A New Macro-financial system for a stable and crisis-resilient growth in Korea

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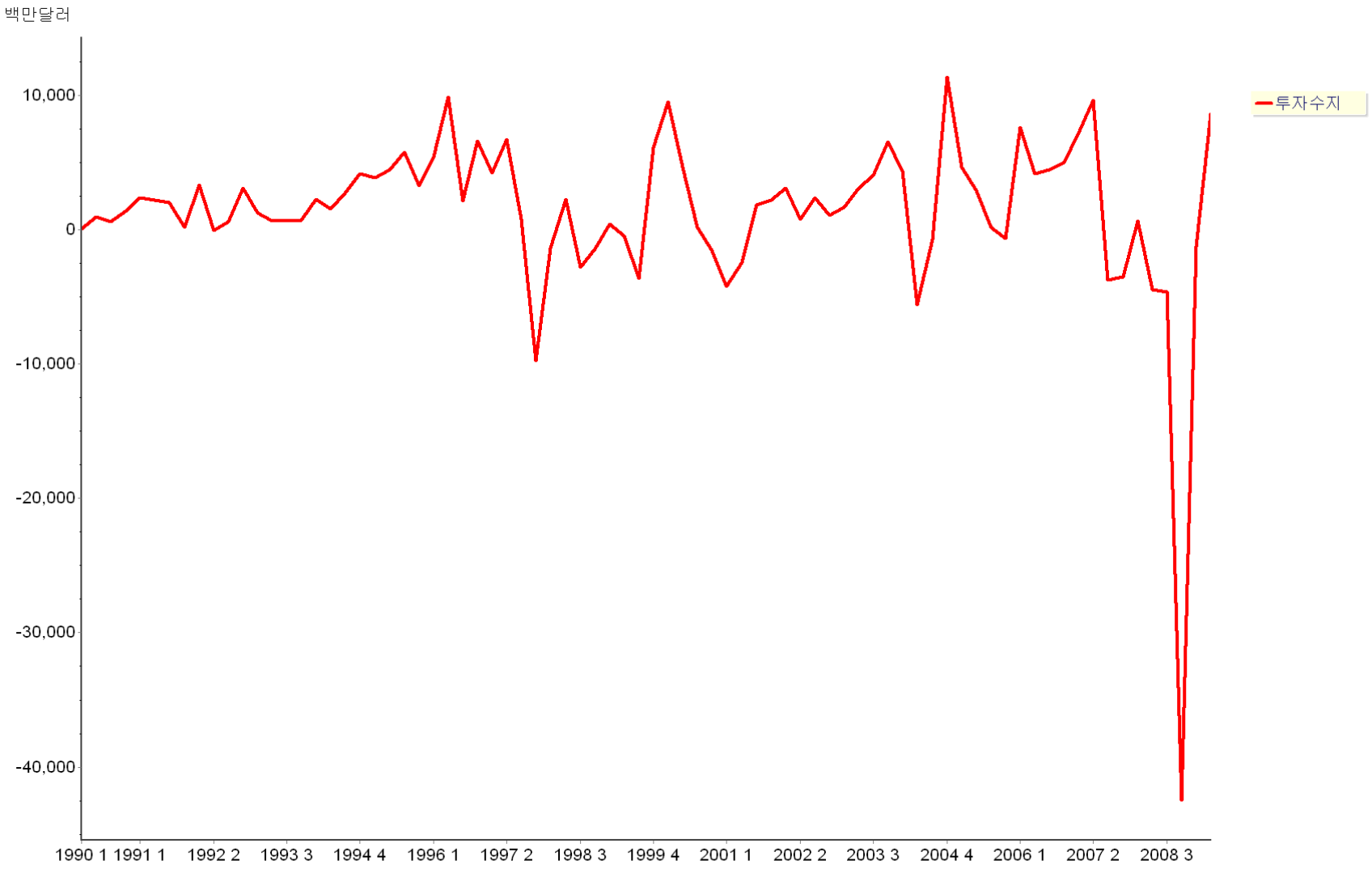
The trend of capital flows in Korea (units: millions U.S. dollar)



Data: BOK ECOS

Motivations:

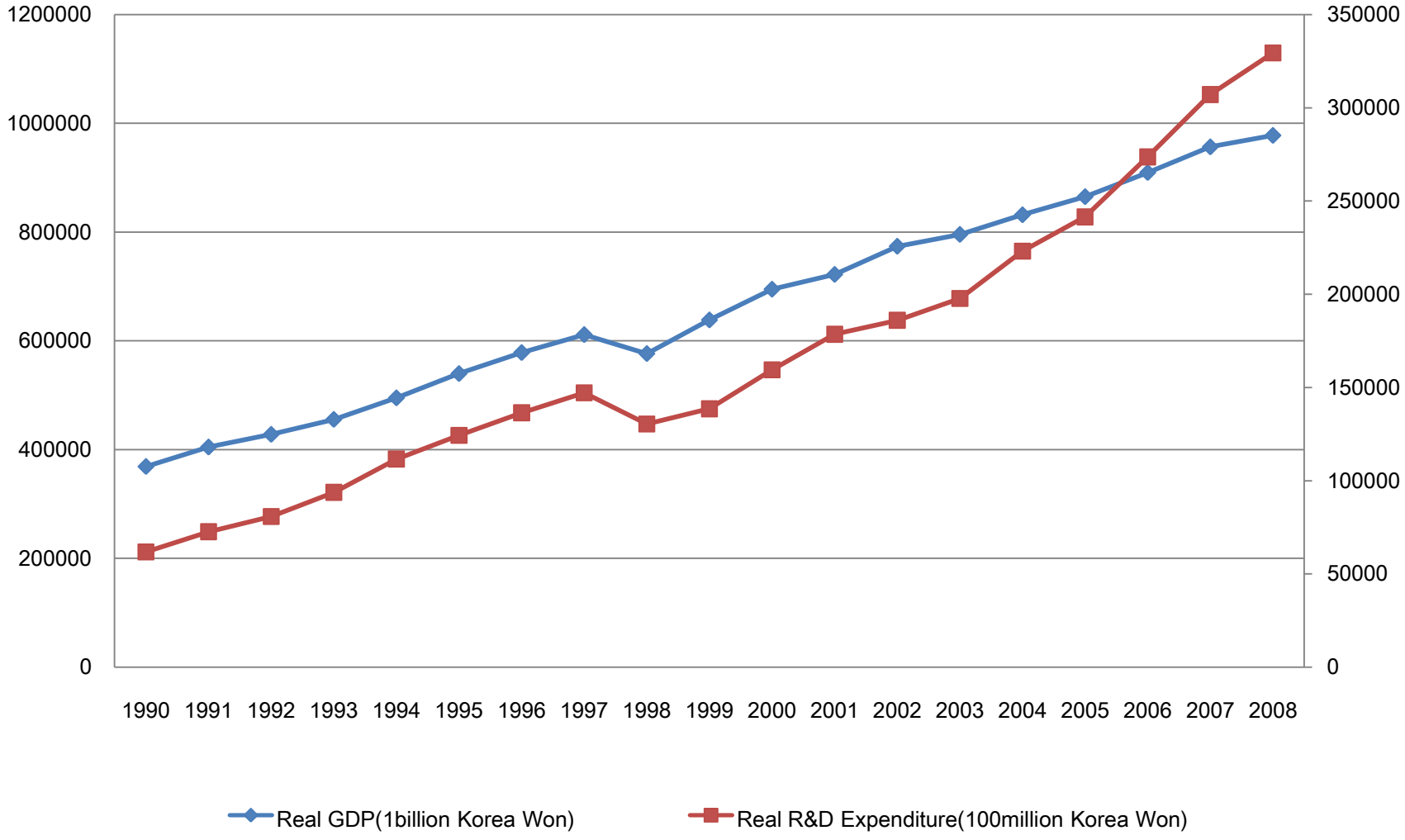
1) Why did the Korean economy fall again into the debacle of currency crisis in 2008 (capital outflows: $ 50billion= 5% of GDP)

