

Korea's Foreign Exchange Reserves Management and Challenges

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I . Recent Developments in FX Reserves

II . Benefits and Costs of Holding Reserves

III . Optimum Level of Reserves

IV . Challenges Ahead

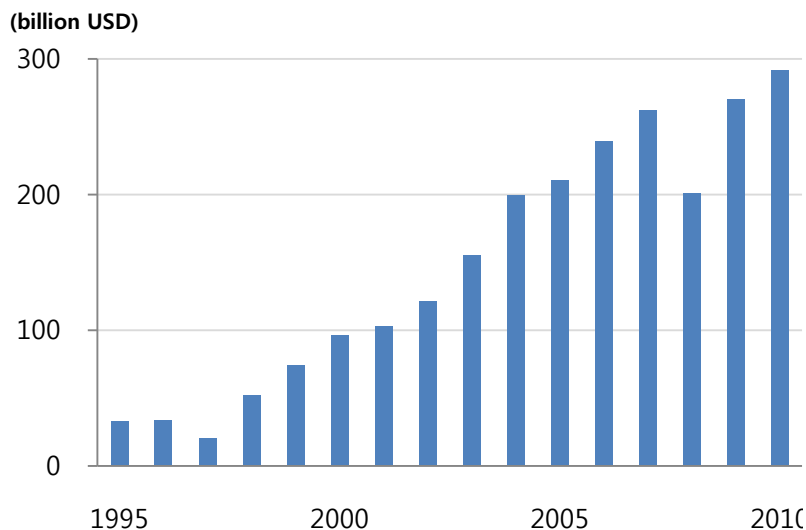
Growing role of FX reserves as a crisis buffer

- ❖ Foreign exchange reserves: external assets readily available to and controlled by monetary authorities
- ❖ Reasons for holding international reserves:
 - To finance foreign currency liabilities and debt obligations
 - To stabilize the exchange rate or FX market
 - To fight emergencies or crisis
 - To help maintain country credibility and lower borrowing costs
- ❖ After the Asian currency crises, the role of FX reserves as a buffer grew in importance, especially in emerging economies.

Korea's substantial FX reserves

- ❖ The 1997 currency crisis underscored the need for FX reserves as a safeguard against external shocks.
- ❖ The size of Korea's FX reserves steadily (except 2008) increased in the past decade, reaching USD 299 billion at end-March 2011.

Korea's FX Reserves



Ranking of FX Reserve holdings
(End of February 2011)

Ranking	Country	FX Reserves	Ranking	Country	FX Reserves
1	China ¹⁾	28,473	6	India ²⁾	3,008
2	Japan	10,915	7	Korea³⁾	2,986
3	Russia	4,938	8	Switzerland	2,750
4	Taiwan	3,907	9	Hong Kong	2,727
5	Brazil	3,075	10	Singapore	2,309

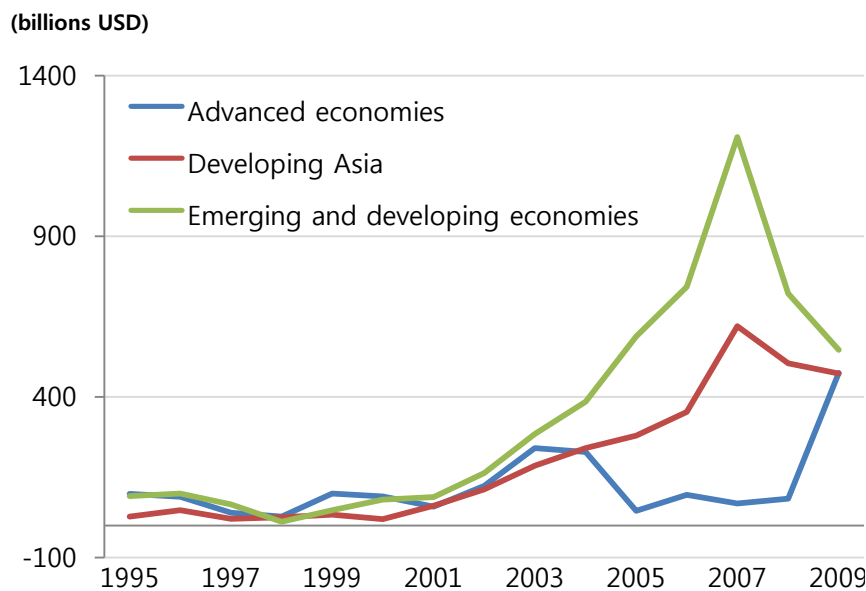
Note: 1) End of 2010, 2) Feb. 25, 2008, 3) End of March 2011

