

Global Market Volatility and Cross Border Capital Flows: How Should EMs Respond?

Tae Soo Kang



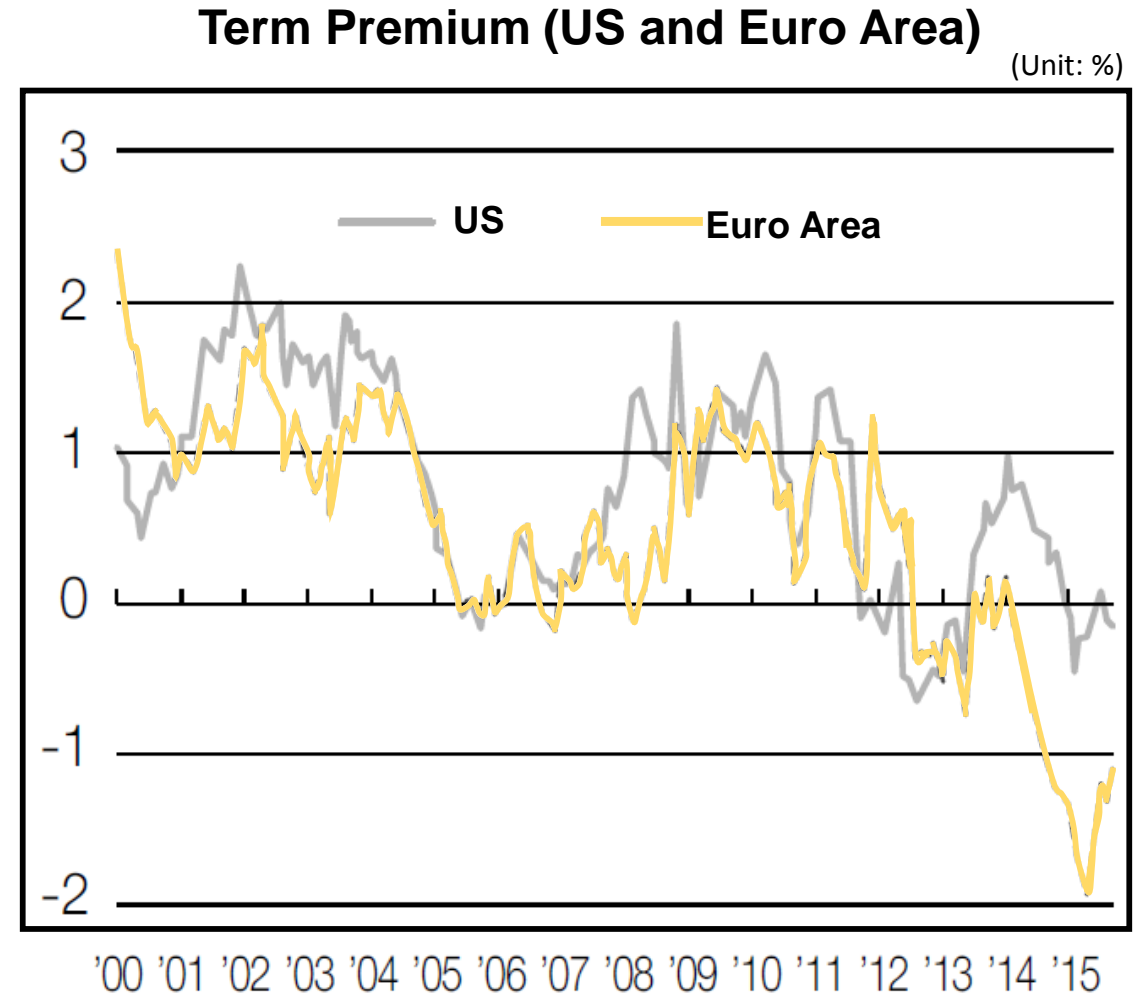
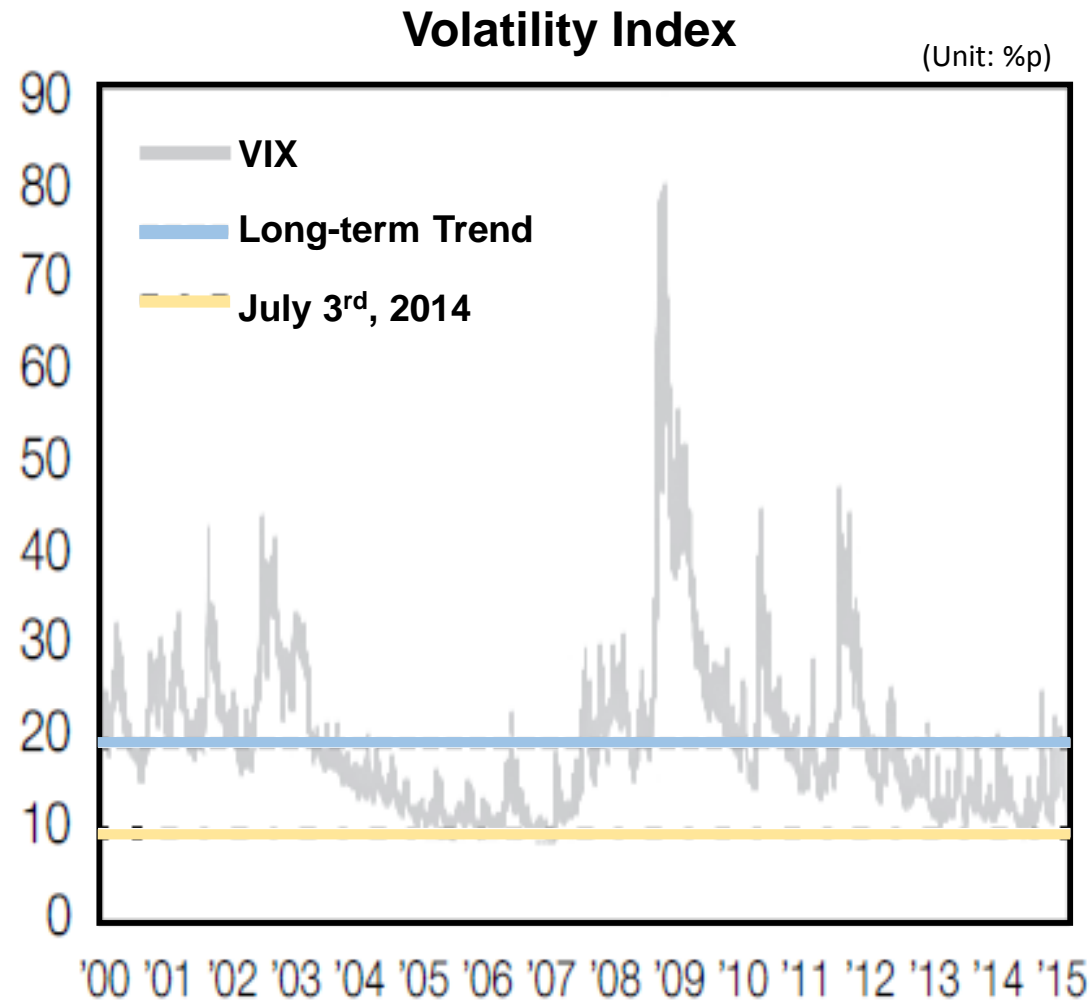
Challenges: Emerging Market Perspective

Greater exposure to **global liquidity** can create significant financial instability in emerging economies.

✓ Extremely low **global market volatility**

✓ How should **EMs respond?**

Low volatility \Rightarrow 'compressed risk premium' \Rightarrow Rise in risk appetite



Increased risk appetite triggers Cross Border Capital Inflows to EMs

- ✓ Capital inflows vs. GDP growth : Strong co-movement (**pro-cyclicality**)

Global Capital Flows

(Unit: %)

