Understanding the Drivers of China's Short-Term Cross-Border Capital Flows

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Presented by Chang Shuyu

- The Challenge Facing China's Economy: Insufficient Effective Demand
- Monetary Policy Response: Cutting interest rates
- Two Potential Paths:

1. Capital Outflow Pressures

   (Driven by sustained high interest rates in the U.S., remaining above 4%)

2. Economic Recovery and Strengthening → Capital Inflows

- **External Factors:**
  - Global Risk Appetite (e.g., VIX, U.S. interest rates)
  - Interest Rate Differentials (e.g., between China and the U.S.)
- **Domestic Economic Conditions:**
  - Economic Growth (e.g., PMI, GDP growth)
  - RMB Exchange Rate Expectations

Table 1 Comparison of Short-term Capital Flow Characteristics between China and Other Economies

Economic entity type	Statistic	Securities investment capital inflows	Securities investment capital outflows	Other investment capital inflows	Other investment capital outflows
China	Mean (hundred million USD)	199.962	192.040	272.659	501.568
	Standard deviation (hundred million USD)	208.621	218.665	264.764	436.979
	Coefficient of variation	1.043	1.139	0.971	0.871
Advanced economics	Mean (hundred million USD)	266.728	217.363	353.031	339.448
	Standard deviation (hundred million USD)	80.952	68.451	195.256	185.144
	Coefficient of variation	0.304	0.315	0.553	0.545
Emerging and developing economies	Mean (hundred million USD)	19.162	12.346	26.036	23.045
	Standard deviation (hundred million USD)	9.359	6.560	10.753	6.446
	Coefficient of variation	0.488	0.531	0.413	0.280

Data source: International Monetary Fund

Note: The above emerging and developing economies do not include China; an increase in the liability side and a decrease in the asset side are both regarded as inflows, while a decrease in the liability side and an increase in the asset side are both regarded as outflows; the mean and standard deviation of developed economies are calculated based on the quarterly means of all developed economies in the sample (similarly for emerging and developing economies).