Source: BOK

Similar developments in other emerging economies (Asia)

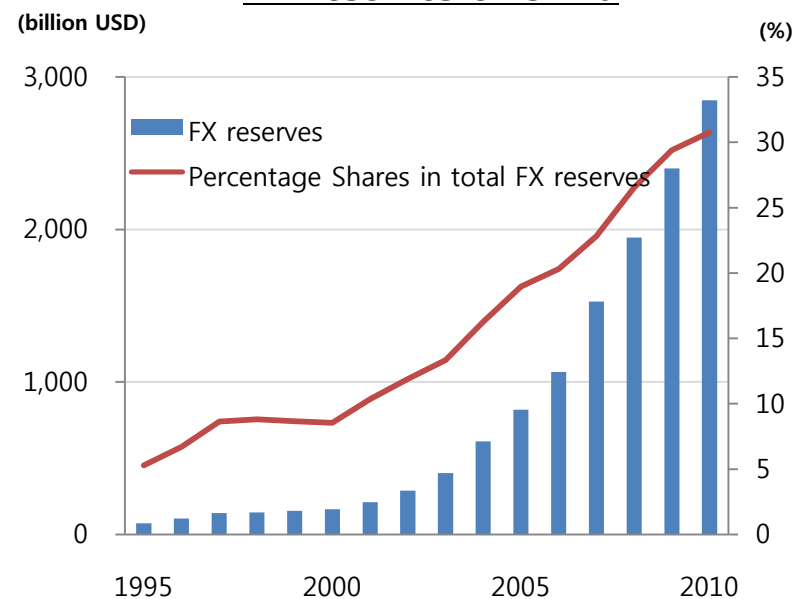
- ❖ China's share in global reserves holdings is forecasted to exceed 30% at end-2010, raising the issue of global imbalances.

Global FX Reserves



Source: IMF

FX Reserves of China

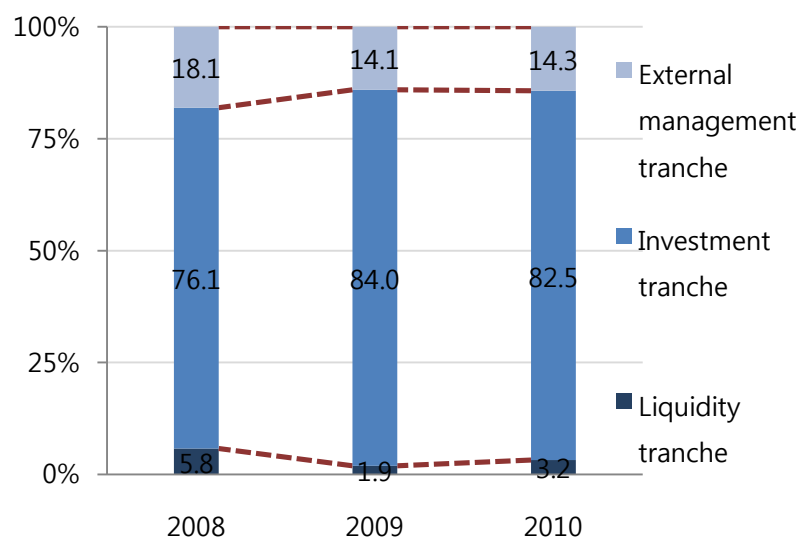


Source: IMF

The significant size of FX reserves calls for more sophisticated management approach.

