows, notably with a shift towards market-based financing intermediated by the non-bank financial sector since the Great Financial Crisis (GFC) of 2008-09, has contributed significantly to the tail-dependence and risk-sensitivity of such flows. These dynamics have been driven by the institutionalisation of the EM asset class by global investors seeking higher risk-adjusted returns. At the same time, the trend deepening of the financial markets in EMs has also ushered higher leverage and risk taking, amplifying shocks during risk-off.

Managing macro-financial stability risks from such tail-dependent and risk-sensitive flows as well as its procyclicality requires looking beyond the traditional banking sector intermediation with a better mapping of the risk transmission channels through the following lens:

- Understanding the architecture of the global investor base who invest in EM markets and the behavioural pattern of different types of investors can provide useful insights into the macro-financial linkages, particularly during risk-on and risk-off periods

- The growing importance of investment funds, notably open-ended bond funds, that give rise to vulnerabilities from liquidity mismatches, short-term investment horizon, and risk amplification through herd behaviour by benchmark driven investors

- The use of embedded leverage and foreign exchange risk taking by active investors (e.g., using Multi-Sector Bond Funds) to seek higher returns from EM assets that can face significant redemption pressures during tail events
• The dominance of the US dollar funding market, both for global investors and EM issuers, as a source of macro-financial risk amplification including the foreign exchange market through the financial channel (e.g., EM corporates built up much larger US dollar liabilities post-GFC, exposing them to currency risk)

• The development of deep local currency government bond markets brings significant benefits but increased foreign investor holdings of unhedged local currency debt has proven to be destabilising during periods of stress as bond prices decline and the exchange rate depreciates in tandem

**Analysis of EM Small Open Financially Integrated Economies**

This study focuses on EMs and EM Asia Small, Open, and Financial Integrated Economies (SOFIEs) specifically. First, the availability of more detailed high frequency data on portfolio flows aids central banks in refining their risk analysis of capital flows to get a clearer and timelier assessment of macro-financial risks, especially given their inherent volatility and reallocation in a very short period. Second, we use analytical techniques that go beyond the mean or central tendency by exploring the characteristics of the entire distribution of “capital flows at risk” to capture the asymmetry and tail risks of portfolio flows to explain how “good” capital flows can turn “bad.” Indeed, the shape of the distribution for capital flows can change dramatically during times of high financial stress such as during the onset of the COVID-19 pandemic and episodes of tightening monetary policy by global central banks.

The sensitivity of portfolio capital flows to global financial conditions has increased and become more time-varying. This study finds that non-resident portfolio debt and equity flow to EMs and EM Asia SOFIEs since the GFC are better characterised by time-varying tail dependence with a skewed distribution towards the left-tail that is strongly affected by changes in global financial risk conditions as measured by investor risk aversion.

• Both debt and equity portfolio flow to EMs exhibit strong elements of time-varying tail dependence with global shocks and having fat tails during times of stress.

• When global financial conditions deteriorate, the near-term risk of heavy outflows increases.
The financial market architecture illustrates the complexities of managing volatile capital flows particularly during episodes of financial stress.
Non-resident portfolio inflows, including equities and bonds, to SEACEN economies remain volatile and highly sensitive to global financial conditions and investor risk appetite.

The distributional impact of heightened global risk aversion on capital inflows calls for pre-emptive policy measures.
A global shock that leads to tighter US dollar funding conditions, including the appreciation of the US dollar, can have a relatively large impact on the tails of the predicted distribution of capital flows.

In addition, portfolio debt and equity flows also tend to co-move during global shocks, compounding the impact on interest rates, asset prices and the exchange rate via the financial channel through amplification and persistence.

We trace how the risk transmission and amplification mechanisms are influenced by the behaviour of different investors, with particular attention to cyclical investors including retail investors and absolute return investors like hedge funds. A better understanding of the probability of adverse outcomes and systemic risk can help policymakers better manage the risks from capital flows, while at the same time, reaping the benefits that emanate from these flows.

**Policy Frameworks**

All these developments highlight the case for raising the prominence of capital flows in macro-financial policy frameworks, notably for SOFIEs. In particular, the non-normal distribution of high-frequency non-resident portfolio inflows to EM and EM Asia SOFIEs adds further complexity to policymaking. For SOFIEs in EM Asia with an inflation targeting framework, interest rate policies have proven to be inadequate in managing the procyclicality of capital flows, while inflation and the credit cycle have proven to be interlinked. Therefore, tools for price stability and financial stability have often been jointly determined and used.