even with substantial reforms and full capital market liberalization (prescription of non-Keynesian main stream economics)?.

2) Korean and Asian economy pushed to pursue domestic-market – based growth with the US market weakened.

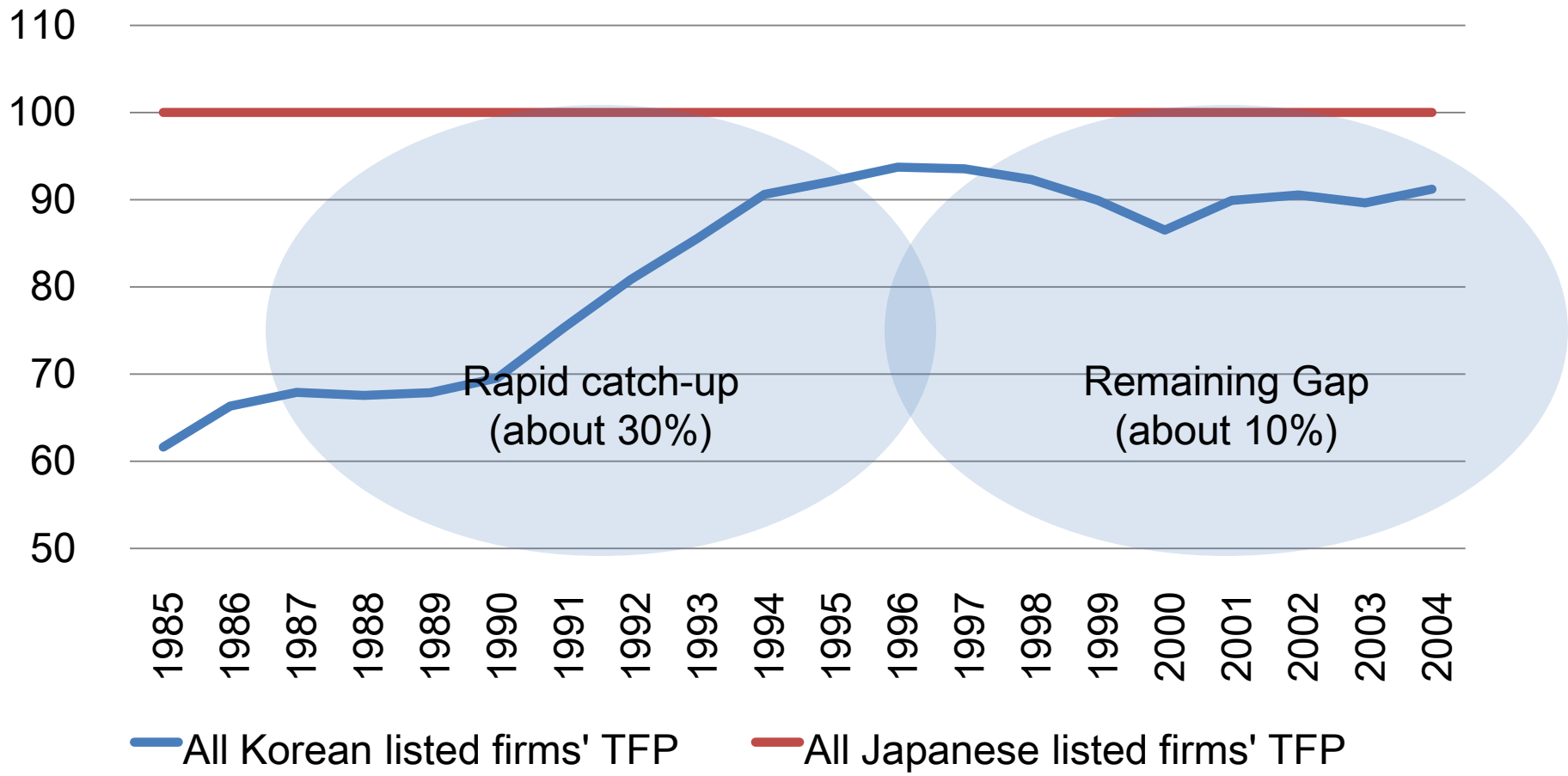
=> But, need a “external safety net;”;
against the peril of smaller foreign exchange earnings and the associated balance-of-payment crisis.

The Real GDP & R&D Expenditure of S.Korea



GDP Deflator(2005=100), SOURCE : BOK, KISTEP

TFP Catch-up: Korea vs. Japan



Note : Note TFP level of all Japanese listed firms in each year is set to be 100. We can regard the difference as % gap of TFP between two countries.

Objectives:

1)Providing Structuralist Alternative explanations

2) Proposing a reform to build
"crisis-resilient macro-financial system"
for Korea

⇒Final step for a catching-up economy
to "graduate" and
to settle down stably as a rich country.

Contrasting views on financial market

A. Mainstream Economics:
Markets, including international capital markets are efficient.

B. Structuralist Economics: It is a beauty contest;

- Market follows what average opinion believes average opinion to be.
- A market that operates as a beauty contest is likely to be highly unstable and prone to occasional severe loss of liquidity as all opinion shifts in the same direction. (Eatwell and Taylor, 2000)

Market failures arising from asymmetric information, incompleteness of contingent markets, and bounded rationality (not to mention irrationality) are endemic to financial markets.

Different Views on Currency Crisis

A. Mainstream Economics:

Roots of crisis are harmful government policy measures. Financial and currency crisis are caused by an alert private sector pouncing upon the public sector's foolish actions such as running an unsustainable fiscal deficit or creating moral hazard.

B. Structuralist Economics:

The currency crisis pivoted around the government's withdrawal from regulating the real side of economy, the financial sector, and especially the international capital market.