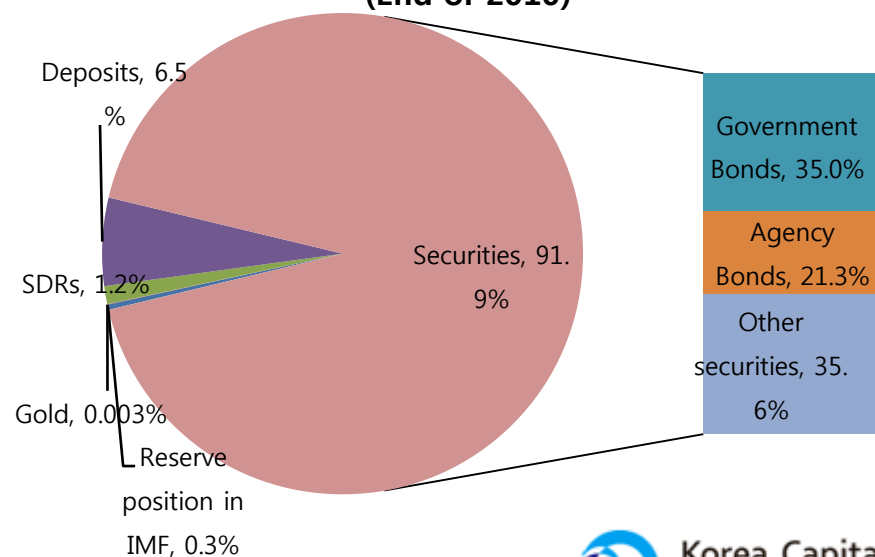
- ❖ An increasing need for enhanced profitability of FX reserves.
 - The investment and external management tranche of reserves increased, while most reserves are invested in safe and liquid assets.
- ❖ Debates on the optimum level of FX reserves continue.

Composition of Korea's reserve tranches



Source: BOK

Percentage Shares by commodity
(End of 2010)



Source: BOK

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Sufficient FX reserves reduce the possibility of crises

- ❖ FX reserves act as a buffer to external shocks and an insurance against crises.
- ❖ In the wake of the global financial turmoil, eastern European countries with relatively small FX reserves suffered from FX liquidity crisis.
 - As of August 2008, eight Eastern European countries took up 80% (USD 61 billion) of IMF's stand-by loans supplied.

Foreign Reserves of Major Countries

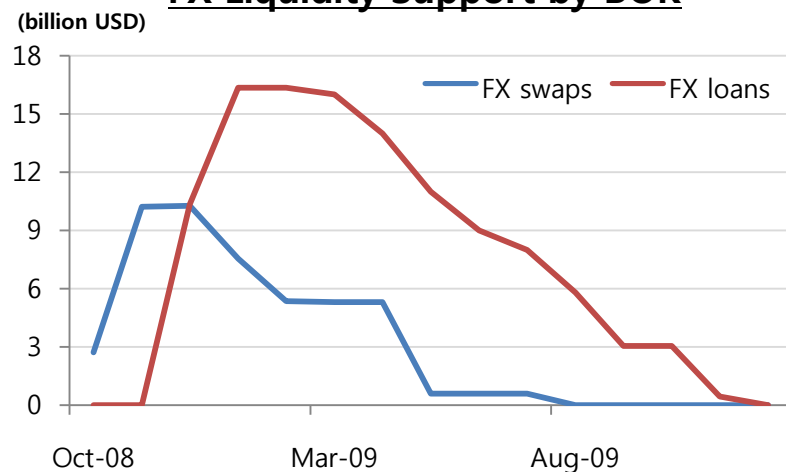
	Foreign reserves (billion USD)			Foreign reserves/ Average monthly Imports (fold)		Foreign reserves/ M2 (%)		Foreign reserves/ Short-term debt (fold)	
	2000(A)	2007(B)	B/A (fold)	2000	2007	2000	2007	2000	2007
China	166	1,528	9.20	9	19	10	28	8	14
Korea	96	262	2.73	7	9	29	43	2	2
Other Asia ¹⁾	325	852	2.62	6	8	27	32	2	2
South America	136	397	2.92	5	7	23	32	1	3
East Europe	66	223	3.38	5	4	39	34	2	1
Developed countries	344	380	1.10	1	1	3	2	0	0