■ AM ■ EM

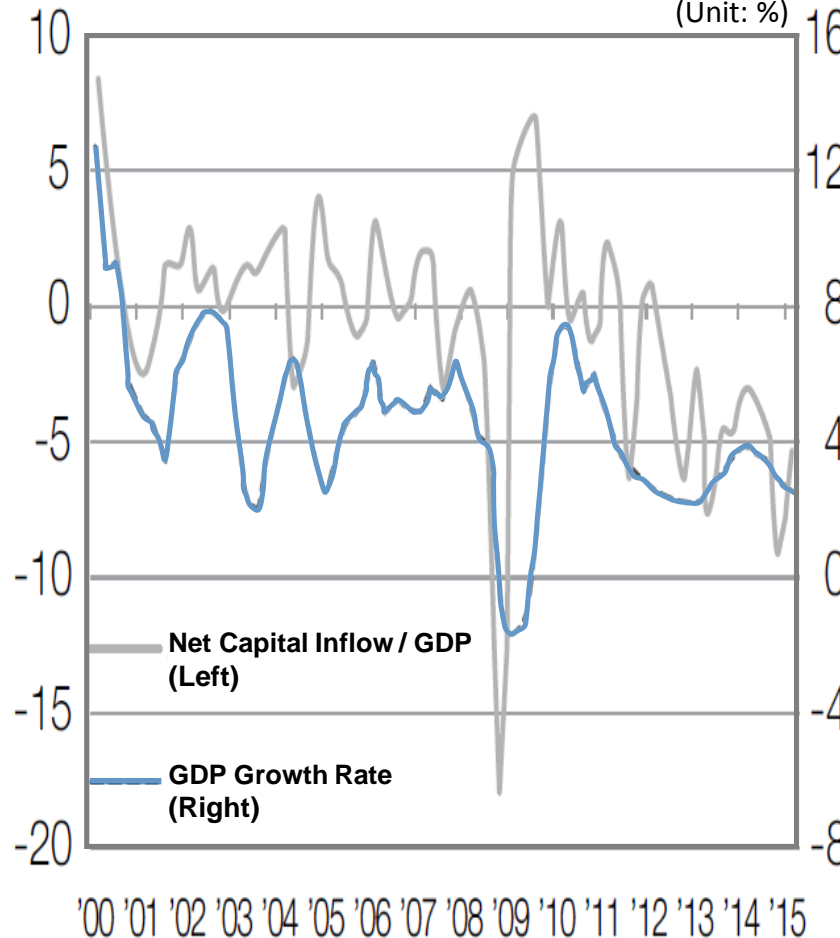
Pre-crisis
(‘02~‘08)

Post-crisis
(‘10~‘13)

0 20 40 60 80 100

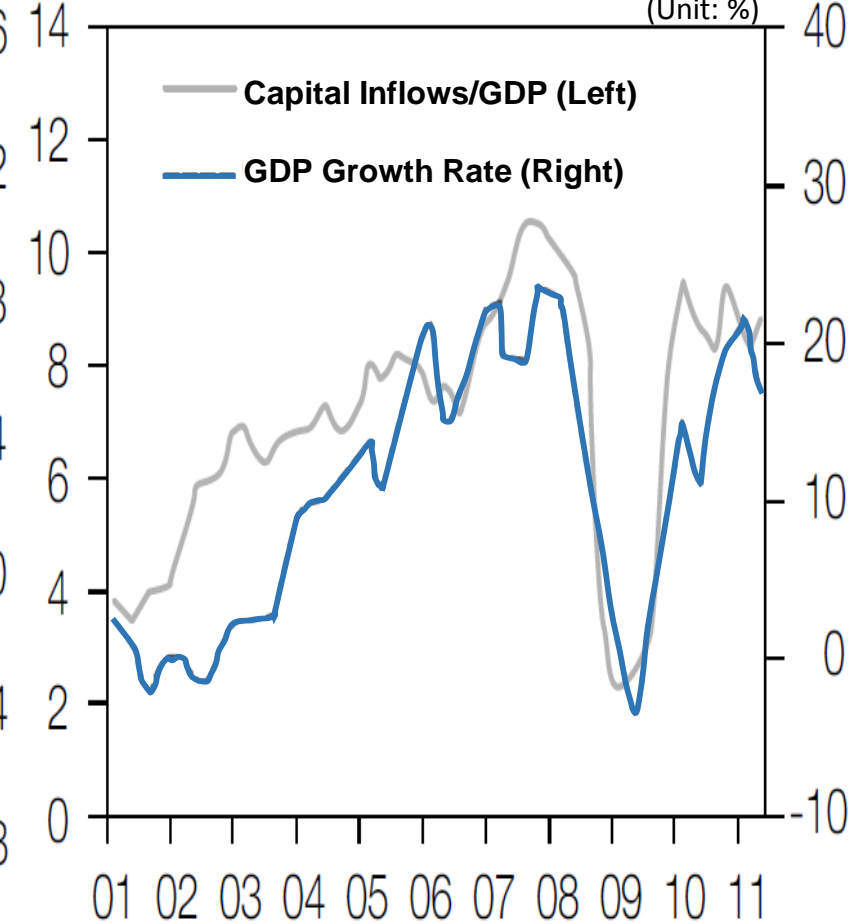
Capital Inflows to Korea

(Unit: %)



Capital Inflows to Asia

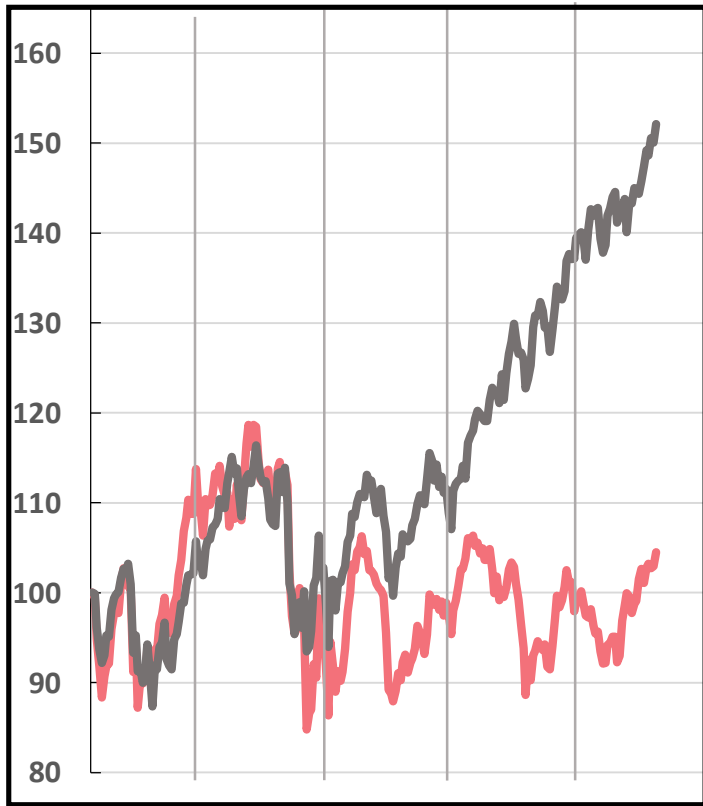
(Unit: %)



In EMs, bond market shows higher returns...

Stock Return

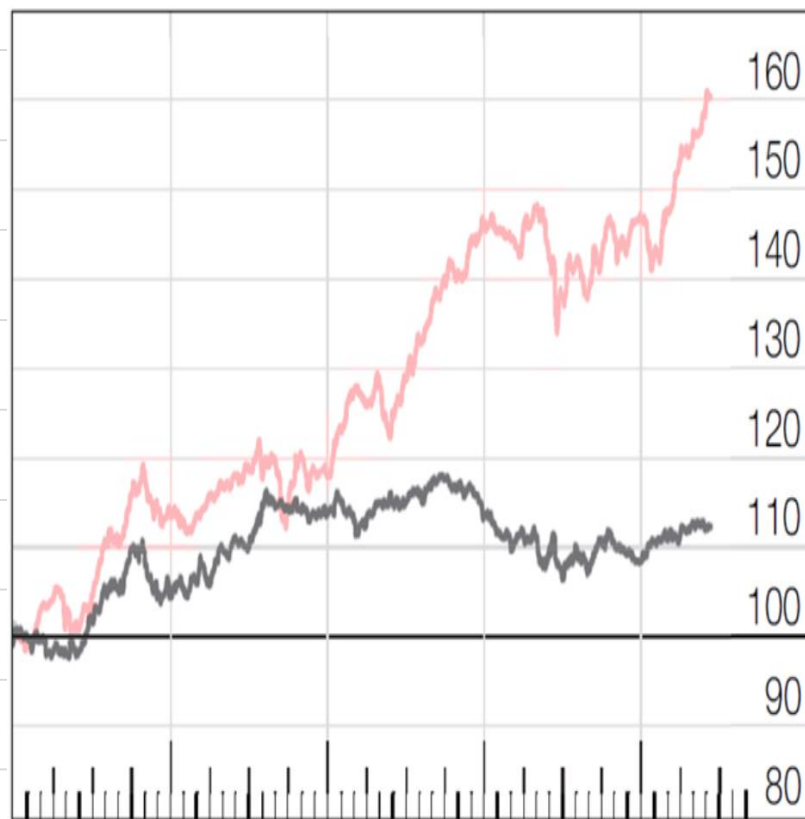
(Unit: Jan 2010 = 100)