=> The 'Frenkel-Neftci' cycle

The “Two Spreads” in the ‘Frenkel-Neftci’ cycle

1: interest spread
2: Capital Gain spread

$$\Sigma_i = i - [i^* + (\Delta e / e)^E]$$

$$\Sigma_Q = (\Delta Q / Q)^E - [i^* + (\Delta e / e)^E]$$

1: interest spread = interest rate differential + expected appreciation
2: Capital Gain spread = asset price gain – (world int rate + appreciation)

Mechanism of the Crisis

1. Interest rate spreads and/or capital gain spreads open due to lax public sector regulation due to financial liberalization.
2. Few players take relevant positions.
3. Any movement threatening the overall position, that is, sudden change in expected returns such as exchange rate devaluation, real estate price collapse, and/or stock market crash, can result in huge capital outflows and currency crisis.

The 1997 Financial Crisis :

In the case of the 1997 crisis, the spread was mainly from interest spread and the associated huge amount of capital inflows, such as Yen carry trade

The Korean Crisis of 2008 (Sketch)

We cannot attribute two episodes of the Korean crisis either wrong policy measures or moral hazard:

Causes of spreads

1. High interest rate policy aimed to suppress real estate price increases
2. The expectation of exchange rate appreciation
3. Stock market returns after recovering the crisis.

Then the subprime crisis produced the sudden change of expectation of the market participants.

The credit crunch in the international capital markets, and the possibility of exchange rate depreciation by the Korean Government to promote exports, lead to the huge capital outflows.

The Korean crisis of 2008 in detail

Development of the crisis

1. After the crisis of 1997, the Korean government move toward full capital market liberalization.
2. Strong macroeconomic performance with that movement opened spreads and pulled foreign capital inflows.
   -Scales of inflows: 6.1% and 7.4% of GDP in 2006 and 2007
   -Foreign reserves of Korea: 262 Billions of US $ at the end of 2007
   -Foreign bond investment inflows was due to widening of the covered interest rate differentials (Kim, Kim and Suh 2009; Kim and Song 2007; Park and Kim 2008; Yang and Lee 2008; Ryou and Park 2008; Lee 2006).
   -Foreign equity investment inflows increased when the expected returns increase due to forward stock price increase and forward exchange rate appreciation in offshore NDF markets and widening of domestic and foreign interest rate differential(Yoon and Bae 2007)
   -The outstanding amount of foreign equity investment: 320 Billions of US $ in 2007

3. Meanwhile the Korean government encourage capital outflows to facilitate appreciation pressure in 2006 and 2007.
   -Substantial increase in overseas real estate investment as well as overseas equity investment

4. Hedging demands of overseas investors and exporters (mainly ship builders) led to the surge of Korea's external debt, especially that of short-term debt since 2006.
   -External debt of Korea: 380 billions of US $ in 2007 and 2008

5. The credit crunch resulted from subprime crisis affected the Korean economy. Huge capital outflows had continued and brought the collapse of stock prices and the value of the Won.

   -The existence of the considerable amount of debt made situation worse when outsiders had doubts on the ability of the Korean authority to handle the crisis situation.

Structuralist Policy Proposals

1. Sound Regulation and Supervision

-The 'Frenkel-Neftci' cycle starts with the government's retreat from the regulation in the international capital market.
-Extending the scope of regulation to asset management of individual financial intermediaries, including off-balance sheet activities such as derivatives contracts.

2. Paying attention to the movements of spreads.

3. An " Intermediate" macro-financial System:
1) Partial capital controls
2) A flexible BBC (basket, band, crawl) exchange rate system
3) Relative independence in monetary policy making

Comparison with the Mainstream

A. Mainstream proposal to 'the impossible trinity'

Free floating exchange rate system with autonomous macro policy and full capital accountability

B. Problems of Mainstream proposal for Korea

1) Korea heavily depends on trades

2) Capital flows and the exchange rate can be extremely volatile

C. We cannot give up autonomous policy measures

Flexible BBC exchange rate system can be a plausible alternative. However, to enhance the possibility of successful management of the exchange rate system, it must be supplemented by partial capital controls and with certain foreign reserve

-Empirical studies: Magdud and Reinhart 2006; UNCTAD 2009

Macro level Reforms

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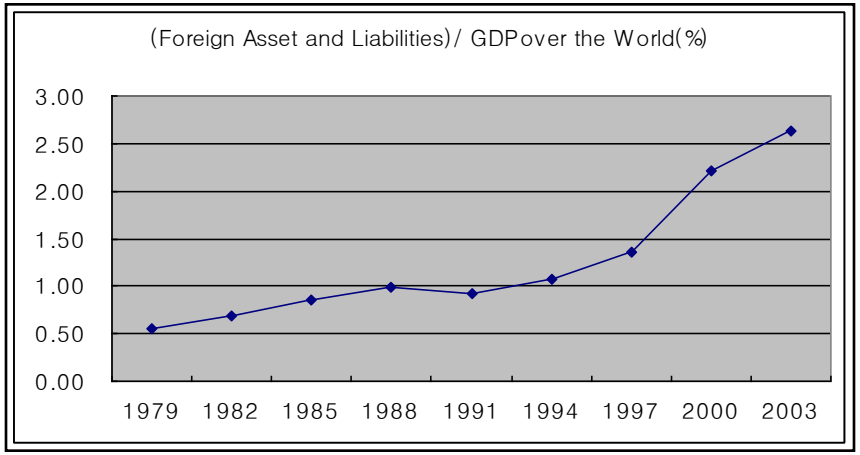
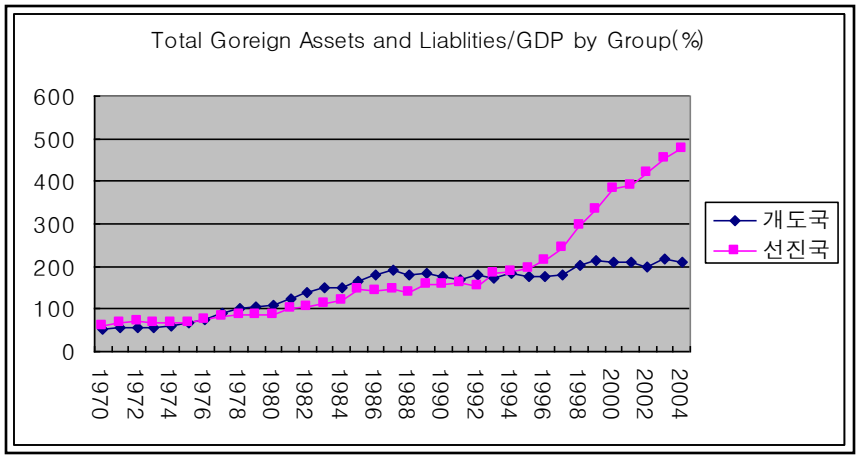
1. Different views on international capital flows

- The main driver for changing international economic environment since the 1990s is the large amount of international capital flows
- The ratio of sum of foreign assets and liabilities to world GDP increased from 0.86 in 1985 to 2.64 in 2003
- The ratio increase more rapidly in advanced countries than emerging and developing countries
- The large capital flows were spurred by capital market opening with domestic financial deregulaton.





