

Structural Cracks and Cyclical Tremors:

A Large Language Model Analysis of
Financial Stability Reports in Asia-Pacific

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The views expressed in this paper are those of the authors and should not be interpreted as reflecting the views of the BSP.

Systematic cross-country analysis of Asia-Pacific FSRs remains limited.

Financial stability communication is itself a source of information on how authorities see systemic risk.



FSRs are rich but difficult to compare

- Contain forward-looking assessments of vulnerabilities that may not be captured by a single quantitative indicator.
- Narratives differ by country and terminology. This makes systematic cross-country and time-series comparison challenging.

The gap is particularly pronounced in Asia-Pacific

- Rapid financial integration and diverse regulatory architecture create complex interdependencies that transcend national boundaries.

We use LLMs to conduct a synthesis of Asia-Pacific FSRs

Our study has three primary research objectives:

01 Identify

To systematically identify and categorize the primary financial stability risks communicated by central banks across ASEAN and key Asian economies over the past two decades

02 Distinguish

To distinguish between persistent structural vulnerabilities and resurging cyclical threats

03 Benchmark

To benchmark Philippine financial stability risks against regional patterns

Contribution: bridge qualitative risk assessment with a structured, reproducible comparative framework.

Data Coverage

An unbalanced panel reflects the staggered adoption of FSR publication across the region.

- **12 jurisdictions**
- **coverage begins as early as 2003**
- **official central bank / monetary authority FSRs**

Australia

Brunei

Cambodia

China

Indonesia

Japan

Korea

Malaysia

Myanmar

Philippines

Singapore

Thailand

Lao PDR, Timor-Leste, and Viet Nam were excluded because publicly available FSR coverage was not available for the study period.

Methodology



LLM Prompting Framework

Eight core questions are organized under three analytical lenses, following Aikman (2026).

Macro-Financial Risks

1. What are the top risks over the next 12 months as identified in the reports?
2. What vulnerabilities in the real economy are identified, and what are their transmission channels to the financial system?
3. What roles do banks and non-bank financial institutions play in amplifying or mitigating system-wide stress?

Blind Spots & Implicit Assumptions

4. What are the blind spots and implicit assumptions not adequately covered in Financial Stability Reports?
5. If central banks or prudential authorities do not provide liquidity support during stress, what alternative intervention mechanisms are discussed? What additional crisis management tools should Financial Stability Reports analyze beyond conventional liquidity provision?

Macroprudential Policy Framework

6. How is the discussion of policy trade-offs in FSRs similar to that in monetary policy communications?
7. Which macroprudential tools are identified as effective in the reports? What gaps in the macroprudential toolkit are acknowledged?
8. If you were to design the next generation of FSRs, how would you revise their structure and content? Which sections would you modify, add, or remove?

Additional prompts test convergence, risk co-occurrence, structural vs. cyclical clustering, and Philippine benchmarking.

LLM Prompting Framework

Additional prompts test convergence, risk co-occurrence, and Philippine benchmarking.

Cross-Country Convergence

9. Have ASEAN FSRs become more similar over time as regional financial integration deepens?? What evidence suggests convergence or divergence in the framing of systemic risks?

Risk Co-Occurrence Patterns

10. Do specific risk themes (e.g., corporate leverage and liquidity/funding stress) tend to appear together across countries and years? What does this imply about structural amplification channels?

Structural vs. Cyclical Clustering

11. Which risk combinations persist across cycles (structural), and which emerge primarily during stress episodes (cyclical)?

Philippine Benchmarking

12. How do the Philippines' responses to the eight core questions compare systematically with those of other Asia-Pacific countries? Where does BSP's framing converge or diverge?