— G7 — Emerging

Government Bond Return

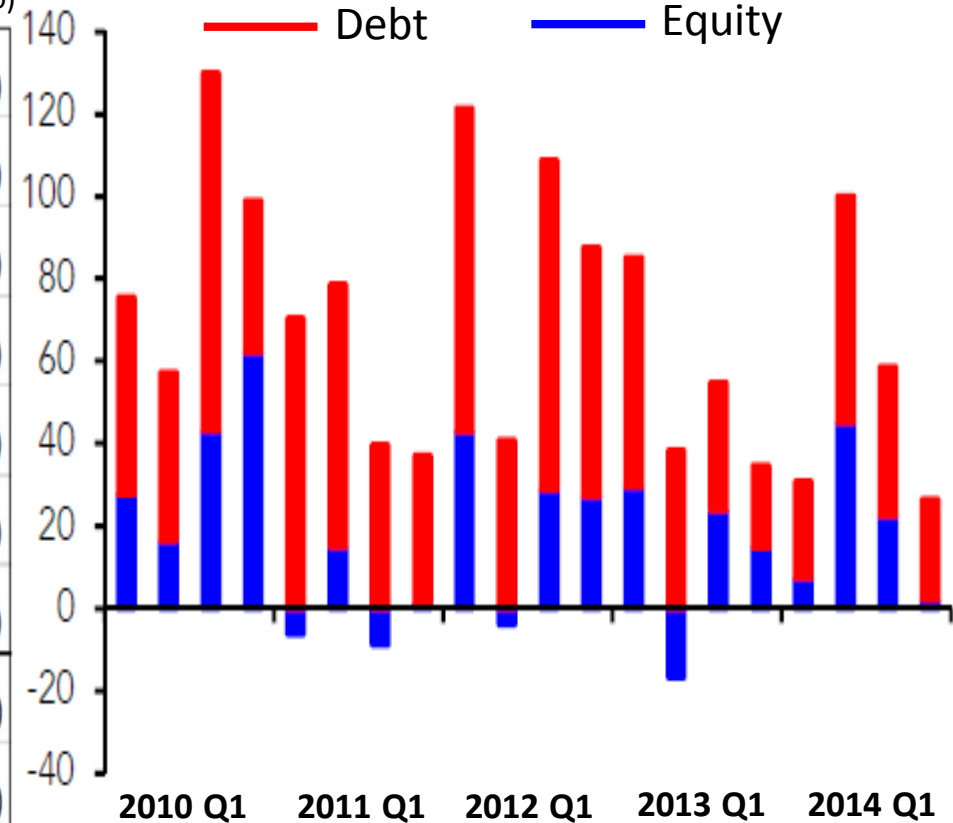
(Unit: Jan 2010 = 100)



— G7 — Emerging

Non-Resident Portfolio Flows to EMs

(\$Billion)

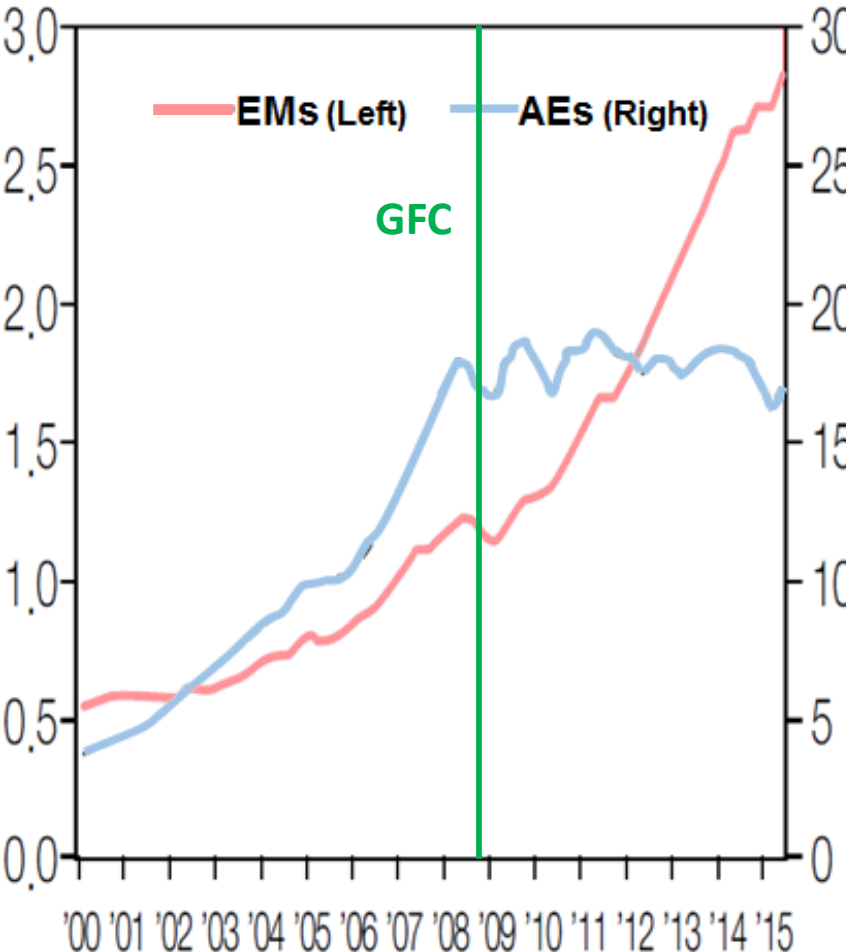


Source: IIF Portfolio Flows Tracker

EMs' bonds issuance swiftly expanded subsequent to GFC...

International Debt Securities

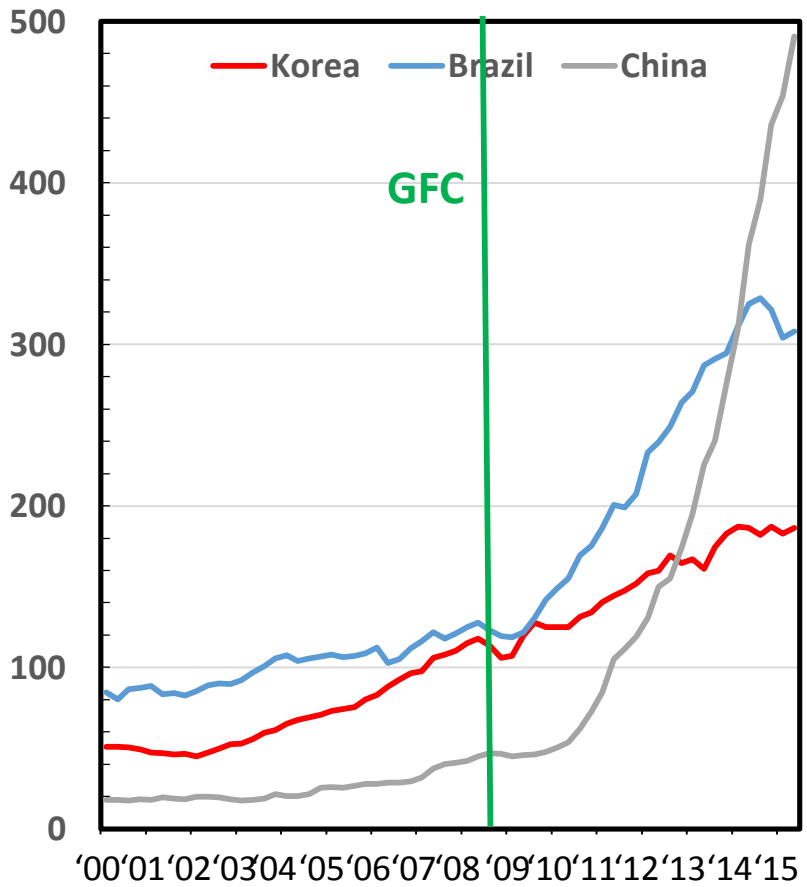
(Unit: \$ Trillion)



International Debt Securities

(Major EMs)

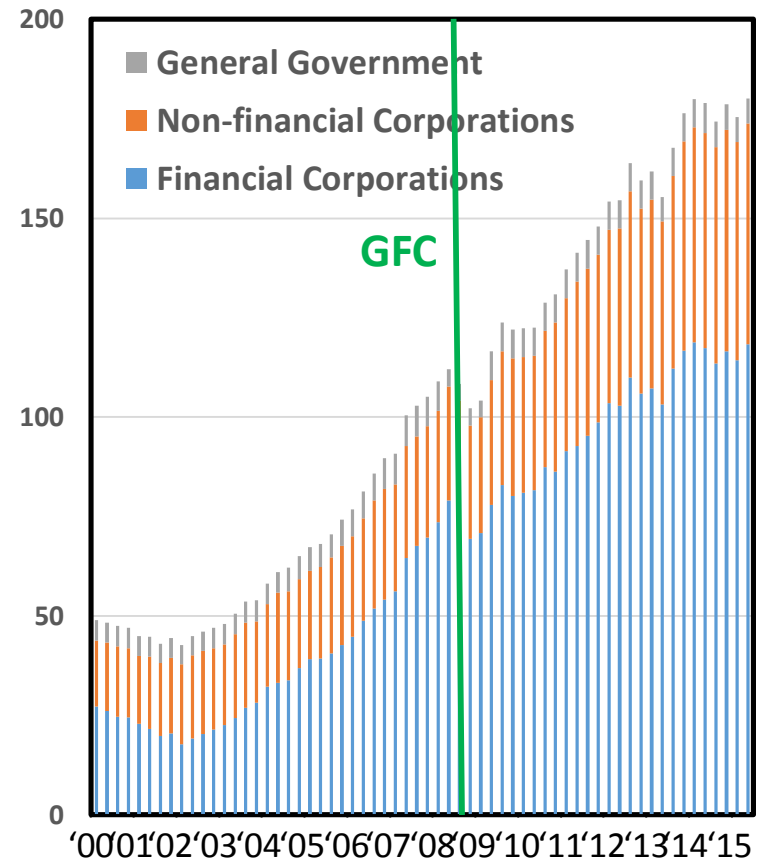
(Unit: \$ Billion)