Expected Benefits and costs of capital market opening

- Benefits of capital market opening

1)To provide financing for high-return investment, thereby raising growth rates

2) To bring improved technology, management techniques, and access to international networks, thereby raise productivity and growth.

3) To earn higher returns and better diversify risk, thereby reducing volatility in consumption and income.

4) To increase market discipline, thereby leading to a more efficient allocation of resources and higher productivity growth

Cost of capital market opening

1)To increase the financial instability and economic vulnerability to shocks

2) Thereby to lead to higher probability of financial and economic crisis, not to economic efficiency and growth.

Empirical evidences of relation between capital flows and growth

- Capital account liberalization, remains one of the most controversial and least understood policies of our day...Empirical analysis has failed to yield conclusive results(Eichengreen(2001)).

- Quinn(1997), Klein and Olivei(1999) and Edwards(2001) find that capital account opening enhances economic growth

- Grilli and Milesi-Ferretti(1995), Rodrik(1998), Kraay(1998), O'Donnel and Dublin(2001), Edison, Leine, Ricci and Slock(2002), Rodrik, Dani and Arvind Subramanian(2008), do not find the evidences that capital account convertibility increases the economic growth.

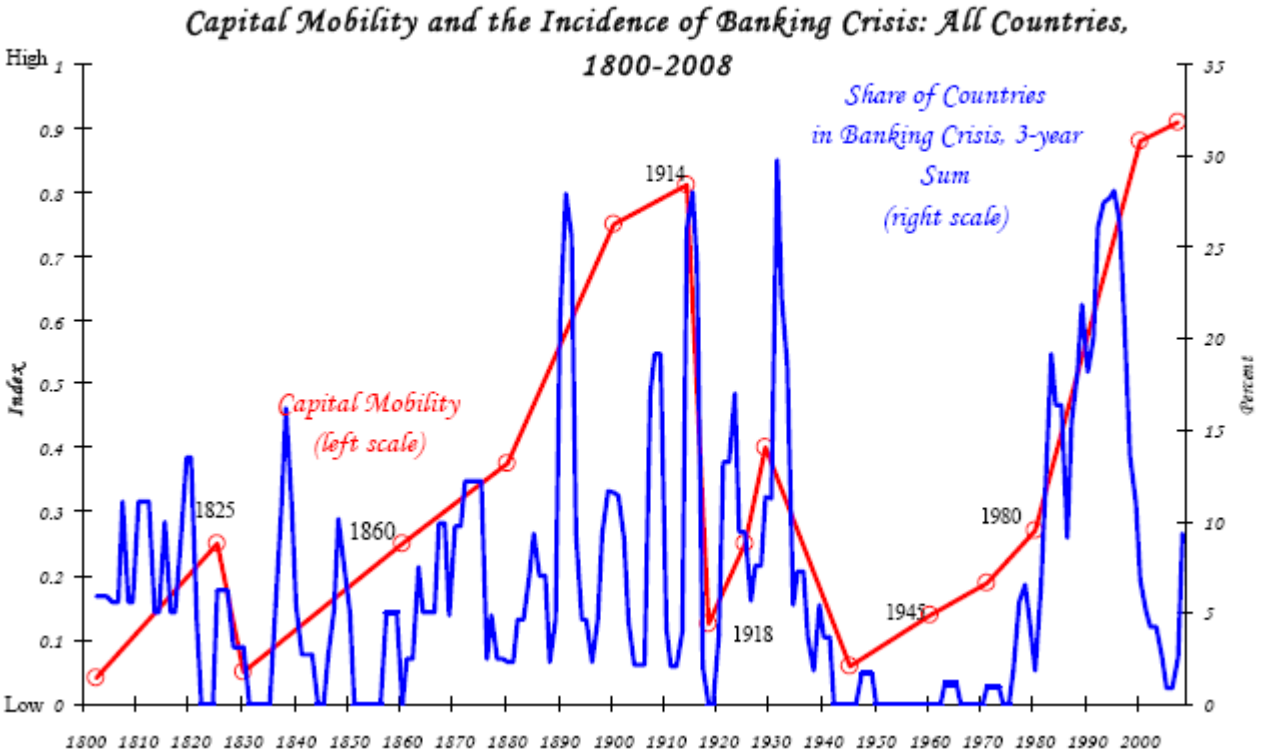
- Prasad et al. (2003) surveyed that the results are inconclusive. Of the 14 recent papers they examine, three find a positive effect of financial integration on growth, four find no effect, and seven find mixed results.

- ➔ inconclusive results

2. International Capital Flows and Financial Crisis

- The frequent currency crises and banking crises since the late 1980s lead one to the belief that capital account liberalization raises the risk of financial crisis.
- Many cases for financial crisis following international capital opening
- The relaxation of capital control in Europe accompanied the European Crises 1992.
- Mexico (1994) was attacked by volatile international capital flows, following the liberalized capital markets
- Measures for capital account liberalization of East Asian countries in the early 1990s exposed those countries to speculative attacks and finally serious financial and economic crises in 1997
- However, the countries with more stringent capital controls—such as China and India—kept away from 1997 East Asian crisis

Reinhart and Rogoff(2008) shows that international capital flows tend to precede banking crisis in rich and poor countries alike



Reinhart and Rogoff(2008)

3. capital account management (capital controls)

- Objective of capital controls

1) To reduce the volume of capital flows
2)To alter the composition of capital flows(toward longer maturity flows)
3) To reduce real exchange rate pressure
4) To allow for a more independent monetary policy
5) Finally to reduce the probability of crisis

Costs of capital controls: focused to microeconomic side

- 1) To reduce the supply of capital, raise the cost of financing, and increase financial constraints – especially for smaller firms.
- 2) To reduce market discipline in financial markets and the government, leading to a more inefficient allocation of capital and resources.
- 3) To significantly distort decision making by firms and individuals, as they attempt to minimize the costs of the controls or even evade them outright.
- 4) To be difficult and costly to enforce, even in countries with sound institutions and low levels of corruption.
-

Empirical results of capital controls

-Epstein, Grabel and Jomo (2003), Edwards and Rigobon(2005):

1)Capital management techniques (capital control) can enhance overall financial and currency stability, buttress the autonomy of macro and micro-economic policy, and bias investment toward the long-term.

2)The macroeconomic benefits of capital management techniques probably outweigh their microeconomic costs.

3) The nimble, dynamic application of capital management techniques is an important component of policy success.

4) The "vulnerability" of the nominal exchange rate to external factors decreases with a tightening of the capital controls.

5) A tightening of capital controls makes the unconditional volatility of the exchange rate less sensitive to external shocks

Generally accepted advice for adopting capital controls

1) capital controls have to aim at managing mainly short term capital flows, not long term capital like green field FDI
2) The cost of capital inflows controls to be evaluated to be less than the costs of capital outflow control.
3) price-based capital control is preferable to quantity based one.