Note: 1) Hong Kong, India, Indonesia, Malaysia, Philippines, Singapore, and Thailand
 Source: BIS Papers No. 40, "FX Reserve Management : trends and challenges", May 2008

Use of funds to stabilize the FX market and exchange rate

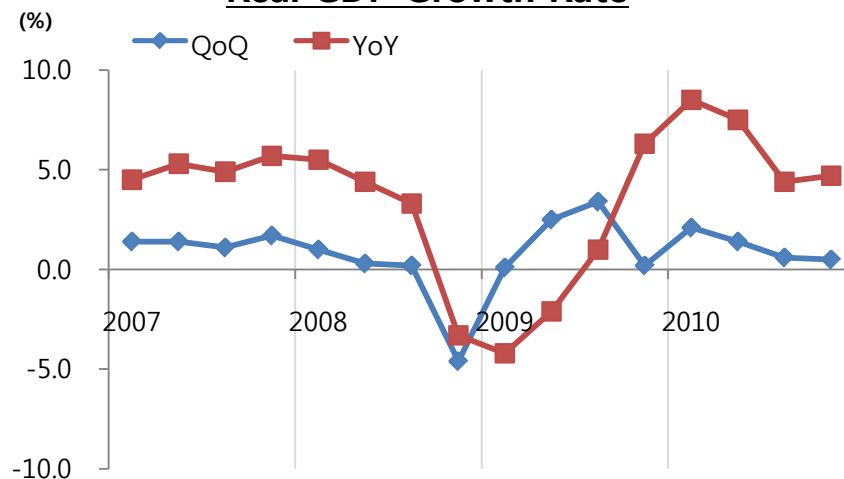
- ❖ During the global financial turmoil, the BOK and government swiftly provided FX liquidity to the market, helping to restore calm, maintain sovereign rating, and achieve rapid economic recovery.
 - FX liquidity was provided through FX swaps and loans by the BOK (USD 26.8 billion) and through loans and trade financing by the government (USD 20.0 billion).

FX Liquidity Support by BOK



Source: BOK

Real GDP Growth Rate

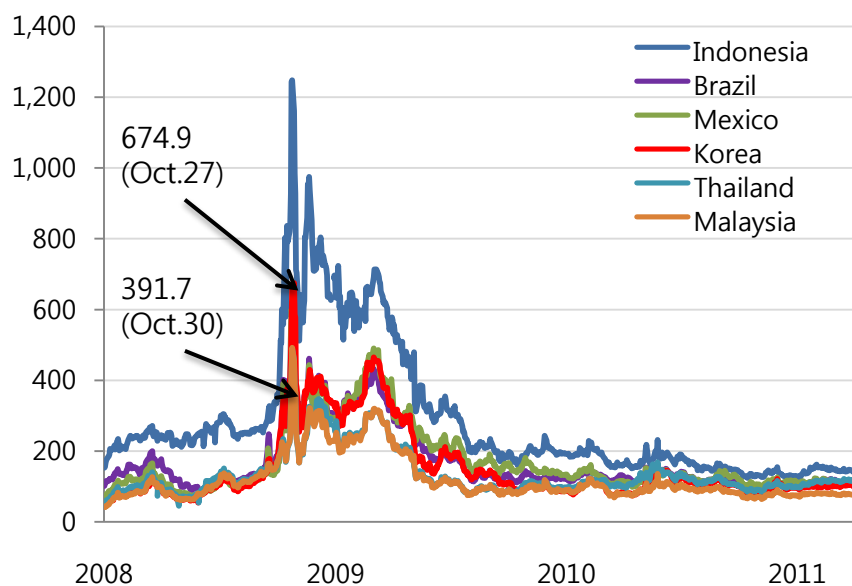


Source: BOK

But even substantial FX reserves failed to stabilize market sentiment, in part due to the fear of reserves depletion

- ❖ There was a growing concern for depleting reserves.
- ❖ The CDS spread and the volatility of won/dollar exchange rate soared relative to other emerging countries.
- ❖ Market sentiments were not reversed until the swap agreement with the U.S. Fed (USD 30 billion) at end-October 2008.