International Debt Securities

(Korea)

(Unit: \$ Billion)



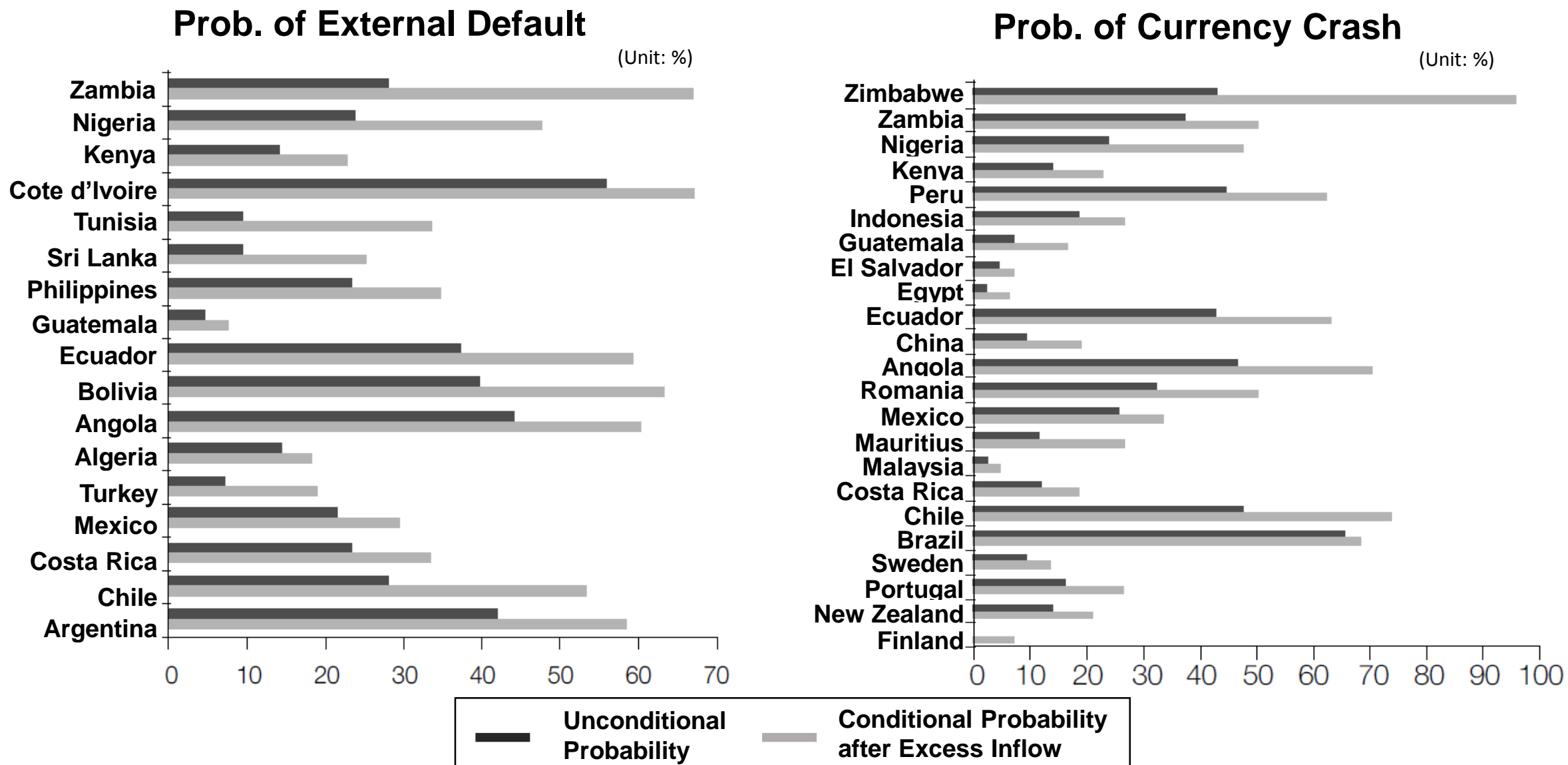
Capital Surges into EMs often comes with increased **Systemic Risks**

- ✓ **Pro-cyclicality** (triggered by capital inflows) might be the source...

Since 1980, there have been about 150 episodes of surges in capital inflows in more than 50 EMEs; ... about 20 percent of the time, these episodes end in a financial crisis...

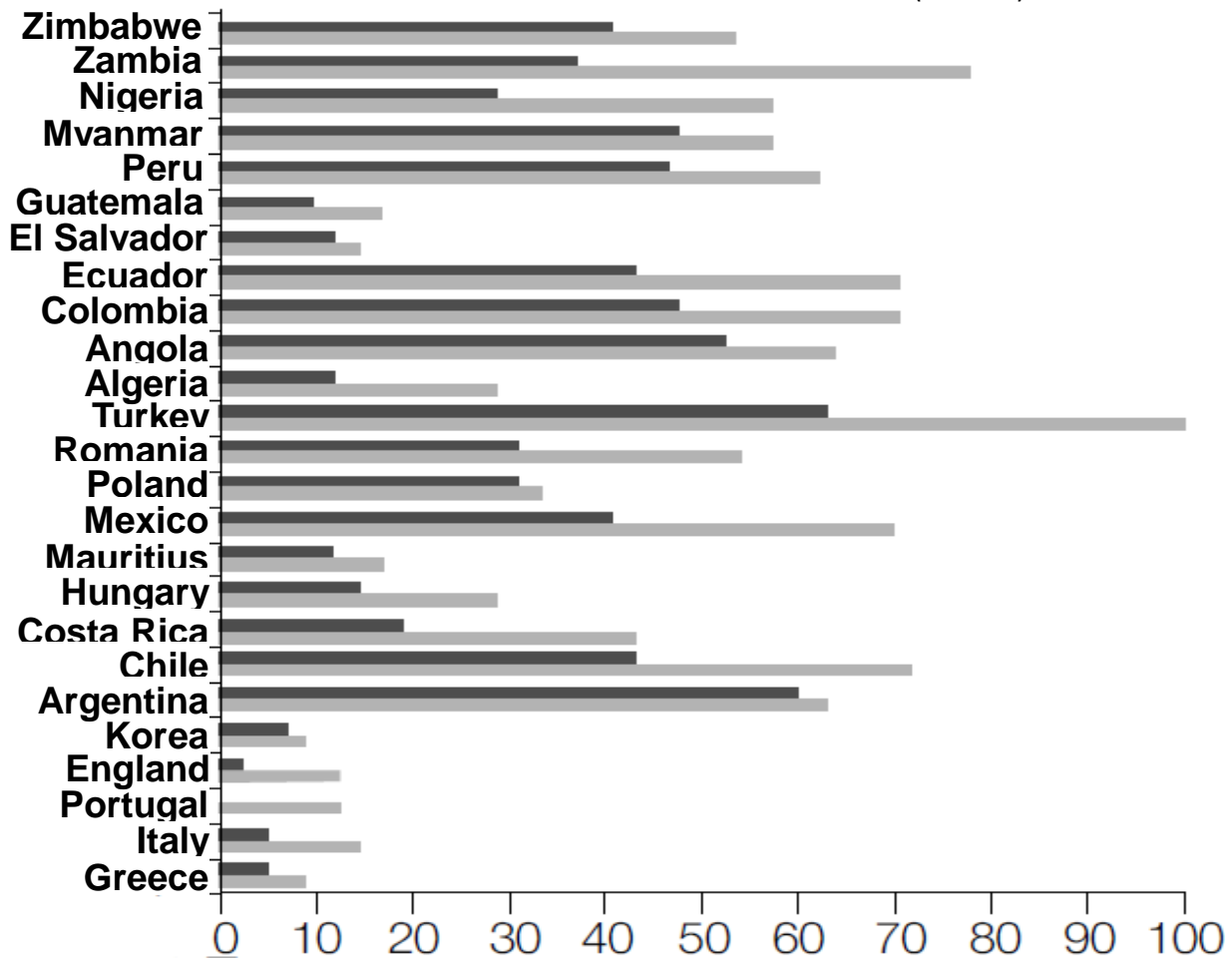
(Ostry, Loungani, and Furceri. Finance & Development. IMF June 2016.)