The candidates for capital control measures for Korea

- For Tobin tax
- - The Tobin tax impose a small tax on all foreign exchange transactions, thereby discouraging the buying and selling of foreign exchange for very short term purpose with speculative motives.
- - while the Tobin tax does not give burden to long term capital movement which is accepted to be favorable to economy

- Reserve requirement
- This policy requires foreign investor to place some of the fund in a bank for a period of time. This policy works like a tax.
- As the fund can be used for the investment after a specified period of time, the long run capitals are not hindered to flow.

- The above mentioned capital controls measures are evaluated to deter volatile short term capital with little costs

4. Reforms in Exchange rate systems

- Now, it is a time for Korea to re-evaluated the freely floating exchange rate.

- Korea has adopt the freely floating exchange rate system in the middle of the financial crisis 1997 to prevent the speculative attack against Korea won.

- To note that IMF pushed Korea to adopt a freely floating exchange rate system in the form of the condition for bailout fund.

- At that time, Korea was not in a position of investigating which exchange rate system is appropriate for the Korean Economy, because of first priority over escaping national default at that time.

- Since then, Korea Won has experienced excessively volatile fluctuation, rather than stabilized

- The exchange rate of Korea Won against U.S dollars changed from 920s in August 2007 to around 1,590 in March 2009. The Korean Won depreciated by up to 60% with regard to U.S dollar after the start of U.S sub prime mortgage crises.

- Now it is high time for reexamine the exchange rate system in Korea by taking into considerations the changing international financial environment and the Korean Economy.

Ttrend of Korean won exchange rate against U.S dollar

What exchange rate is appropriate for Korea

- The characteristic of a typical small open economy pf Koran economy indicates that the exchange rate plays a crucial role in running the economy.

- -In general, a small open economy enjoys the benefits of floating exchange rate system in the sense that a floating system has advantage in insulating the economy from foreign shocks.
- -But, the experience during 2008 and 2009 of volatile movement of the rates indicates that that was not the case.

- To propose flexible BBC (basket, band, crawl) exchange rate system, the intermediate exchange rate system between the fixed and floating exchange rate system for Korean economy.

- The flexible BBC means that exchange rate is permitted to fluctuate within band, while government intervenes in exchange market if it reaches to certain level.
- Running BBC exchange rate requires an amount of foreign exchange reserves large enough (but not an extremely large) to generate confidences in the exchange systems to market, thereby preventing speculative attack.

- the Bank of Korea holds the international foreign reserves amounting to above U.S dollar 250 billion.
- it is high time to consider seriously adopting the BBC. Also BBC might be feasible with the controls over the above mentioned short term capital flows.
-

East Asian Regional Currency Cooperation

- Stability of exchange rate could be attained with less cost and easily if the systems and policies among related countries are coordinated.
- ASEAN+3 meeting started to discuss the currency and financial cooperation among East Asian.
- Taking into consideration the fact that most member countries want to stabilize the exchange rate, the cooperation for enhancing stability of exchange rate would be accelerated (Chung and Eichengreen 2009).
- In this regard, often discussed is the so-called "targeted floating exchange rate system" for East Asia.
- - the member countries keep the exchange rate within specified range and permit exchange rate to float with respect to the currencies like U.S. dollar and Euro.
- - If the exchange rates are fluctuated up to a specified range, the member countries can intervene in exchange markets.
- In order to adopt the above the proposed targeted exchange rate system, Asian currency unit is suggested as benchmark currency.
- Asian currency unit could be established by baskets of member currencies reflecting trade share or other economic size.

Micro-sources of macro-instability

- Institutional changes in FX markets
  - Transition to the flexible foreign exchange system after 1997
    - Need to hedge currency risks
    - Our export-led growth system creating a great potential demand for hedging.
  - FX liberalization and Capital Market opening
    - At the beginning, liberalization policy was oriented to expedite the inbound portfolio investment by foreigner, pushing up the value of KRW
    - Recent switch of liberalization policy into the outbound foreign investment fueled to snowball the hedging demand.

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Micro-sources of macro-instability

- Behavioral changes in FX markets
  - Transactions for hedging, speculation, arbitrage were enormously activated
  - Simple dollar Demand for settlements was reduced in its composition

- Forward exchange including FX swap outpacing spot exchange markets
  - Spot exchange was dominant even until 2005 through 1990's

Interbank trading balances in Korean exchange market

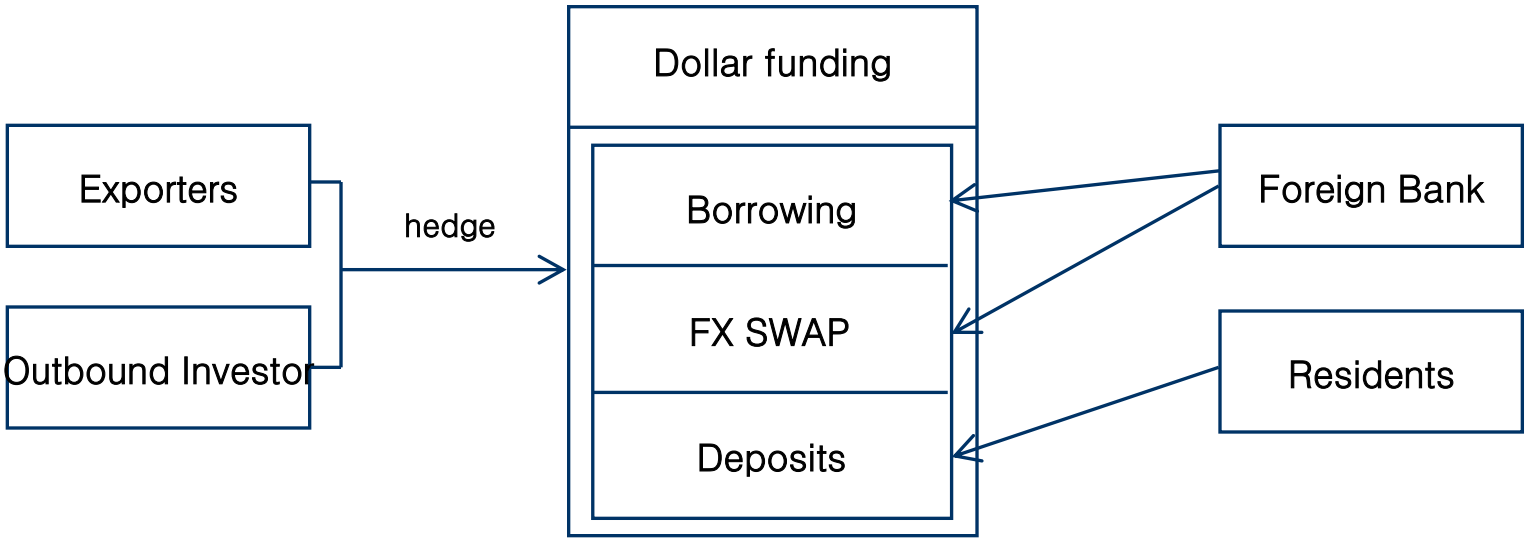
(daily average basis, hundred million USD)