Key Differences in China's Short-Term Capital Flows

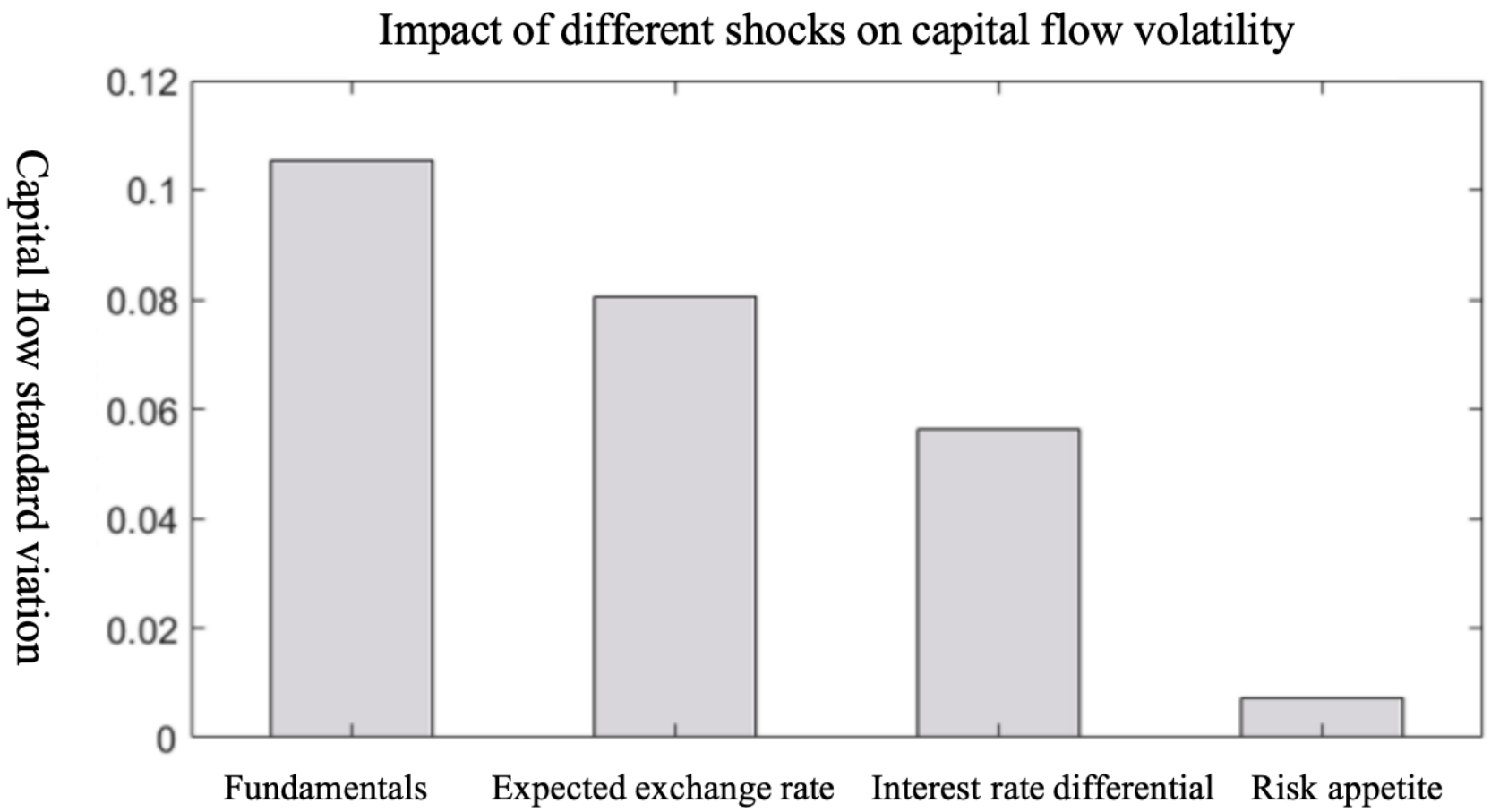
- 1.Net Capital Flow Comparison (2005 Q1 - 2024 Q3):
  - China: Net outflow (Capital Inflow/Capital Outflow = 0.681)
  - Developed Economies: Net inflow (Capital Inflow/Capital Outflow = 1.113)
  - Emerging and Developing Economies: Net inflow (Capital Inflow/Capital Outflow = 1.277)
- 2.Capital Flow Volatility:
  - China's short-term capital flows exhibit higher volatility, with greater variation in both inflows and outflows across securities and other investments.
  - China's variation coefficients are higher than both developed economies and emerging/developing economies.
- 3.Imbalance in Other Investment Flows:
  - China's other investment flows show a greater imbalance between inflows and outflows, compared to other economies.
- 4.Higher Influence of Other Investments:
  - In China, other investment projects drive short-term capital flows more than in developed economies and emerging/developing economies.

- Step-by-Step Capital Account Opening
- Exchange Rate System Reform
- The Interrelationship Between Exchange Rates and Capital Flows

- Limited Participation of Households and Financial Sector
- Dominance of the Foreign Trade Corporates
- Significantly Influenced by Domestic Economic Conditions

Theoretical Mechanism and Numerical Simulation Analysis

- **Theoretical Mechanism:**
  - **Households**: Maximize utility over two periods; savings decisions influence short-term capital flows.
  - **Enterprises**: Foreign trade and foreign-invested enterprises drive capital flows, influenced by economic conditions, exchange rate expectations, and interest rate differentials.
  - **International Investors**: Risk-averse, invest based on expected returns and global risk preferences, influenced by capital controls.
- **Numerical Simulation Analysis:**
  - **Simulation Assumptions**: Securities investment (40%) and other investment (60%); shocks to economic fundamentals, exchange rates, interest rates, and risk preferences.
  - **Results**:
    - Economic fundamentals (e.g., productivity) have the largest impact on capital flows.
    - Exchange rate expectations and interest rate differentials have a secondary impact.
    - Risk preferences show minimal impact on capital flows.