Instability followed by capital inflow surge



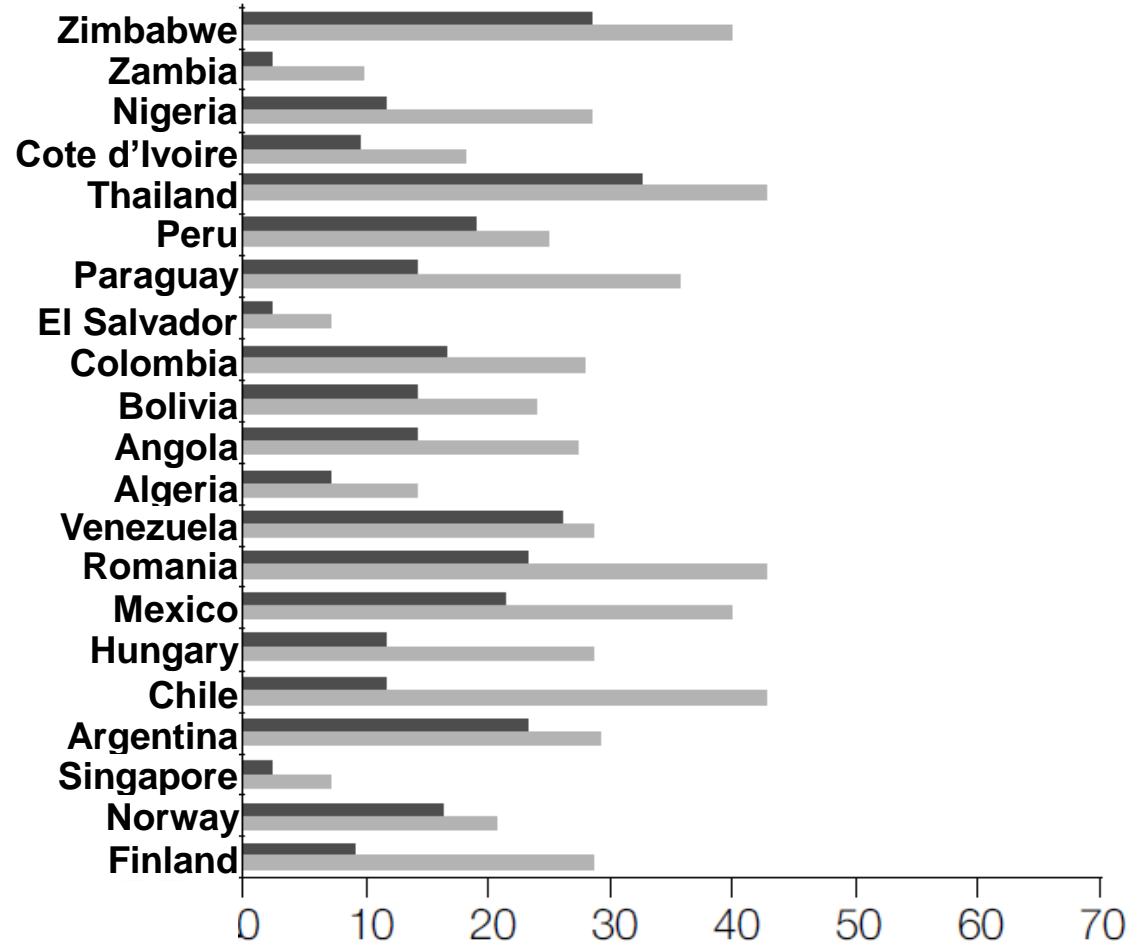
Prob. of Inflation Crisis

(Unit: %)



Prob. of Banking Crisis

(Unit: %)



- **EMs should use available policy space in response to growing systemic risk.**
- **Prior to introducing prudential regulation, EMs need to find the underlying drivers of surge**

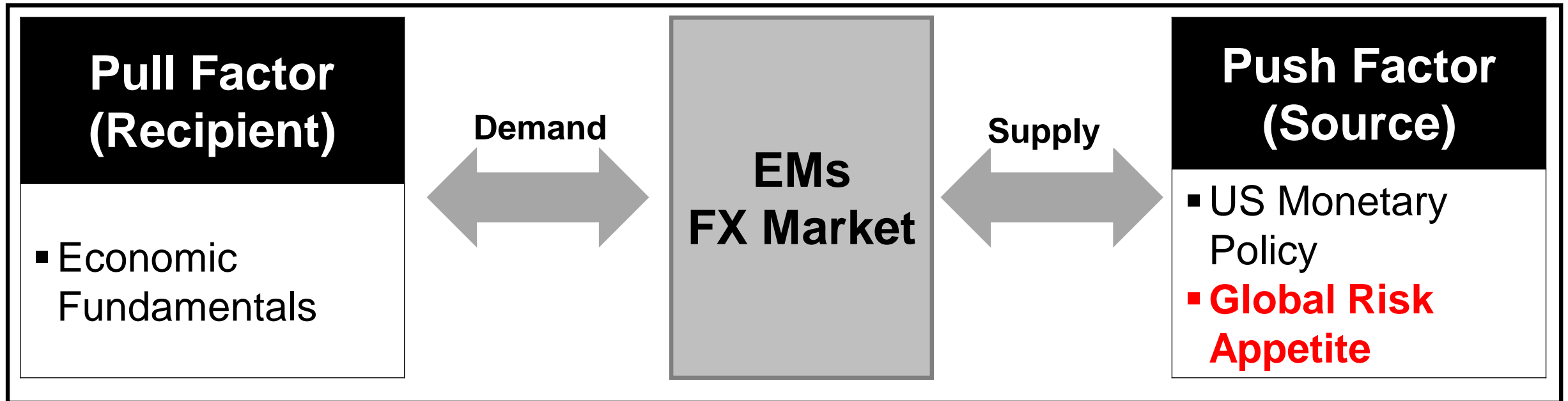
?

Question 1

❖ What Causes Cross Border Capital Flows:

**Global Risk Appetite (Low Volatility) or
Economic Fundamental of Recipient Country?**

Demand VS. Supply of Capital Inflows



24 EM countries data (1990 Q1~ 2014 Q4)

Region	EM (24 Countries) : MSCI Criteria
Emerging Asia (8)	China, India, Indonesia, Korea , Malaysia, Philippines, Taiwan, Thailand
Emerging Europe (6)	Czech Republic, Greece, Hungary, Poland, Russia, Turkey
Latin America (5)	Brazil, Chile, Colombia, Mexico, Peru
Middle East & North America (5)	Egypt, Morocco, Pakistan, Qatar, South Africa

Models based on 'pull vs. push' factors

$$\log(\text{Capital Inflows}) = \alpha * \text{US bond yields} + \beta * \log(\text{VIX index}) + \gamma * \text{Trade Openness} + \delta * \text{GDP Growth Rate} + \theta * \text{Inflation rate} + \omega * \log(\text{Average size of the economy}) + \varepsilon$$

Factors	
Push	<ul style="list-style-type: none">• US 10-year Government Bond Yield• VIX Index (log) : risk appetite proxy variable
Pull	<ul style="list-style-type: none">• Trade Openness• GDP Growth Rate• Inflation• Average Size of the Economy (log)

Capital inflows to EMs : largely due to **push factors...**

✓ Chuhan, Claessens & Mamingi (1998), Calvo et al (1996), Forbes and Warnock (2012), Rey (2013)

		Total Inflows	Direct Inflows	Equity Inflows	Bond Inflows	Other Inflows	Bank Loans
Push Factors	US 10yr T-bond yield	-0.27***	-0.21***	-0.20***	-0.36***	-0.16***	-0.27***
	VIX Index (log)	-0.39***	-0.13*	-0.53***	-0.27***	-0.17	-0.27*
Pull Factors	Trade Openness	-0.38	0.14	-0.68*	0.28	0.11	-0.38
	GDP Growth	0.04***	0.02**	0.04***	0.01	0.01	0.00
	Inflation	0.00	0.00***	0.00	0.00	0.00	0.00
	Average Size of Economy (log)	0.51**	1.35***	0.52	0.17	0.63**	-0.09
Constant		-5.80***	-12.08***	-7.77***	-5.49***	-8.40***	-5.10**
No. of Observations		1,261	1,356	923	922	883	664
R-square		0.28	0.35	0.20	0.14	0.22	0.10

Period: 1990 Q1 ~ 2014 Q4

❖ Question 2 : Role of Spread and Volatility

- ❖ Can Monetary Policy alone tame Capital Flow surges?
- ❖ Does **Volatility** Have Extra Explanatory Power?