CDS Spread



Source: Bloomberg

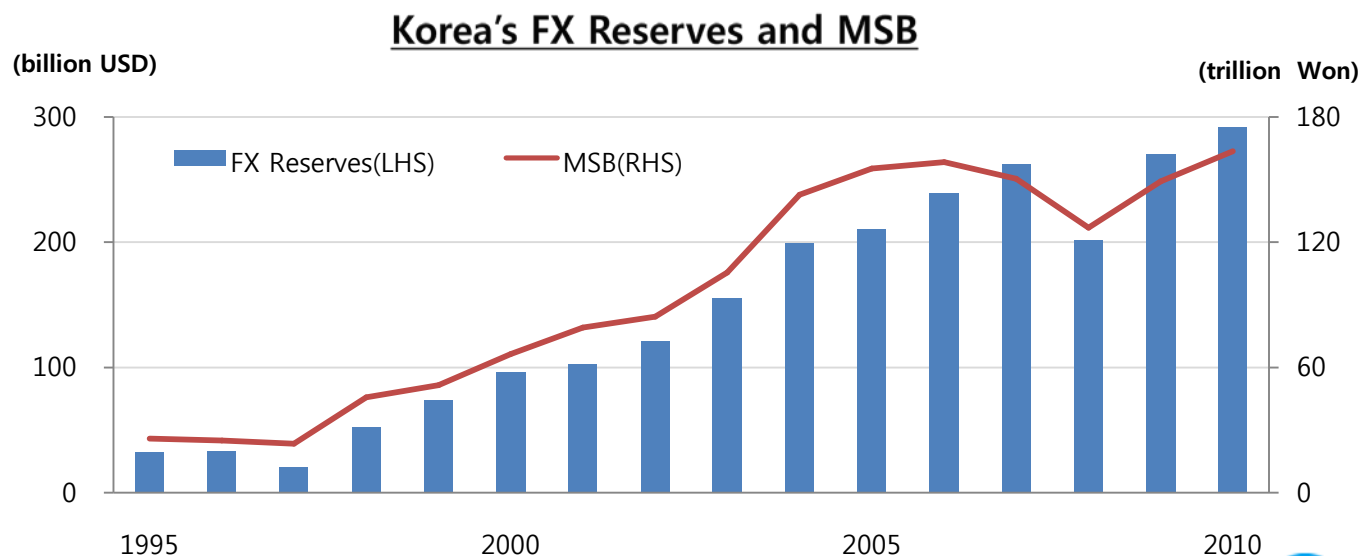
FX Volatility

	Jan 2007~ Sep. 12, 2008	Sep. 15, 2008 Mar 2009	Apr 2009 ~ Dec 2010
Korea	0.34	1.69	0.58
Indonesia	0.26	0.92	0.37
Brazil	0.64	1.84	0.72
Mexico	0.29	1.27	0.61
Thailand	0.20	0.27	0.15
Malaysia	0.24	0.36	0.37

Source: BOK

Cost of holding FX reserves (1)

- ❖ First, it restricts the effectiveness of monetary policy because of sterilization.
 - The outstanding of MSB (Monetary Stabilization Bond) rose with increases in FX reserves, making liquidity management more difficult.
 - During 2000-2010, the sterilization coefficient ($=\Delta\text{MSB} / \Delta\text{RES}$) is estimated at 0.67