Impact of different shocks on capital flow volatility
Capital flow standard viation
0.12
0.1
0.08
0.06
0.04
0.02
0
Fundamentals
Expected exchange rate
Interest rate differential
Risk appetite

1. **TVP-SV-VAR Model Setup**:
   - The empirical analysis uses the **TVP-SV-VAR model** as proposed by **Primiceri (2005)** and **Aastveit et al. (2021)**.
   - **Model Equation**:

$$x_t = c_t + B_{1,t}x_{t-1} + \cdots + B_{p,t}x_{t-p} + u_t, \quad t = 1, \ldots, T$$

     - Where x_t is an $n \times 1$ endogenous variable, including **PMI**, **VIX**, **China-U.S. yield spread**, **RMB/USD exchange rate expectations**.
     - c_t is the time-varying constant vector, and $B_{i,t}$ is the time-varying coefficient matrix.
     - u_t follows a multivariate normal distribution: $u_t \sim MVN(0, \Omega_t)$.
2. **Compact Model Representation**:
   - The model can be written in a more compact form:

$$x_t = Z_t' B_t + A_t^{-1}\Sigma_t \varepsilon_t$$

     - Where $Z_t' = I_n \otimes [1, x_{t-1}', \cdots, x_{t-p}']$.
3. **Random Walk for Time-Varying Parameters**:
   - Time-varying coefficients follow a random walk:

$$B_t = B_{t-1} + \nu_t, \quad \alpha_t = \alpha_{t-1} + \zeta_t, \quad \log(\sigma_t) = \log(\sigma_{t-1}) + \eta_t$$

4. **Variance-Covariance Matrix**:
   - The residual terms are assumed to follow a joint normal distribution with the variance-covariance matrix:

$$V = Var\left(\begin{bmatrix}\varepsilon_t \\ \nu_t \\ \zeta_t \\ \eta_t\end{bmatrix}\right) = \begin{bmatrix} I_n & 0 & 0 & \\ 0 & Q & 0 & \\ 0 & 0 & S & \\ 0 & 0 & 0 & W \end{bmatrix}$$

5. **Model Estimation**:
   - The model is estimated using data from **1998 Q1 to 2024 Q4**.
   - The endogenous variable is $x_t = [PMI_t, VIX_t, Spread_t, E_t, Capital_t]^T$.
   - The lag length is set to **1** based on **BIC** criteria.

Equation for Capital Flow Impact:

- **Equation**:

$$A_t x_t = A_t c_t + A_t B_{1,t} x_{t-1} + \Sigma \varepsilon_t$$

- **Impact of Factors on Capital Flows**:

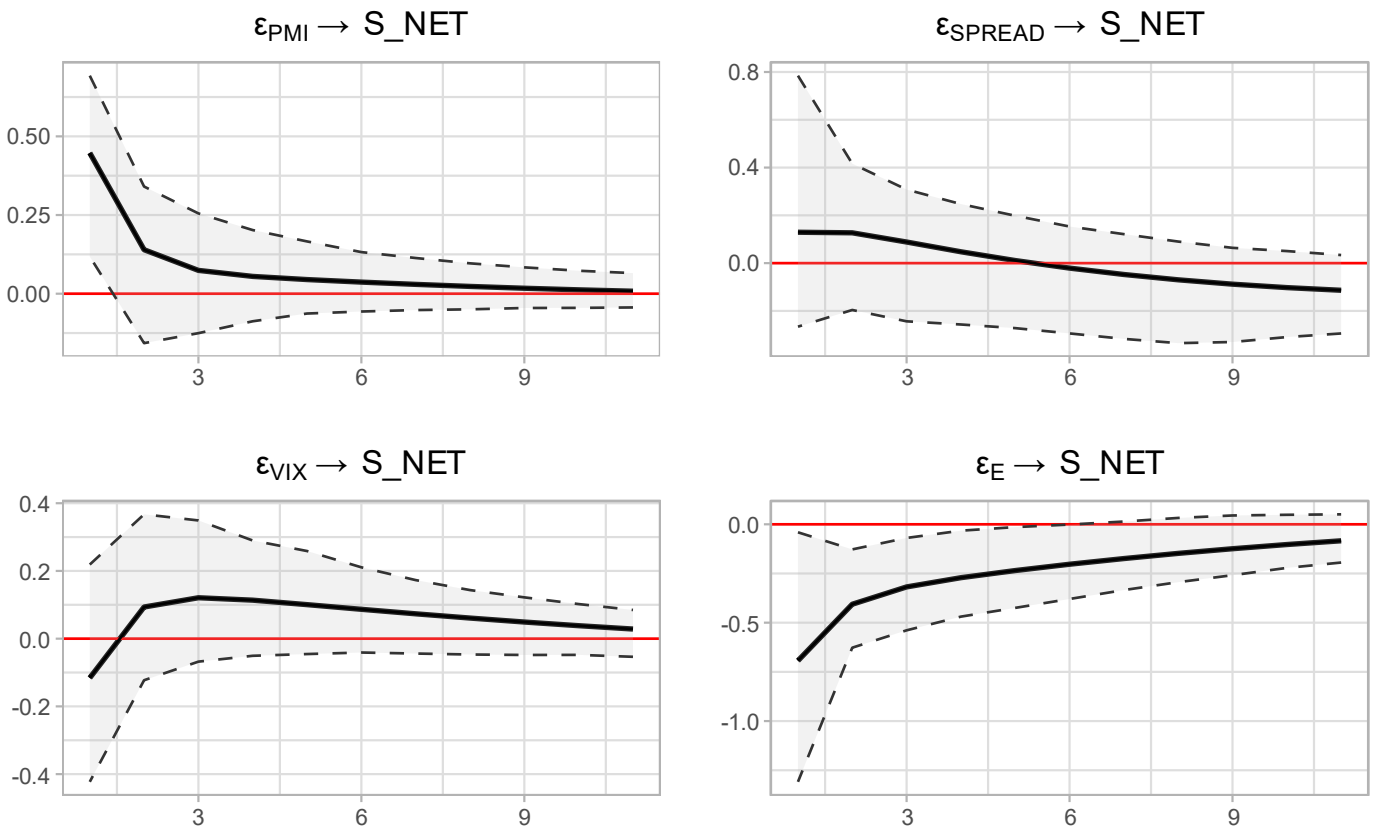
$$a_{51,t}PMI_t + a_{52,t}VIX_t + a_{53,t}Spread_t + a_{54,t}E_t + Capital_t = ab_{51,t}PMI_{t-1} + ab_{52,t}VIX_{t-1} + ab_{53,t}Spread_{t-1} + ab_{54,t}E_{t-1} + ab_{55,t}Capital_{t-1} + \varepsilon_{C,t}$$

Long-Term Coefficient Calculation:

- **Long-term Coefficient** for variable m on variable n:

$$\text{Coef}^m_{long,t} = \frac{-\text{coef}^m_t + \text{coef}^m_{t-1}}{1 - \text{coef}^n_t}$$

Benchmark Empirical Results

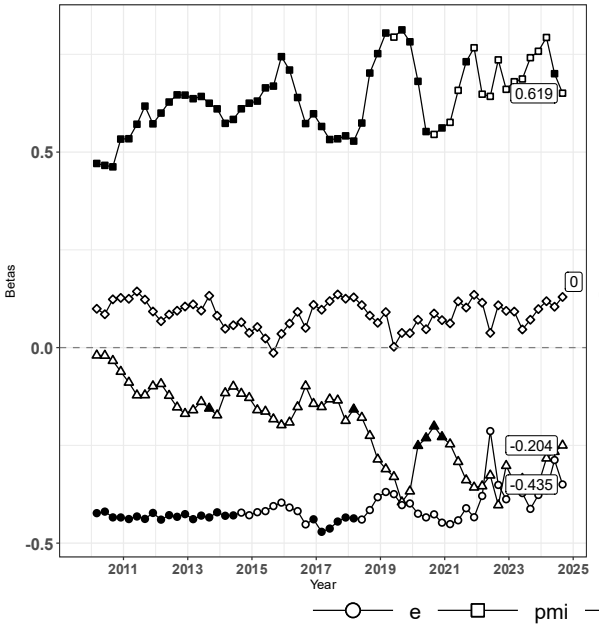


Impulse Response Diagram of the Impact of Net Inflow of Short-term Capital on Various Influencing Factors