Spread vs. Volatility : Capital Inflows to EMs

Fund Flows

$$= \beta_0 + \beta_1 \Delta VIX + \beta_2 \Delta VIX \times D + \beta_3 \Delta SPREAD + \beta_4 \Delta SPREAD \times D$$

Factors	
VIX	CBOE(Chicago Board Options Exchange)
SPREAD	1 Year EMs' Government Bond Yield – 1 Year US Treasury Yield
Dummy (D)	$D_{Financial\ Crisis}$: July 2008 – Feb. 2009

Data Period: January 2005 ~ September 2015

Bond Fund flows

Model	(1)	(2)	(3)	(4)	(5)
Intercept	0.786***	0.750***	0.720***	0.729***	0.751***
ΔVIX	-0.107**	-0.248**	-0.208*	-0.185**	-0.195***
$\Delta VIX \times D_{Financial\ Crisis}$	-0.175				
$\Delta VIX \times D_{ VIX-\mu >0.5\sigma}$		0.097			
$\Delta VIX \times D_{VIX-\mu>0}$			0.029		
$\Delta VIX \times D_{VIX-\mu>0.5\sigma}$				-0.007	
$\Delta VIX \times D_{VIX-\mu<-0.5\sigma}$					0.188
$\Delta SPREAD$	-0.749	-1.666	-2.114***	-2.168***	-0.358
$\Delta SPREAD \times D_{Financial\ Crisis}$	0.698				
$\Delta SPREAD \times D_{ VIX-\mu >0.5\sigma}$		0.872			
$\Delta SPREAD \times D_{VIX-\mu>0}$			1.777*		
$\Delta SPREAD \times D_{VIX-\mu>0.5\sigma}$				2.000**	
$\Delta SPREAD \times D_{VIX-\mu<-0.5\sigma}$					-2.001**
Adj R ²	0.1982	0.1880	0.2056	0.2131	0.2104

- ✓ Under relatively low volatility ($D_{VIX-\mu} < -0.5\sigma$), a 1% increase in the spread leads to, on average, 2% of capital outflow from EM Bond Funds

Equity Fund flows

Model	(1)	(2)	(3)	(4)	(5)
Intercept	0.321***	0.309***	0.303***	0.297***	0.284***
ΔVIX	-0.178***	-0.257***	-0.209***	-0.227***	-0.131***
$\Delta VIX \times D_{Financial\ Crisis}$	0.087				
$\Delta VIX \times D_{ VIX-\mu >0.5\sigma}$		0.161**			
$\Delta VIX \times D_{VIX-\mu>0}$			0.090		
$\Delta VIX \times D_{VIX-\mu>0.5\sigma}$				0.119**	
$\Delta VIX \times D_{VIX-\mu<-0.5\sigma}$					-0.011
$\Delta SPREAD$	-0.293	0.105	-0.677	-0.486	0.365
$\Delta SPREAD \times D_{Financial\ Crisis}$	0.725				
$\Delta SPREAD \times D_{ VIX-\mu >0.5\sigma}$		-0.222			
$\Delta SPREAD \times D_{VIX-\mu>0}$			1.075**		
$\Delta SPREAD \times D_{VIX-\mu>0.5\sigma}$				0.850*	
$\Delta SPREAD \times D_{VIX-\mu<-0.5\sigma}$					-2.182***
Adj R ²	0.2266	0.2202	0.2204	0.2286	0.2377

- ✓ Under relatively low volatility ($D_{VIX-\mu} < -0.5\sigma$), a 1% increase in the spread leads to, on average, 2% of capital outflow from EM Equity Funds

Regression results suggest that...

- ✓ **Monetary policy alone may not be sufficient to tame cross-border capital flow surges**
- ✓ **Macro-prudential policy could help deal with volatility (risk premium) movement**

Policy Implications

1 EM should be ready to use all available policy tools

Advanced Economies (Source Countries)

- ✓ Monetary policy aims at achieving domestic objectives (inflation, employment)
- ✓ Exchange rate is flexible and determined by the market

- ✓ No market intervention
- ✓ Financial markets well developed to absorb exchange rate volatility

→ AEs will not likely to include EM's concerns in their MP objective function

1 Cont'd

Emerging Economies (Recipient Countries)

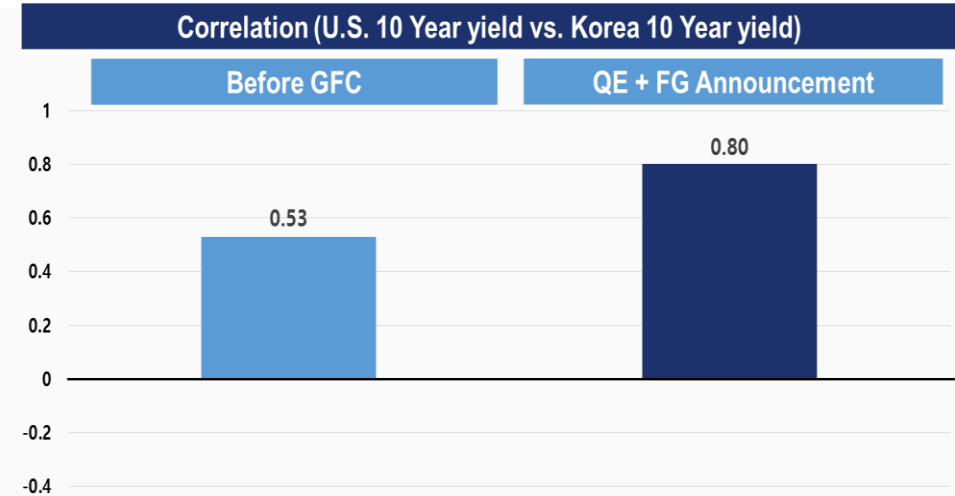
- ✓ **Lack of monetary policy independence** due to global liquidity overhang
- ✓ Exchange rate volatility is disruptive to EMs' economic activity (high trade openness, high pass-through, etc.)

- ✓ Difficult to cope with overwhelming volatility **without ex-ante tight control**

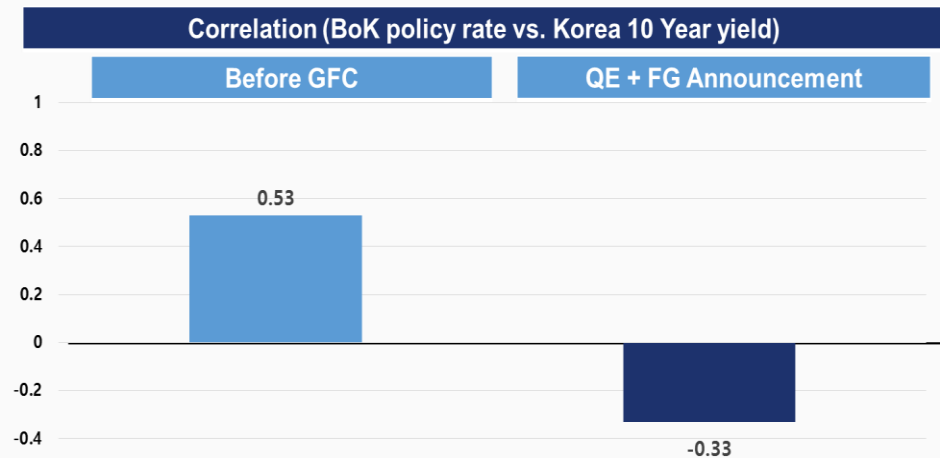
➔ Taking AEs policies as given, EMs should respond optimally and use **whatever policy instrument that work**

Loss of Monetary Policy Independence

- ✓ EM's interest rates are increasingly being influenced by those in advanced economies
- Monetary dependency problematic as their **business cycles are not necessarily synchronized** with that of the United States



- Before Global Financial Crisis : 2001.1 ~ 2008.8
- Quantitative easing (QE) and Forward guidance (FG) Announcement : 2008.9 ~ 2015.2



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Source: KIEP (2015)

1 Cont'd

- ✓ Advanced countries should consider EM's concern...

Taking a longer-term perspective... A first step would be to take financial factors more fully into account in domestic policy framework. This should help reduce potential spillovers at the source. ... “there is certainly scope for **more international cooperation** in the sense of sharing information and reaching a common understanding of the **externalities of domestic policies and the dynamics of spillovers and spillbacks.**”

Jaime Caruana (June 28, 2015)

What do you mean by **‘whatever policy tools’**?

‘Capital controls **no longer taboo as emerging markets battle flight.’** ([Financial Times. January 27, 2016.](#))

