
**G20 Conference on
Financial Systemic Risk
(September 27-28, 2012, Istanbul, Turkey)**

Financial Systemic Risk Management Korea's Experiences

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Bank of Korea**

I. Systemic Risks of Korea

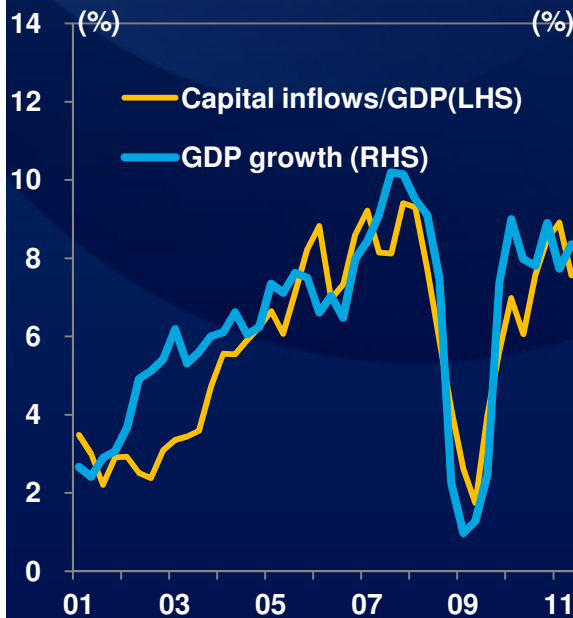
Key Characteristics

- ✓ Time-varying risks (**financial pro-cyclicality**) proven more important than cross-sectional risks
- ✓ Triggering shocks are largely of **external origin** (e.g., global financial stress, capital flow volatility)
- ✓ Risks are in the **private sector** and not in the public sector (with strong fiscal soundness and credible central bank)
- ✓ Domestic risks are building up (**household debt**)

Procyclical and Volatile Capital Flows (1/2)

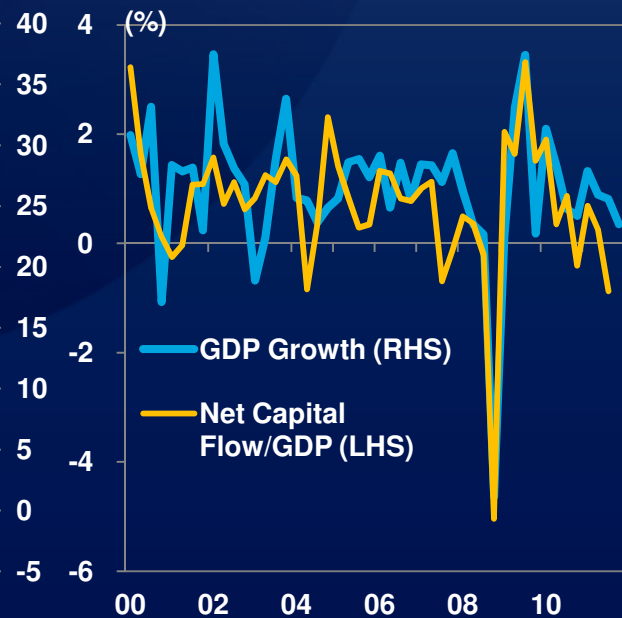
- ✓ *Capital volatility a dominant systemic risk factor in EMEs, and housing prices and credit volatility in AEs (IMF, Global Financial Stability Report, April 2011)*