	2005	2006	2007	2008
Spot	45.2	63.6	82.5	78.1
Forward	2.0	4.0	7.5	9.1
FX swap	26.3	27.1	67.0	92.3
Derivatives*	7.9	17.1	40.1	51.6
Total	81.5	111.8	197.1	231.1

Note : * includes Currency swap, options, etc. Source: BOK

Micro-sources of macro-instability

- Typical FX transactions structure after the 1997 currency crisis
  - Given external shocks, this FX structure become a proliferation mechanism to deteriorate the squeeze in currency liquidity <bank>



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Micro-level reforms : Agenda for liquidity crisis management

- Current financial crisis is a kind of bank's liquidity crisis
  - But so far all debates about bank regulation dominated by the design of the Basel II capital standard, not covering liquidity risks.
  - No globally accepted regulatory standard for liquidity.
- Current crisis showing the Advanced and the Emerging Market Economies(EMEs) have a different shape of liquidity crisis
  - The advanced : maturity mismatch -> liquidity crisis -> credit crisis
  - The EMEs : currency mismatch -> currency liquidity crisis -> Spikes in local currency rate

- South Korea as s next co-chair country of G-20 should have a leading role in raising and adopting the currency liquidity issue of the emerging countries

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Micro-level reforms : short-term measures

- Tightening currency liquidity management
  - Currency liquidity regulation needed to cover domestic branches of foreign banks
    - Short-term external debt balance of branches of foreign banks bigger than that of domestic banks
  - The end-of-period criterion for liquidity regulation needed to change into the period-average criterion
    - The end-of-period criterion easy to disturb FX market by causing a periodic excess demand every end-month.
  - Core funding ratio needed to introduce
    - For example, The ratio of foreign liquid asset over total foreign asset, foreign loan to foregn deposit ratio would be considered

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Bank's External Balance in Korea: domestic vs. Foreign
(unit: billionUSD, multiple; Source : The Bank of Korea)

		2001	2003	2005	2007	2008
Domestic bank	Net Claim	-4	-10	-16	-45	-28
	Debt/claim	1.1	1.3	1.4	1.7	1.4
Domestic Branch of Foreign bank	Net Claim	-6	-14	-15	-71	-61
	Debt/claim	1.8	2.7	2.4	6.6	6.3

Micro-level reforms : short-term measures

- From over-hedging to optimal hedging
  - No norm how much is the optimal hedge ratio in academics
  - During 2006 to 2007, average hedge ratio of all shipbuilders amounted to 54% while that of overseas trust fund by domestic investor was as high as 80%.
    - Speculative over-hedge contracts by exporters occasionally observed
  - In principle, regulatory authority having little room to intervene this problem through direct regulation
  - But indirect regulations are needed
    - More stricter disclosure requirement including hedging cost and benefit
    - Limits on bank's currency derivatives position, especially by counterparty

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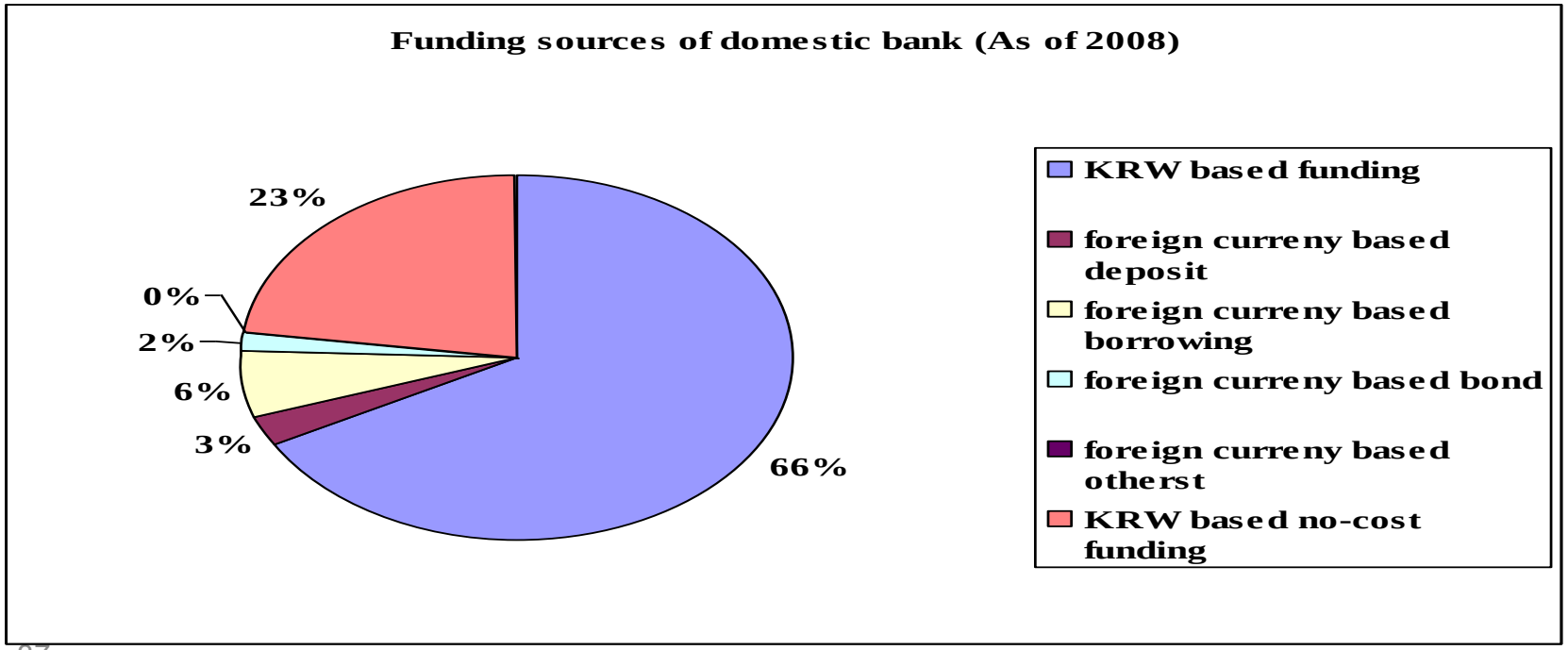
Micro-level reforms : longer-term measures

- Supply-side : Enlarging dollar deposits of domestic banks
  - Proactive overseas business required to the core dollar based liabilities
    - Foreign currency based deposits no more than three percents
    - approximately 200 % of Foreign currency based loan-to- deposits heightening vulnerability to external shocks
  - Needed to acquire foreign banks such as U.S banks or European banks, rather than an organic growth



Source: Financial Supervisory Service

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Micro-level reforms : short-term measures

- Demand-side : Internationalization of KRW
  - Globally competitive domestic corporations such as Samsung Electronics, Hyundai Shipbuilder etc helping internationalize the KRW as a settlement currency

Composition of settlement currency for Korean exports (unit: %)

	USD	EURO	YEN	KRW	YUAN	OTHERS
2002	85.0	5.5	5.4	0.4	0.002	3.7
2003	83.6	6.5	5.6	0.4	0.002	3.9
2004	82.3	7.3	5.6	0.4	0.002	4.3
2005	79.1	8.4	5.6	0.5	0.003	6.4
2006	79.6	8.8	5.0	0.6	0.002	6.0
2007	77.2	9.6	4.8	0.7	0.003	7.7
2008	81.6	7.6	4.7	0.8	0.005	5.2

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Summary and Remarks

This paper

A.To takes a structuralist macroeconomics perspective to interpret the two recent financial crises in Korea,

B.To suggest a new policy framework and reform measures..