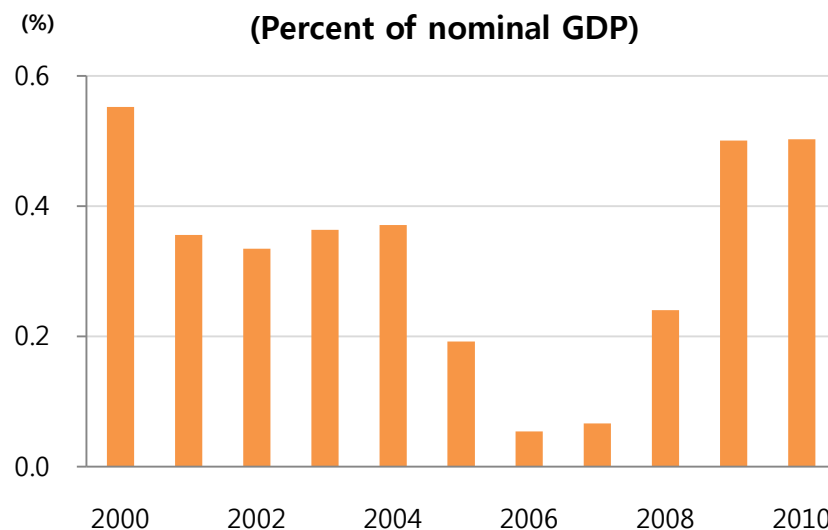
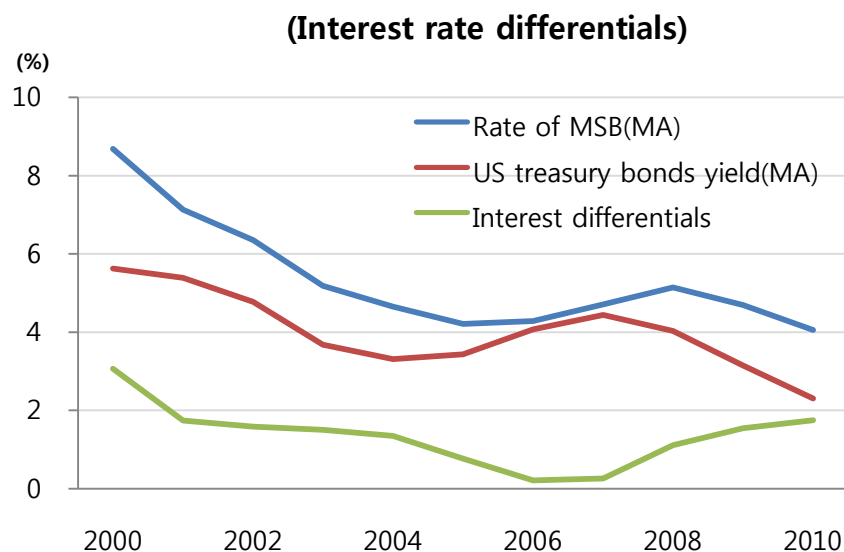


Source: BOK

Cost of holding FX reserves (2)

- ❖ Second, significant carrying cost is incurred as the cost of financing exceeds yield.
 - During 2000-2010, the carrying cost is estimated at 1.36% per annum and 0.32%* of nominal GDP on average.
 - * interest rate differentials * FX reserves / nominal GDP
- ❖ It could aggravate Central Bank's B/S, damaging its credibility

Carrying cost of holding FX Reserves



Cost of holding FX reserves (3)

- ❖ Third, it bears high opportunity cost of acquiring higher returns from fund allocation to private sector.
 - Korea's net external assets increased mostly through BOK and FESF, while those of private sector shrank with growing external debts
 - This may increase the vulnerability of private sector to external shocks and dependence on the authorities.

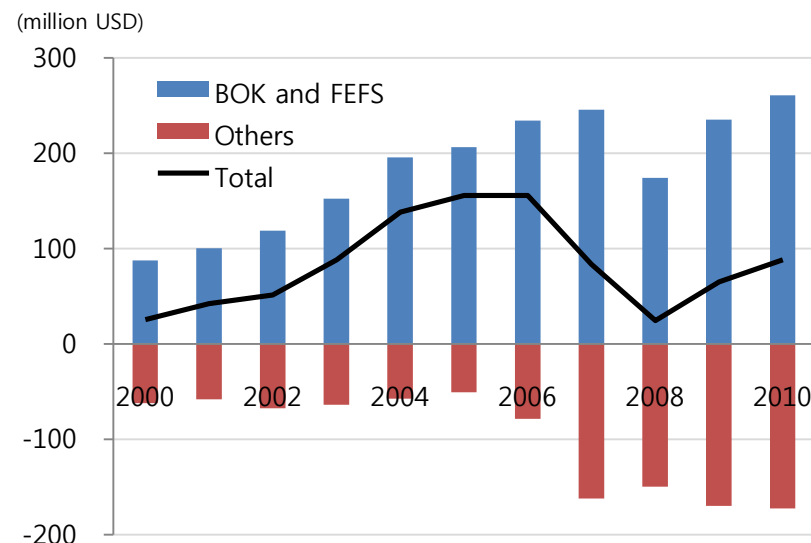
Korea's External assets and liabilities by institution
(End of 2010)