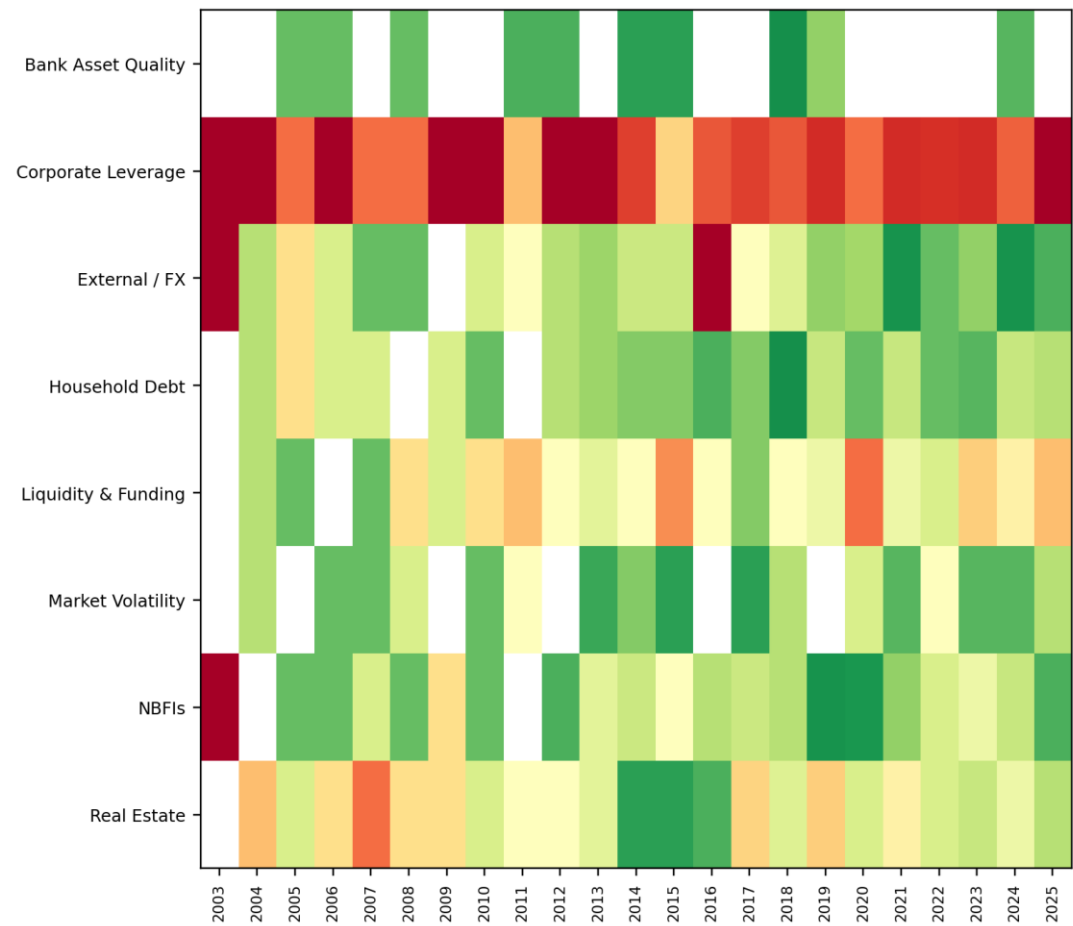
Sample LLM Output (Philippines)

Full Question	Analysis
1. What are the top risks over the next 12 months as identified in the reports?	Philippine FSRs trace a clear evolution from corporate leverage and external sensitivity toward asset quality and refinancing/funding conditions, with real estate and NBFI channels appearing more as amplification mechanisms depending on the year. Pre-pandemic narratives emphasize rising corporate leverage and sectoral concentration , often pointing to debt burdens and weaker interest coverage in vulnerable industries. During the pandemic, the storyline shifts to asset quality— higher NPL ratios, restructuring, and borrower relief —while repeatedly stressing buffer adequacy. As recovery matures and global conditions tighten, risk emphasis moves toward refinancing vulnerability and higher funding costs (spreads and risk premia), even as headline NPL ratios stabilize. The result is a shift from acute credit stress to “latent” rollover and funding sensitivity.
2. What real economy vulnerabilities are identified, and what are their transmission channels to the financial system?	Transmission runs from growth and income disruptions → corporate and household cash flows → delinquencies/NPL migration → credit tightening. Corporate stress can spill into employment and consumer repayment capacity, reinforcing retail credit risk. External tightening amplifies through higher spreads, peso depreciation episodes, and tighter market funding, which then raises borrowing costs and weakens investment. The reports often imply that the first signs of stress appear in market pricing and refinancing access, with loan metrics responding later.
3. What roles do banks and NBFIs play in amplifying or mitigating system-wide stress?	Banks are central through credit supply and provisioning; resilience is linked to capital adequacy and liquidity ratios remaining above minima. In later narratives, NBFIs and market-based finance become more relevant as channels that can tighten conditions via liquidity and repricing even if banks remain liquid. Amplification can occur if tighter financial conditions reduce credit supply, weakening growth and reinforcing credit risk. The reports’ system message is frequently: bank buffers are strong, but market and nonbank channels can still transmit shocks quickly.
4. What are the blind spots and implicit assumptions not adequately covered in Financial Stability Reports?	Blind spots include nonlinear spillovers from corporate stress through networks and the speed at which sentiment can shift funding conditions. NBFI stress is discussed but often with less granular metrics than banks, making it harder to assess tail risk. External shocks may be treated as episodic, while sustained tightening cycles can create protracted refinancing vulnerability. Stronger distributional analysis of “risky borrowers” would improve interpretability.