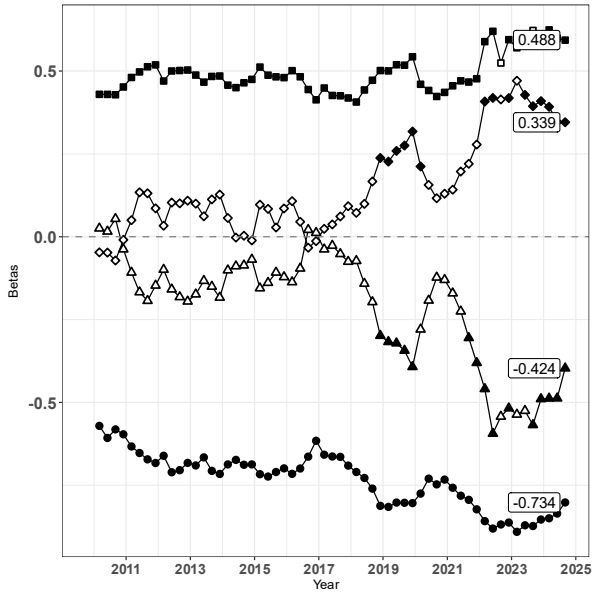
IWEP

Time-varying Model Results

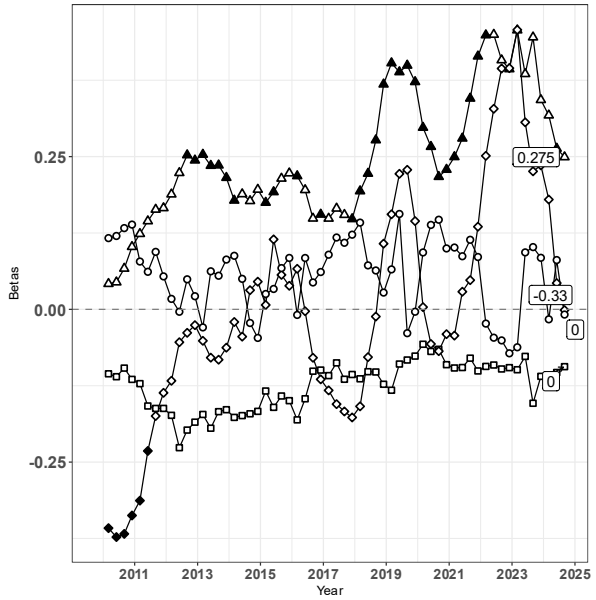
Net inflow of short-term capital



Net inflow of short-term capital (with error term)



Total outflow of short-term capital



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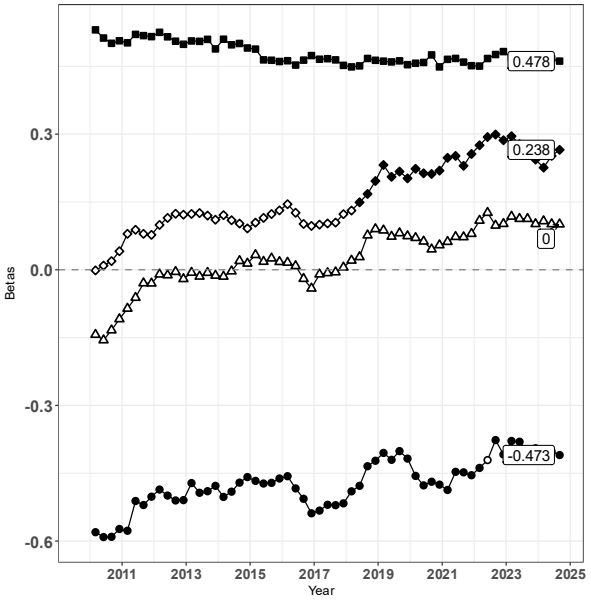
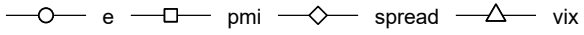
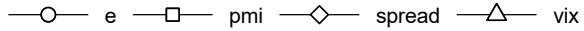