At the highest level of the contours of public policy making, the rationale for anchoring the framework on more welfare theoretic arguments is in line with the pivot towards sustainability and the paradigm shift to environmental, social, and governance (ESG) considerations. Public policy intervention to internalise externalities, to further promote welfare-enhancing policies, to manage trade-offs, and to adopt more flexible approaches in building resilience will be an integral part of any overarching policy frameworks going forward, not least for the purpose of managing capital flows to emerging and developing economies. It reinforces the notion of mitigating the social costs from financial crises and output losses from sudden stops of capital inflows.
The fast-evolving landscape of capital flows calls for a more robust and innovative framework of integrated policy, whereby monetary policy should be combined with other policy measures, such as macroprudential measures, foreign exchange intervention and capital flow management measures.

- **Holistic policy framework** - Pervasive financial market constraints and imperfections in emerging and developing economies can amplify macro-financial cycles requiring insurance against the risk of capital flow volatility, reversals, as well as its distributional impact. The current policy framework is evolving further to consider broader economic and social outcomes, with monetary and financial stability implications.

- **Foreign exchange intervention (FXI)** - Exchange rates are also financial variables and sensitive to imbalances in financial markets and can be shock amplifiers. FX intervention policies are likely to be more effective and welfare enhancing if used appropriately, under imperfect markets. On the policy front, the financial-frictions view offers a different take on exchange rates compared to their traditional role as shock absorbers.

- **Macroprudential measures (MPMs)** - Macroprudential measures aim to contain systemic risk by dampening the amplitude of financial cycles and inhibiting credit and asset booms before they threaten public and financial sector balance sheets and the economy at large. However, by their very nature, systemic threats are “tail events,” and represent an agglomeration of risks from a variety of channels. Operationalising a policy that is both time-varying and rules-based is likely to be unachievable, due to the difficulty of quantifying systemic risk.

- **Capital flow measures (CFMs)** - CFMs should be part of the broader policy toolkit as purely domestic macroprudential measures cannot adequately substitute for CFMs since CFMs better target the root of the problem coming from the volatility in international capital flows. As with all macroprudential measures, the pre-emptive use of capital controls is critical when there is a risk of large capital inflows. Indeed, systemic risk often builds up in tandem with increasing cross-border interconnectedness and spillovers. FXI cannot either adequately substitute for CFMs in all situations. FX reserves put limits on FXI during outflows and they can become costly during inflows. However, the effectiveness of FXI can be increased by the presence of CFMs as part of the broader toolkit. A combination of tools like MP, MPMs, FXI and CFMs makes it easier to achieve multiple goals such as price stability, financial stability, and a sustainable external position; and to deal with the complex trade-offs involved.
**The SEACEN Centre’s Perspective in Conceptualisation of the Policy Framework**

One possible way of conceptualising the framework is by considering the evolution of central banks’ expanding mandates and considerations with potential future implications. To this end, the broader structural trends with monetary and financial stability implications certainly increase the complexity of central banking in EM SOFIEs.

A way to operationalise the framework is by integrating capital flow risk management into the policy framework using a variation of the Taylor-type rule. A possible approach could be where central banks may want to respond systematically to capital flow tail risks when setting the stance of monetary

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**Central banks require a broader policy toolkit in managing volatile capital flows, amidst ongoing structural changes and current concerns with monetary and financial policy implications.**

![Diagram showing price stability, digitalisation, financial stability, exchange rate stability, climate change mitigation, lower inequality, low unemployment, and less disruptive capital flows.](image)
policy by directly leaning against tail risks before they materialise. This will go along with the emphasis on assessing the inflation gap and the output gap with its dependence on the exchange rate as well as assessing the gap between the actual and the equilibrium exchange rate:

\[
 h(R,FXI) = \alpha + \beta(\pi(e) - \pi^*) + \gamma(y(e) - y^*) + \lambda(e - e') + \mu(CFtailrisk). 
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**The Bottomline**

Evolving EM SOFIES’ frameworks for monetary and financial stability in a more complex world and with inherent financial market imperfections and financial channels of risk transmission may require the balance of multiple objectives, considerations, and trade-offs. Taking a more multifaceted approach and incorporating the following features could be helpful:

- Holistic, pragmatic, and flexible (less rules-based) with a broader framework;
- Putting a premium on resilience, having policy buffers to build resilience to tail risks;
- Having the ability to be pre-emptive such as having ex-ante prevention mechanisms in place;
- Incorporating the role of exchange rate as a stabiliser under certain conditions;
- Hard-wiring prudential rules and macro-financial stability considerations;
- Having the ability to implement countercyclical safeguard measures along the MPM/CFM spectrum; and,
- Ability to act as a “dealer of last resort”.