Alternative = "an intermediate system I"

with partial capital control,

a flexible (basket, band, crawl) exchange rate system

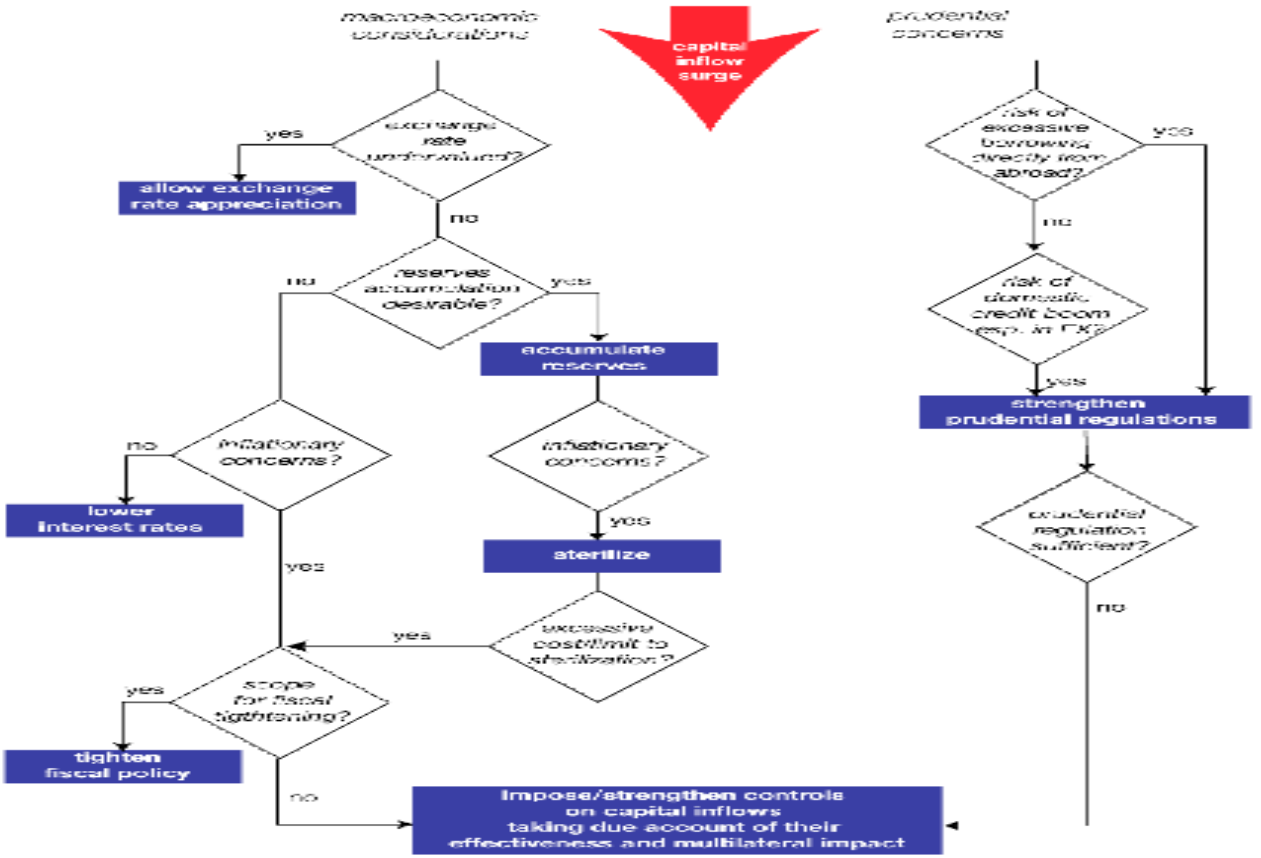
, and relative independence in monetary policy making.

An intermediate system II = I without a formal band

- Two macro measures: Tobin tax & reserve requirement.
- Micro measures: Tightening currency liquidity management; Internationalization of KRW

Recent IMP Position Paper: OK sign on Capital Control: Ostry et al (2010)

Figure 1. Coping with Surges in Capital Inflows: Macroeconomic and Prudential Considerations 1/



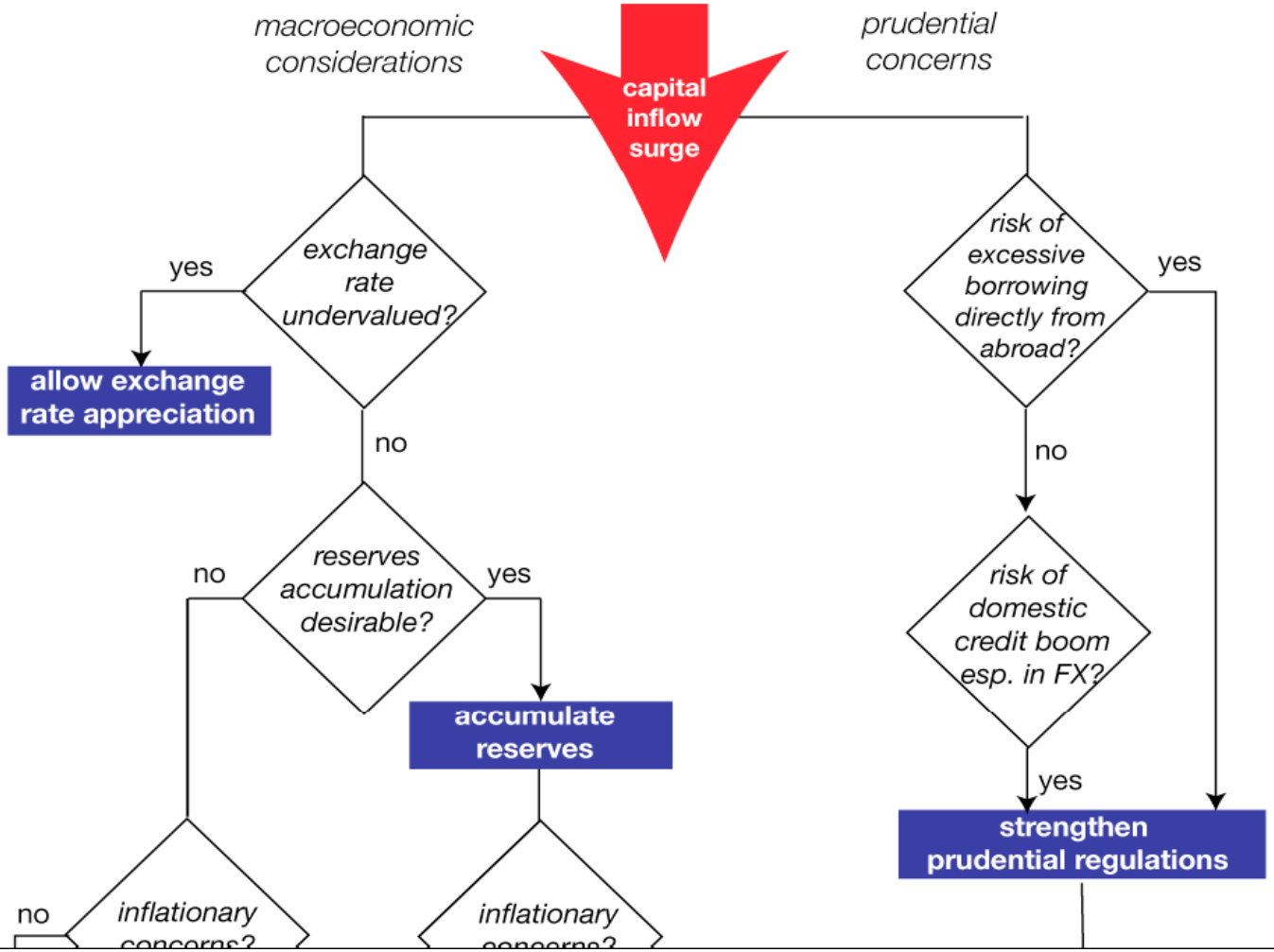
1/ From the perspective of an individual country, without taking account of multilateral considerations; on the effectiveness of controls, see Section III.