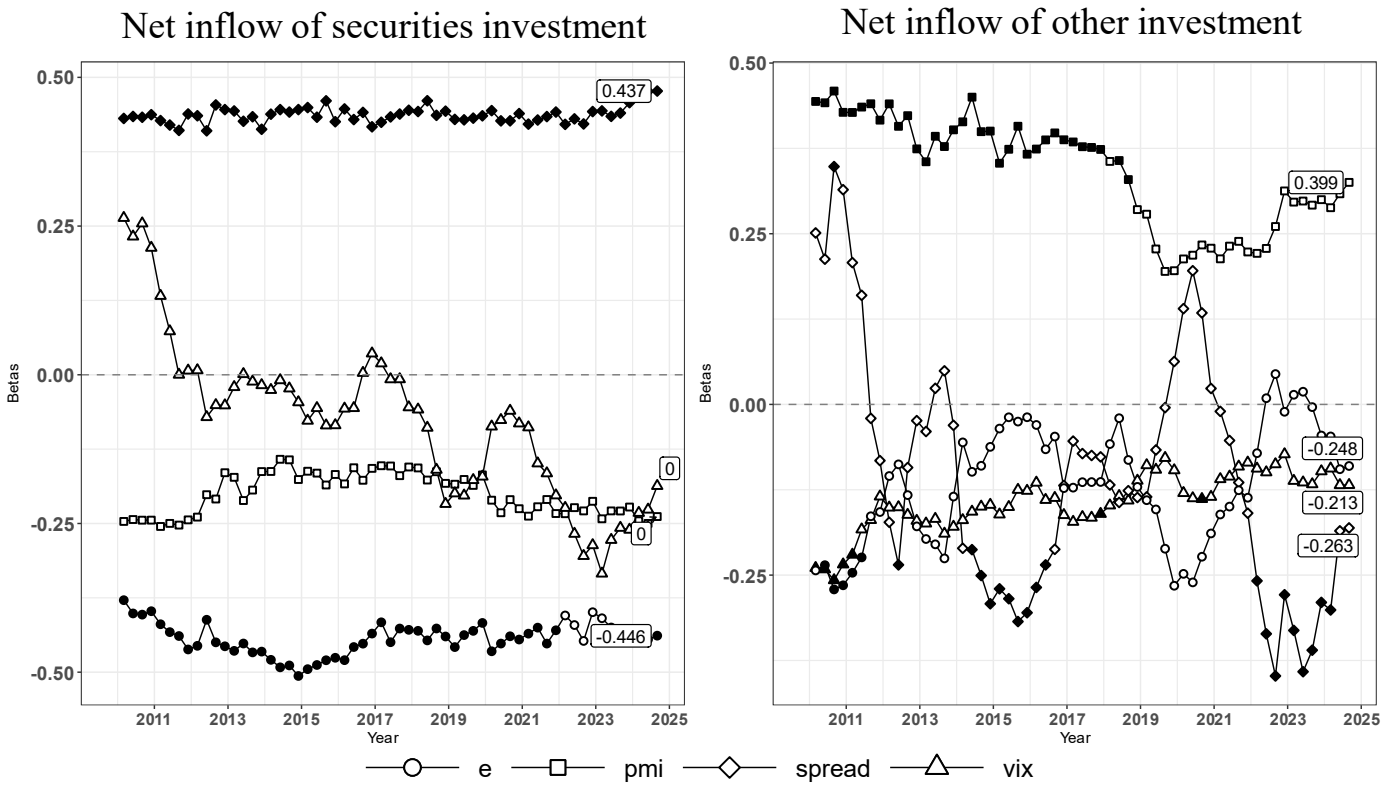




Time-varying characteristics of the impact coefficients of various factors

NIGS

Securities Investment and Other Investments



Time-varying characteristics of the impact coefficients of various factors

Conclusions：

- Compared to financial investor-driven economies, **China's short-term capital flow is more sensitive to domestic factors** like **economic conditions** and **RMB exchange rate expectations**.
- **“Pull” forces** (domestic factors) outweigh **“push” forces** (global factors) in determining capital flows.

Policy Implications:

- **Exchange Rate Policy:**

  – Enhancing exchange rate flexibility can mitigate one-sided market expectations and improve the resilience of short-term capital flows.

- **Monetary Policy:**

  – Monetary policy should focus primarily on domestic economic conditions, with exchange rate flexibility serving as a buffer against external shocks, thereby supporting both economic and capital flow stability.

T H A N K S