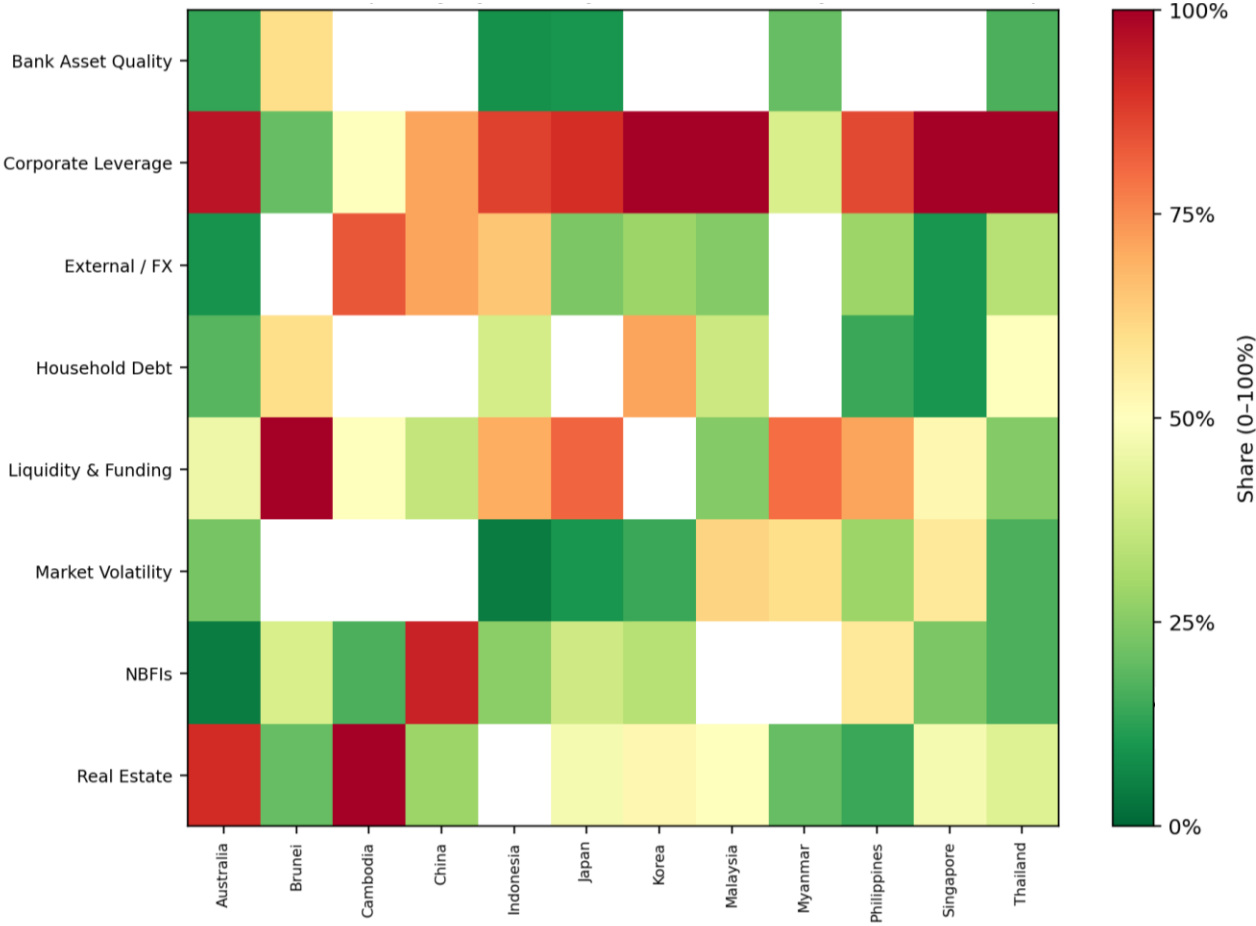
Risk Themes Over Time and Across Jurisdictions