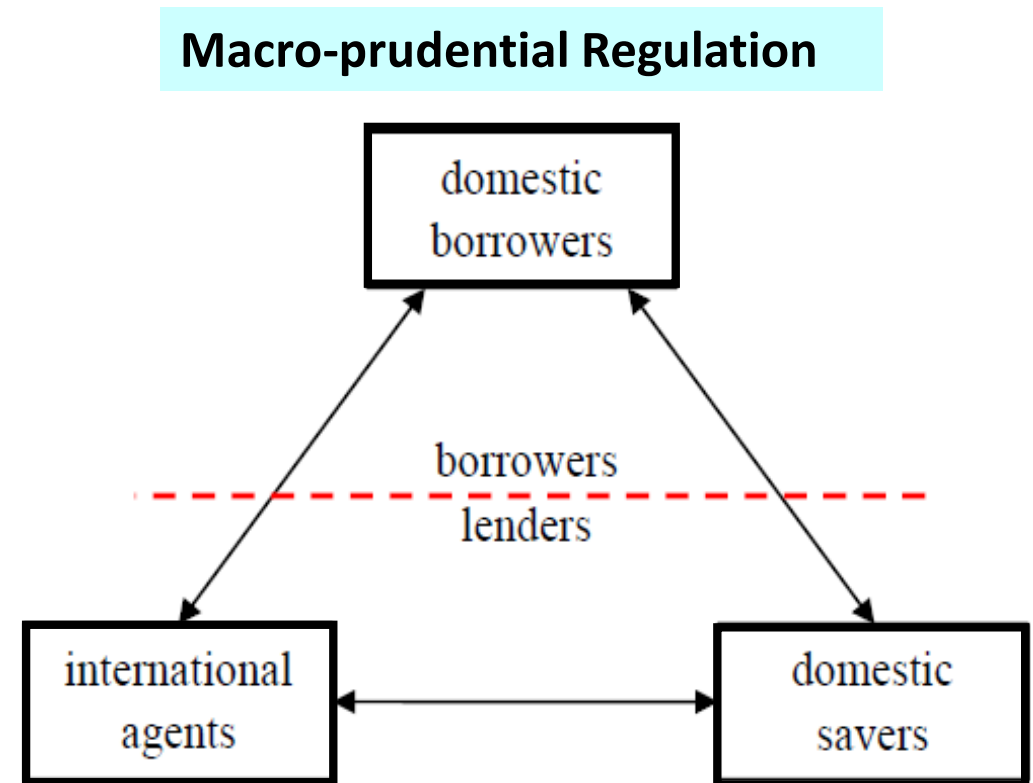
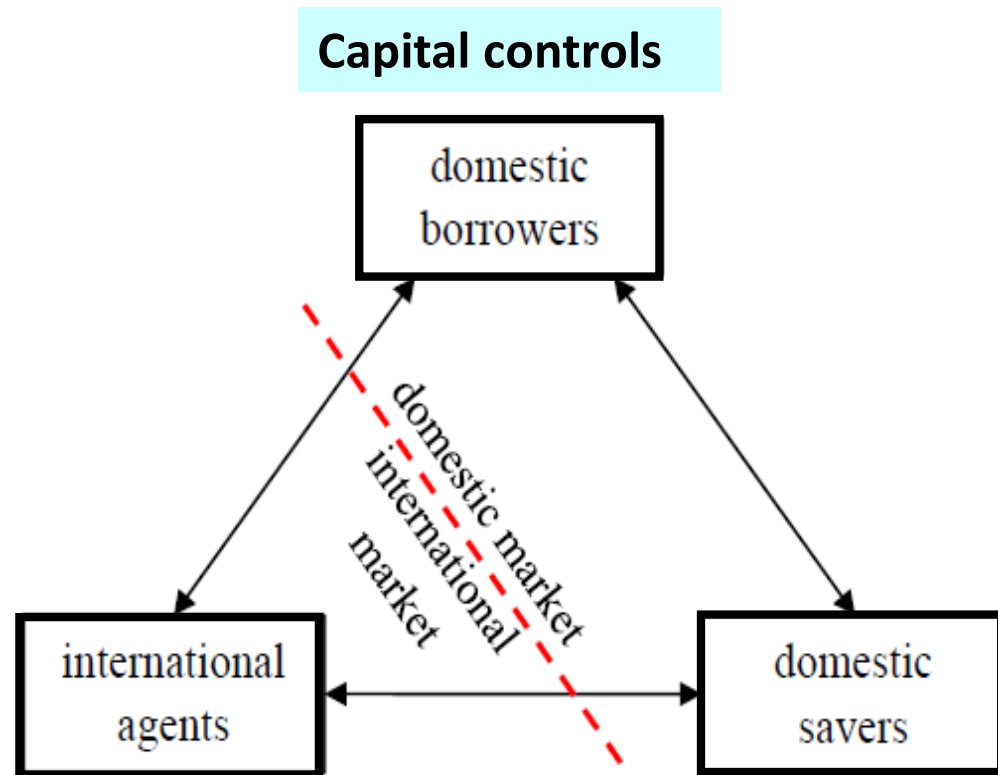
"...Haruhiko Kuroda, governor of the Bank of Japan, suggested last week that China should use capital controls to support its currency, it was as if he had broken a taboo."

“Capital controls are a viable, and sometimes the only, option when the source of an unsustainable credit boom is direct borrowing from abroad.”

Ostry and others (2012)

Capital controls VS. Macro-prudential tools

- ✓ **Capital Controls:** apply exclusively to financial transactions between residents and non-residents
- ✓ **Macro-prudential tools:** restrict domestic residents' borrowings regardless of whether credit is given by domestic or foreign lenders



When borrowers are forced to **de-lever**...

- Repayment to domestic lenders



Purchasing power stays at home

Increases demand for goods,
reduces the downward pressure
of exchange rate

- Repayment to foreign lenders



Purchasing power flows out

Depreciate the exchange rate

➤ It is desirable to use both CFMs (Capital Control) + Macro-prudential...

2 Tools against capital outflows

- **Korea's MPMs are designed to address capital inflow surges**
 - ✓ Macro-prudential stability levy
 - ✓ Ceilings on FX derivatives
 - ✓ Tax on foreigners' bond investment

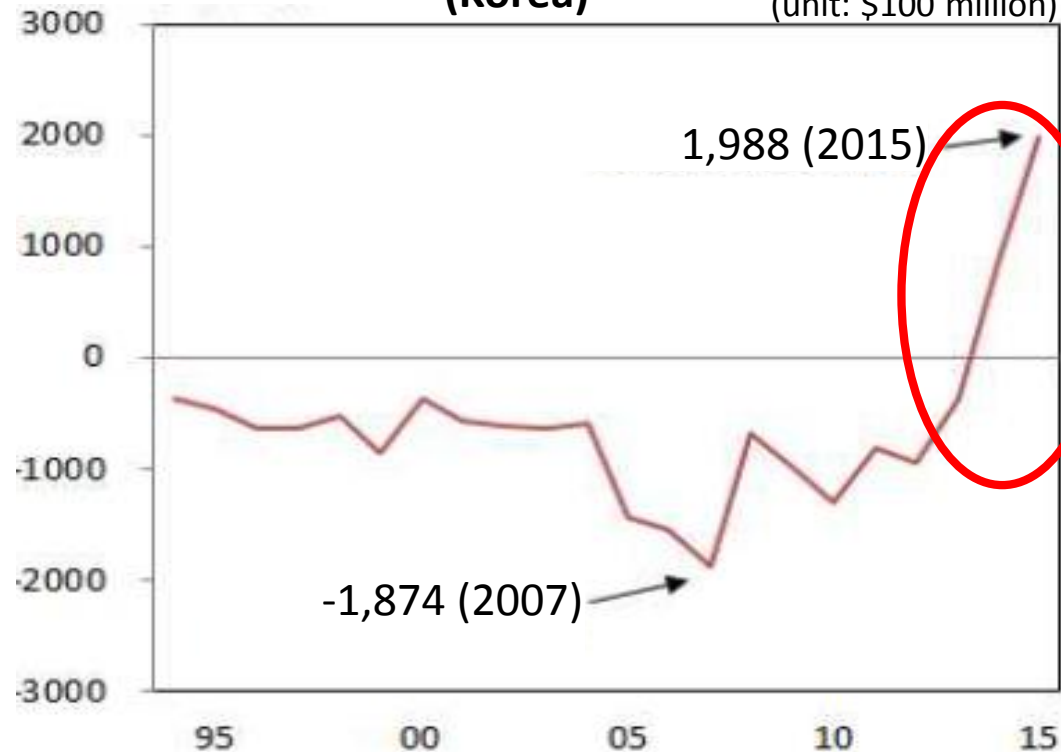
- **Immediate Response to Capital Outflows**
 - ✓ Foreign Currency Reserves
 - ✓ Global Financial Safety Nets (Currency swap lines between central banks)
 - ✓ IMF (Flexible Credit Line, Precautionary and Liquidity lines, Precautionary Stand-by arrangements)

Medium and Long-term response to capital outflows

- ✓ Positive NIIP could provide buffer against 'sudden stop' for EMs where market access is not always guaranteed.