(billion USD)

	External assets(A)	External liabilities(B)	Net external assets(A-B)
General Government	10	44	-34
BOK and FEFS	296	36	261
Banks	84	174	-90
Non-banks and Others	58	107	-48
Total	448	350	88

Source: BOK

Net External Assets of Korea



Source: BOK

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No rule of thumb to determine the optimum level

❖ The IMF(2000) suggests:

- 3 months of imports cover (including service payments)
- Money-based measure of reserve adequacy
- Current external debt within one year maturity (Guidotti-Greenspan rule)

❖ More conservative approach by BIS (2004):

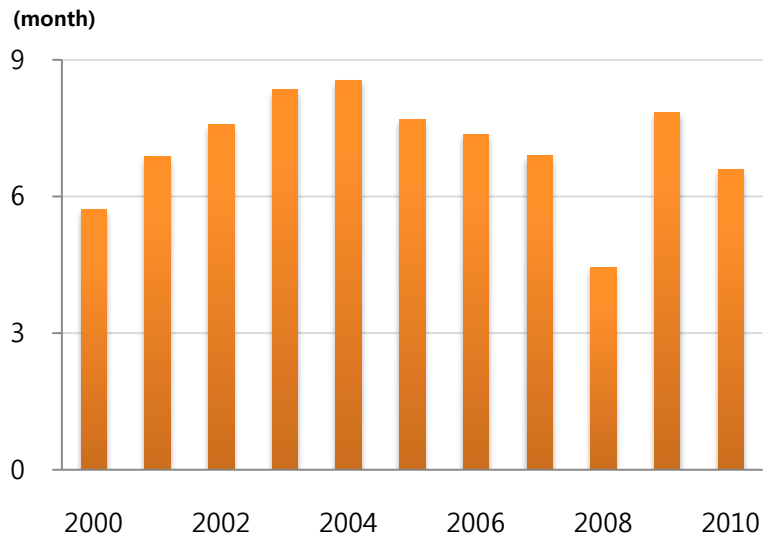
- 3-6 month import cover + current external debt + foreign equity investment + foreign deposits + offshore financing

❖ Academic literature also propose various approaches to equate the marginal cost and benefit of reserve holdings, despite the practical difficulty of calculations.

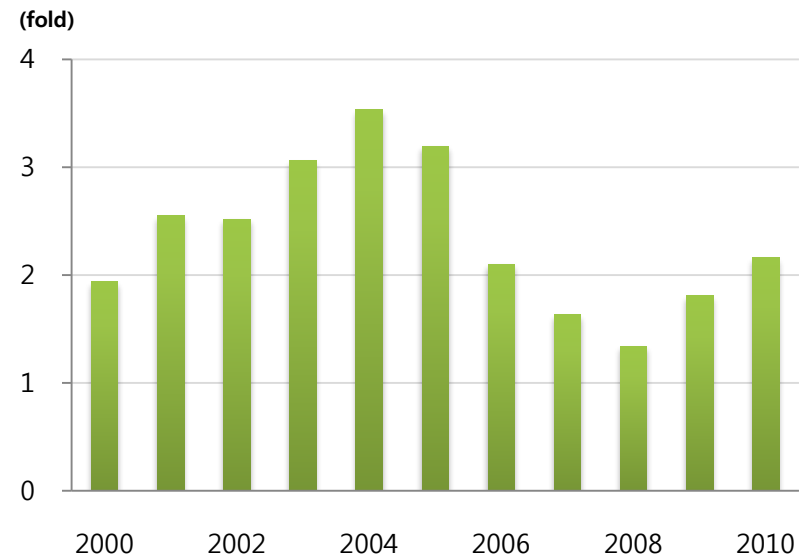
Korea's current FX reserves appear sufficient (1)

- ❖ The import cover was 6.6 months in 2010.
- ❖ The ratio of reserves to short-term debt was 2.2, suggesting room to deal with a "sudden stop."