Corporate leverage dominates as a persistent structural risk across Asia-Pacific, while country-specific patterns reveal diverse vulnerabilities.

Risk Theme Prevalence Over Time



Risk Theme Prevalence by Country



Result 1: Risk narratives are converging

Post-2015 FSR communication increasingly aligns around leverage, liquidity sensitivity, and non-bank amplification.



Convergence is thematic—not uniform: country-specific structures still determine which vulnerabilities dominate.

Result 2: Structural cracks vs. cyclical tremors

Persistence and directional movement distinguish underlying vulnerabilities from stress amplifiers.

STRUCTURAL VULNERABILITIES

Persist across cycles

- Corporate leverage
- Real estate exposures
- Household debt in selected economies

These risks repeatedly rank among the top concerns and remain elevated over extended periods.

CYCLICAL STRESS AMPLIFIERS

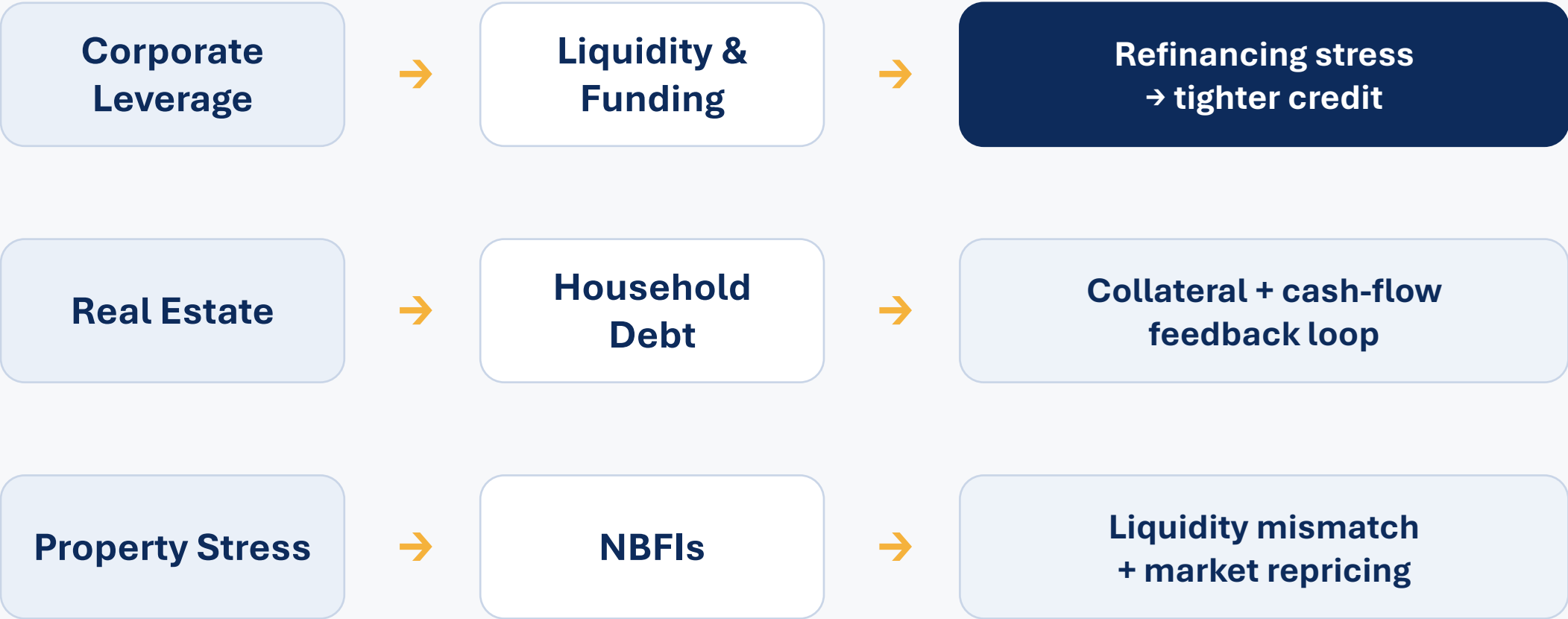
Intensify during stress

- Liquidity & funding
- Market volatility
- Bank asset quality

These risks typically rise during tightening or risk-off episodes and moderate as conditions normalize.

Result 3: Risks occur in clusters

The LLM outputs point to recurring amplification pathways rather than isolated risk categories.



Systemic risk is better understood as an interaction of balance-sheet vulnerabilities, market conditions, and transmission channels.

Philippines: broadly aligned with regional risk themes

Differences are mainly in timing and relative intensity rather than in the composition of risks.

Corporate leverage

Recurring Top 1 / Top 2 risk in recent years

Regional convergence

Liquidity & funding

Generally stable, but becomes more prominent during stress

Cyclical amplifier

Real estate

Rises and later moderates rather than remaining under persistent stress

More similar to AU/SG than CN

NBFIs

Increasing attention in recent years

Consistent with broader regional shift

The Philippine narrative reflects shared regional vulnerabilities within an increasingly integrated financial environment.

Robustness: core findings persist across LLMs

ChatGPT, Gemini, and Perplexity broadly identify the same dominant regional vulnerabilities.

Risk theme	ChatGPT	Gemini	Perplexity
Corporate leverage	●	●	●
Liquidity / funding	●	●	●
Real estate	●	●	●
NBFIs	●	◐	●