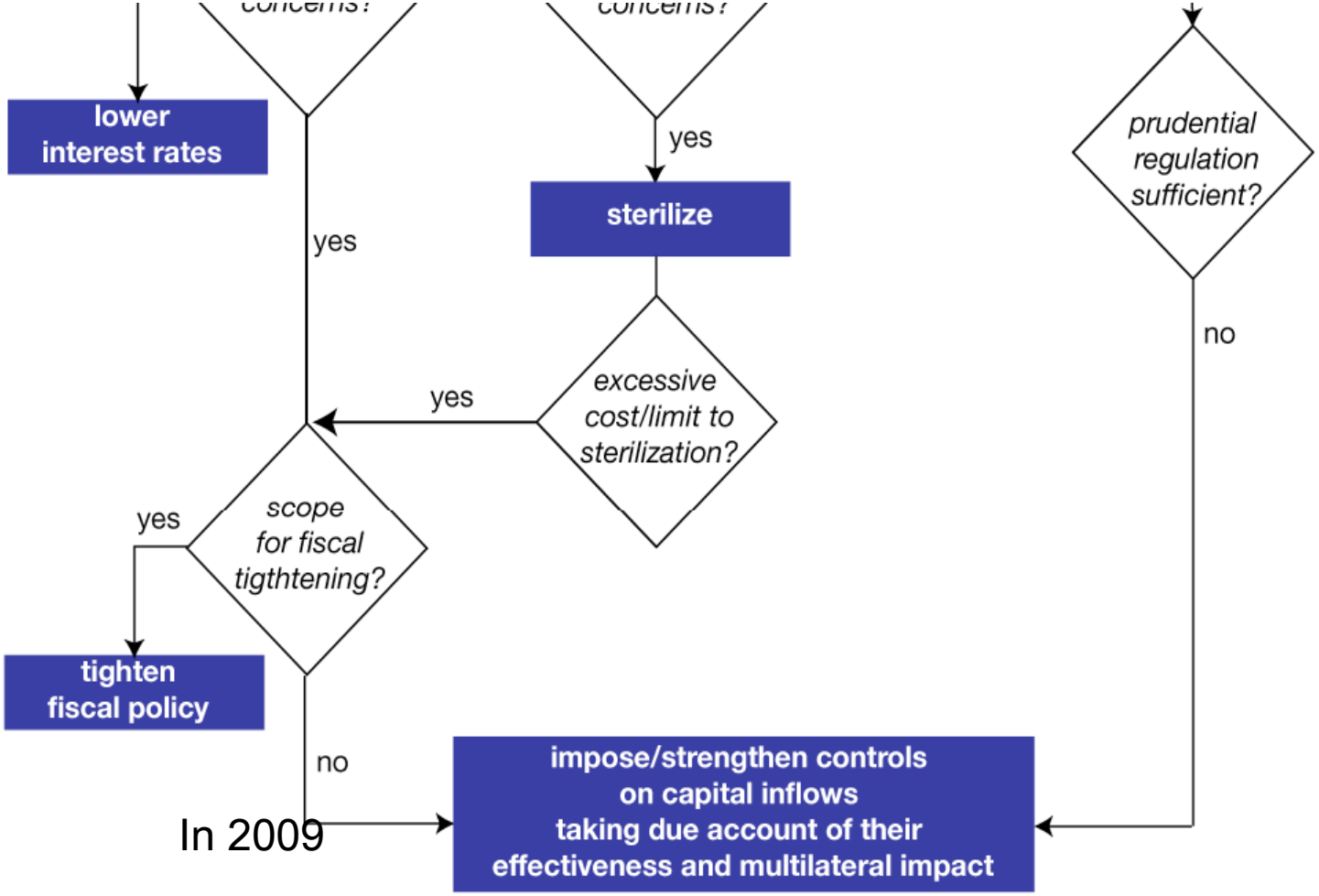
New IMF Position:

if the exchange rate is not undervalued,
and if the flows are likely to be transitory,
then use of capital controls
—in addition to both prudential and macroeconomic policy—
is justified as part of the policy toolkit to manage inflows.

This IMP paper also argues”
such controls can retain potency
even if investors devise strategies to bypass them,
provided such strategies are more costly than the expected return from the transaction:
; the cost of circumvention strategies acts as “sand in the wheels.”

Figure 1. Coping with Surges in Capital Inflows: Macroeconomic and Prudential Considerations 1/





In 2009

1/ From the perspective of an individual country, without taking account of multilateral considerations; on the effectiveness of controls, see Section III.

In sum, like the trilemma, it is impossible to avoid simultaneously both of the two spread in EMC.
⇒You need additional policy tool, and that is capital control.

-- Closing the interest spread under full capital mobility was in conflict with domestic policy priority on cracking down on real estate bubbles.
-- Closing the exchange rate spread is not easy under full capital mobility as some ranges of exchange rates are hardly acceptable in terms of its impacts on real economy and trades.
-- While a large amount of foreign reserves help definitely, it is very costly (earning too low rate of return) and, furthermore, tend to increase domestic money supply and inflationary pressure leading to other bubbles.

-- The Brazilian experience indicates that Tobin tax can be used as if as a short term macroeconomic policy tools by varying the rates of fees.