Import cover of FX reserves



Reserves to short-term debt ratio

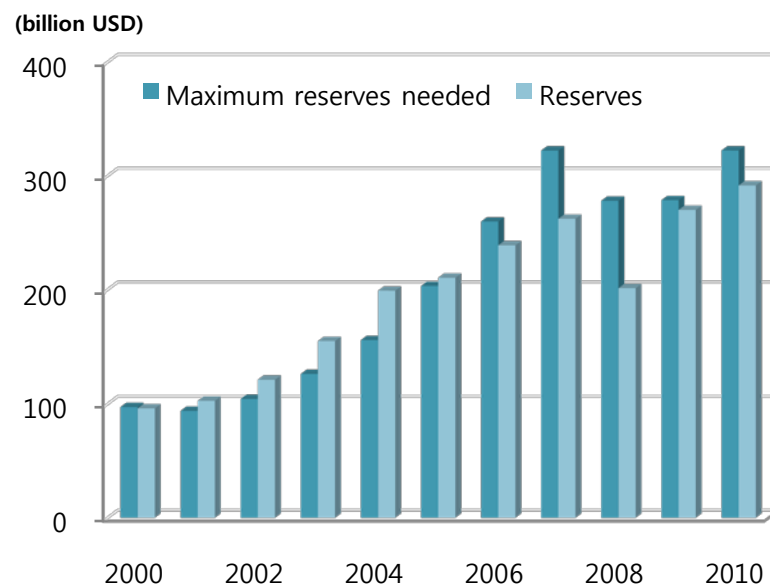


Korea's current FX reserves appear sufficient (2)

- ❖ Even by conservative measures, the level of reserves to meet both current payments and maximum capital outflows simultaneously was estimated to be USD 322 billion at end-2010.

Maximum level of reserves needed

	(million USD)			
	2007	2008	2009	2010
3 Month import cover	1,140.5	1,357.7	1,032.0	1,328.6
Short-term external debt (roll-over ratio 30%)	1,121.7	1,049.3	1,044.4	945.0
Foreign equity investment (30% sell off)	960.2	373.9	709.3	949.1
Maximum reserves needed (A)	3,222.4	2,780.8	2,785.6	3,222.7
Reserves (B)	2,622.2	2,012.2	2,699.9	2,915.7
B/A (%)	81.4	72.4	96.9	90.5



Optimum level of reserves relies on other structural factors as well.

- ❖ Factors limiting the need for the accumulation of FX reserves:
 - Flexibility of the exchange rate regime
 - Proper exchange rate policy to discourage high FX exposure
 - Degree of currency internationalization
 - Capital liberalization or access to international markets
 - Sound financial sector and banking supervision
 - Strong economic fundamentals

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In summary, FX reserves contribute to crisis prevention, but they are not a panacea.

❖ Things to keep in mind:

- Holding seemingly sufficient FX reserves does not always guarantee crisis prevention or market turmoil.
- Building up FX reserves in an artificial way is very costly from a monetary policy standpoint and restricts the efficient fund allocation to private sector.
- Current level of Korea's FX reserves seems fairly sufficient to deal with unexpected adverse shocks.

Going forward, resilience has to be enhanced through additional means, reducing over-reliance on FX reserves (1)

❖ To that end, it is imperative to :

- Enhance the efficiency of fund allocation towards increasing the resilience of private sector, while limiting the role of central bank as a lender of last resort.
- Increase the flexibility of the exchange rate, limiting intervention only for smoothing operation and in a symmetric way.
- Develop the FX market in quantity and quality to absorb external shocks.

Going forward, resilience has to be enhanced through additional means, reducing over-reliance on FX reserves (2)

- Enhance private-sector access to foreign capital together with effective risk management
- Maintain strong economic fundamentals and financial sector soundness with banking supervision
- Strengthen international cooperation including global and regional safety nets, reducing over-reliance on FX reserves.

Thank You