Cyber / climate	—	Additional	—

What differs?

- Relative ranking and frequency
- Gemini sometimes surfaces cyber and climate risks
- ChatGPT extraction gives more weight to recurring risks across years
- Perplexity heatmaps are broadly similar to ChatGPT

Cross-model agreement supports robustness of the broad thematic findings, not exact rankings.

What the LLMs reveal about FSR blind spots

The common gaps are less about identifying risks and more about modeling nonlinear transmission and policy response.

Orderly-adjustment assumption

FSRs can implicitly assume that market adjustment remains gradual. Tail dynamics—fire sales, liquidity freezes, confidence-driven runs—may compress the adjustment horizon.

System-wide liquidity

Bank liquidity is often well covered, but liquidity mismatch, margin calls, collateral dynamics, and NBFI channels can be harder to capture consistently.

Implicit reaction functions

Reports discuss resilience-growth trade-offs, but action thresholds and macroprudential reaction functions are often qualitative rather than explicit.

Policy and analytical implications

LLMs are most useful as a complement to—not a replacement for—financial stability judgment.

1

Surveillance

Use narrative evidence alongside quantitative indicators to detect shifts in the composition and transmission of risk.

2

Regional lens

Shared risk themes support stronger cross-country benchmarking and attention to synchronized external shocks.

3

System-wide view

Move beyond bank solvency toward NBFIs, market functioning, liquidity mismatch, and cross-sector linkages.

4

Governance

Maintain source constraints, transparent taxonomies, expert validation, and robustness checks across models.

Conclusion

Three takeaways from the cross-country FSR evidence.

01 Convergence in narratives

Asia-Pacific FSR narratives increasingly converge around leverage, liquidity/funding, and the growing role of NBFIs

02 Persistence and cyclical matter

Leverage and property exposures behave more structurally; liquidity, volatility, and asset quality tend to act as cyclical stress amplifiers.

03 LLMs can make qualitative surveillance scalable

Structured prompting and expert validation can turn large volumes of FSR text into comparable evidence across countries and time.

Thank you.

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