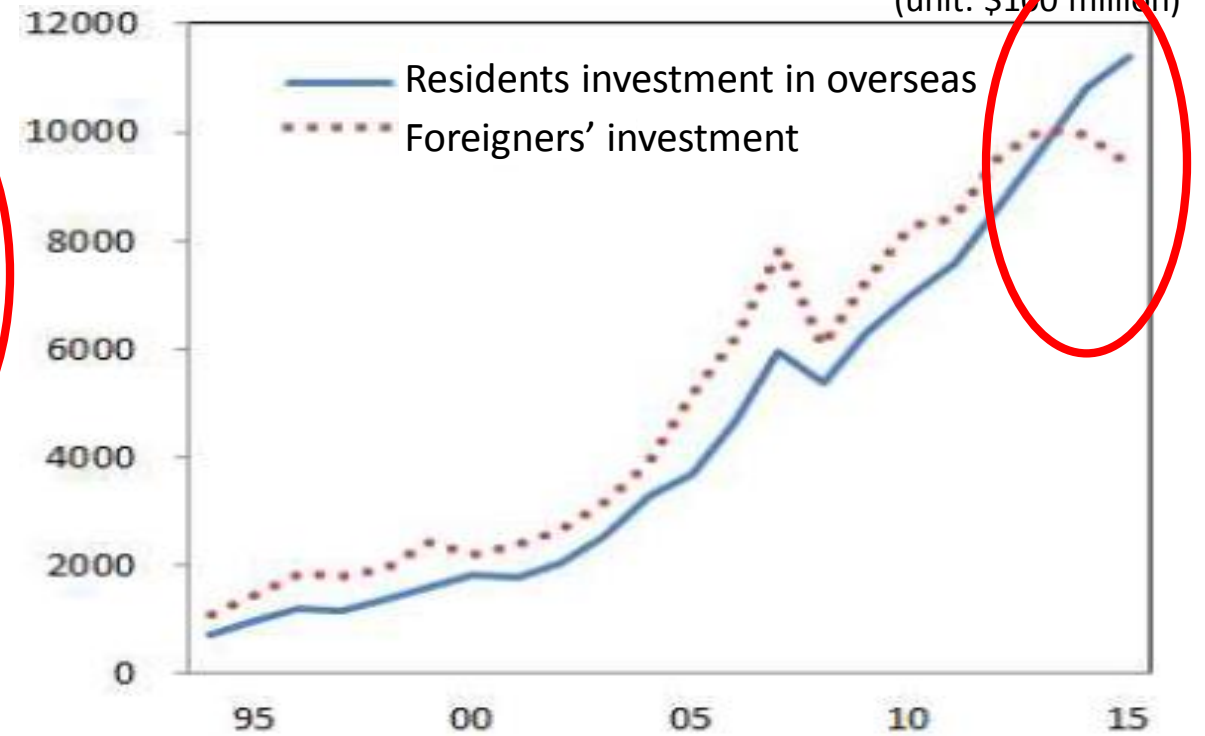
Net International Investment Position (NIIP)

(Korea) (unit: \$100 million)



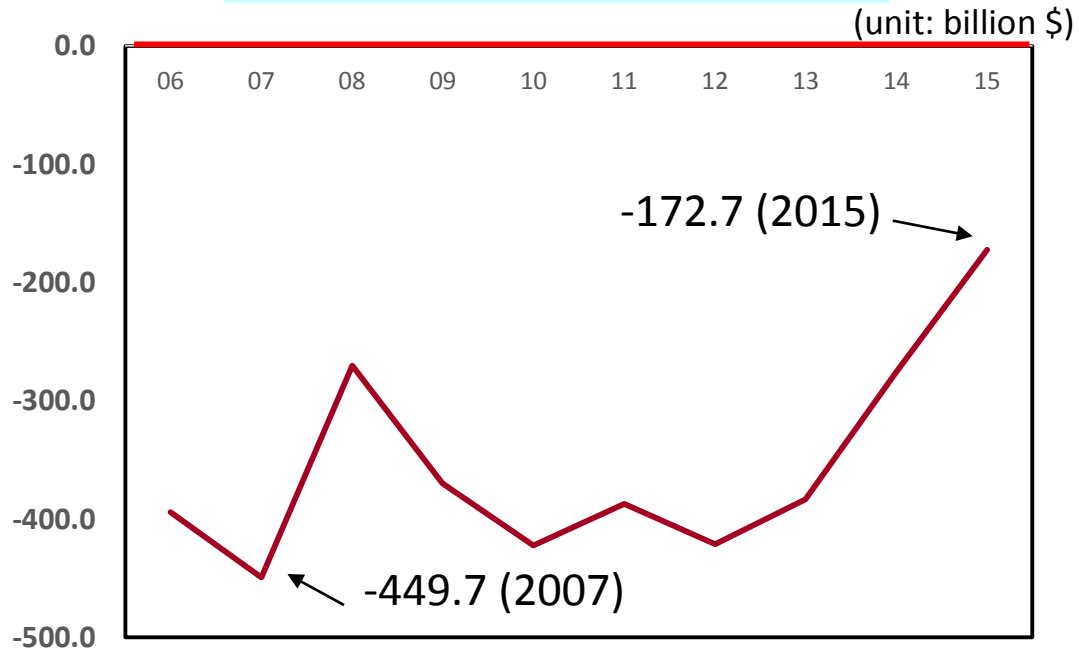
International Investment Position (IIP)

(unit: \$100 million)

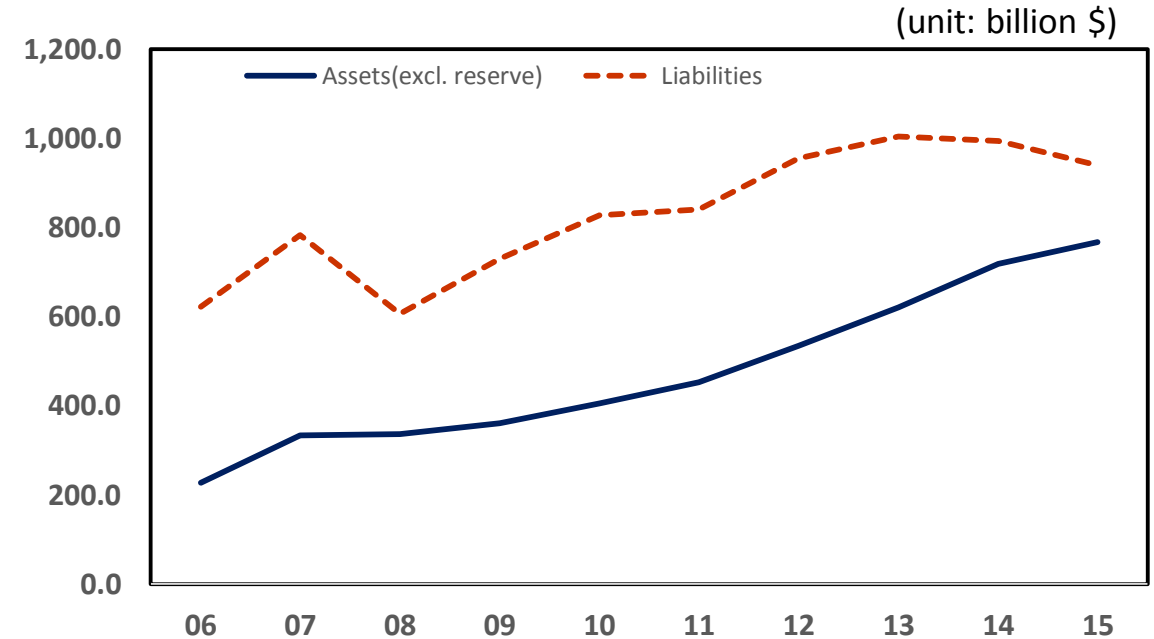


Mismatch Problem

NIIP(excl. FX reserves)



IIP(excl. FX reserves)



- ✓ Central Bank holds the brunt of FAs (32% as of 2015) while most FLs are held by private sector.
=> **“mismatch problem”**
- ✓ Current account surplus -> Appreciation of Korean Won -> BOK’s market intervention (buying dollars) -> Reserve assets increased

→ Private sector’s holding of foreign assets needs to be incentivized.

3 Implication for Monetary Policy

$$i_N = i_R + \pi + \delta$$



Monetary
Policy



Macro-prudential
Policy

- ✓ i_N = nominal interest rate
- ✓ i_R = real interest rate
- ✓ π = inflation rate
- ✓ δ = risk premium
 - $\delta = f(\text{global market volatility})$

3 Cont'd

- ✓ Conventional MP alone could not tackle surge-type of capital flows
- ✓ Volatility plays bigger role in cross-border capital flows through global investors' risk appetite
- **Macro-prudential response as well as capital flow management would be effective for EMEs**

4 Policy Coordination on CFMs: IMF VS. OECD

- ✓ Different approaches toward macro-prudential policy

IMF	OECD
<ul style="list-style-type: none">▪ Recognition of the effectiveness of MPMs▪ Introduction of CFMs 'The Liberalization and Management of Capital Flows: An Institutional View' (November 14, 2012)▪ Recommendation to EMs to introduce MPMs	<ul style="list-style-type: none">▪ Understand the purpose and the needs for MPMs (Ceiling on foreign exchange derivatives positions), but reservations are necessary;➤ Tentative Implementation under peer review▪ MPMs vs. 'The OECD Code of Capital Liberalization'

G20 Coherent Conclusions For the Management of Capital Flows (October 15, 2011)

- ✓ We agreed on coherent conclusions to guide us in **the management of capital flows** drawing on country experiences.
- ✓ We all **international bodies to take into account emerging market and developing economies' specific considerations** and concerns in designing new international financial standards and policies where appropriate.

- **Surges and crashes in cross-border capital flows are a major source of financial instability in EMs.**
- **“Surge”-type of cross-border capital flows fall outside the scope of OECD Code.**
- **Time is ripe to rethink and re-evaluate ‘the OECD Code of Capital Liberalization’ introduced 50 years ago**

Thank You