Capital Inflows to Asia
& GDP Growth

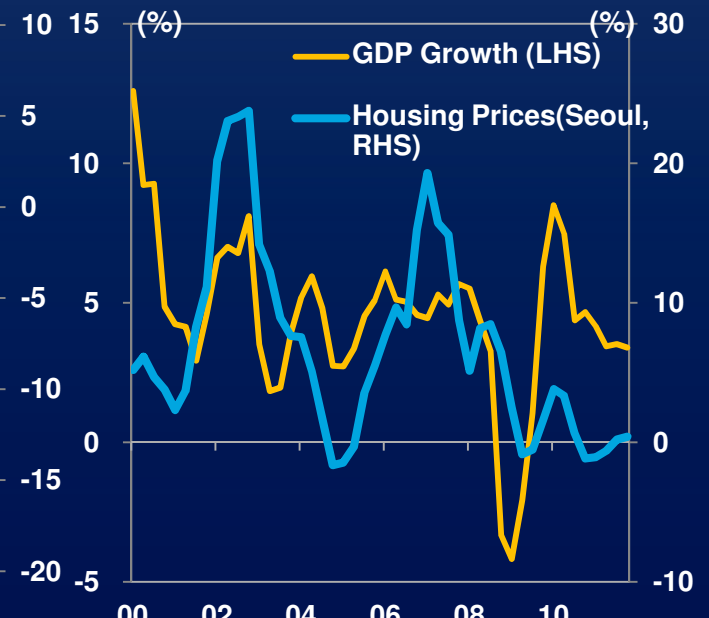


Source: BOK staff Calculation

Capital Inflows to Korea
& GDP Growth



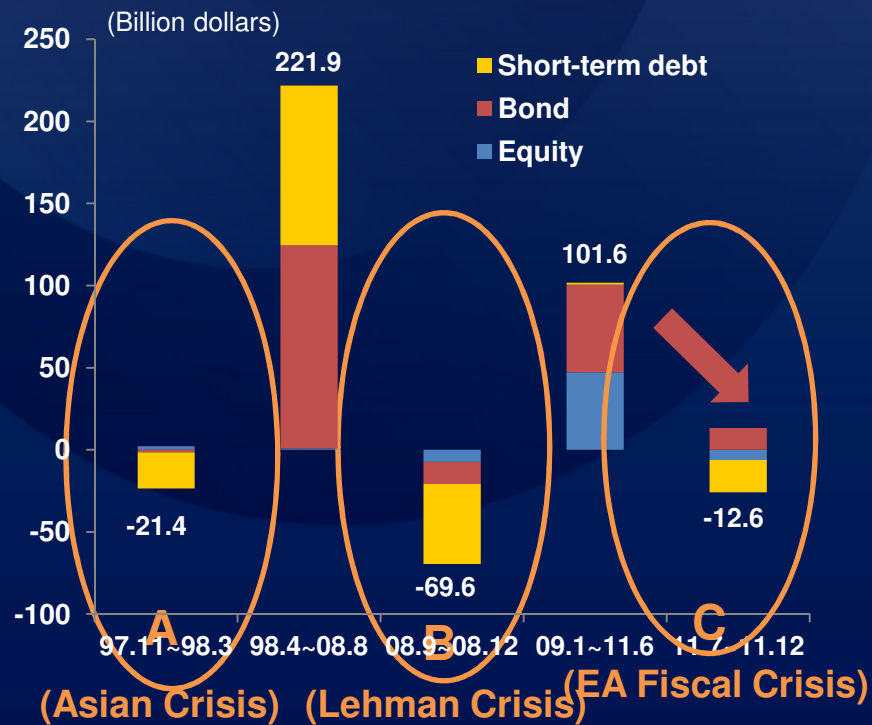
Housing Prices in Seoul
& GDP Growth



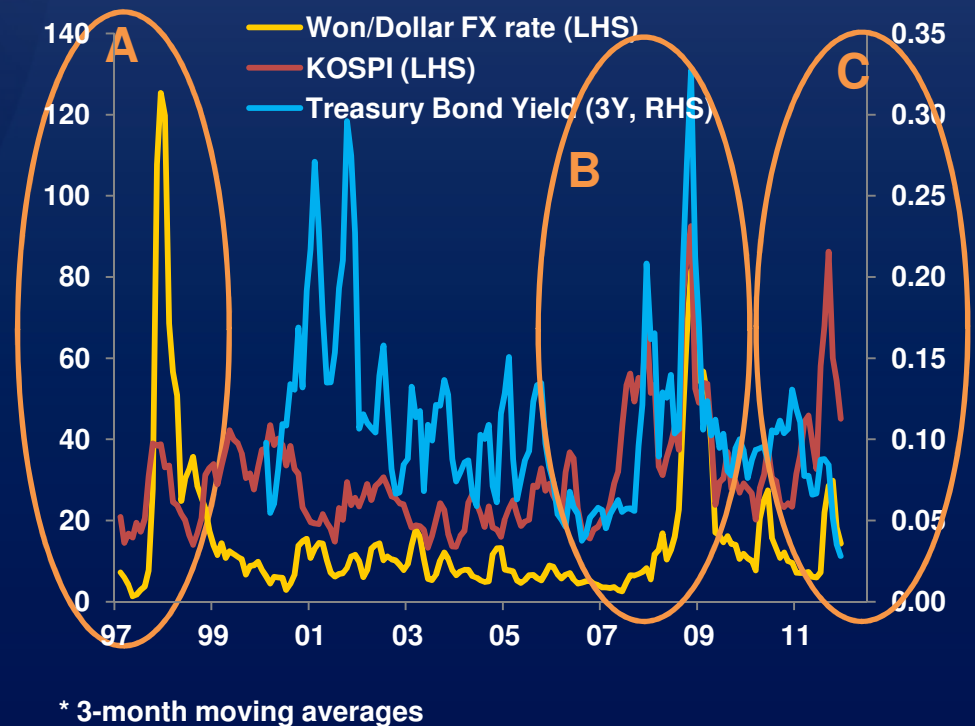
Source: BOK, Kookmin Bank

Procyclical and Volatile Capital Flows (2/2)

Capital Flows



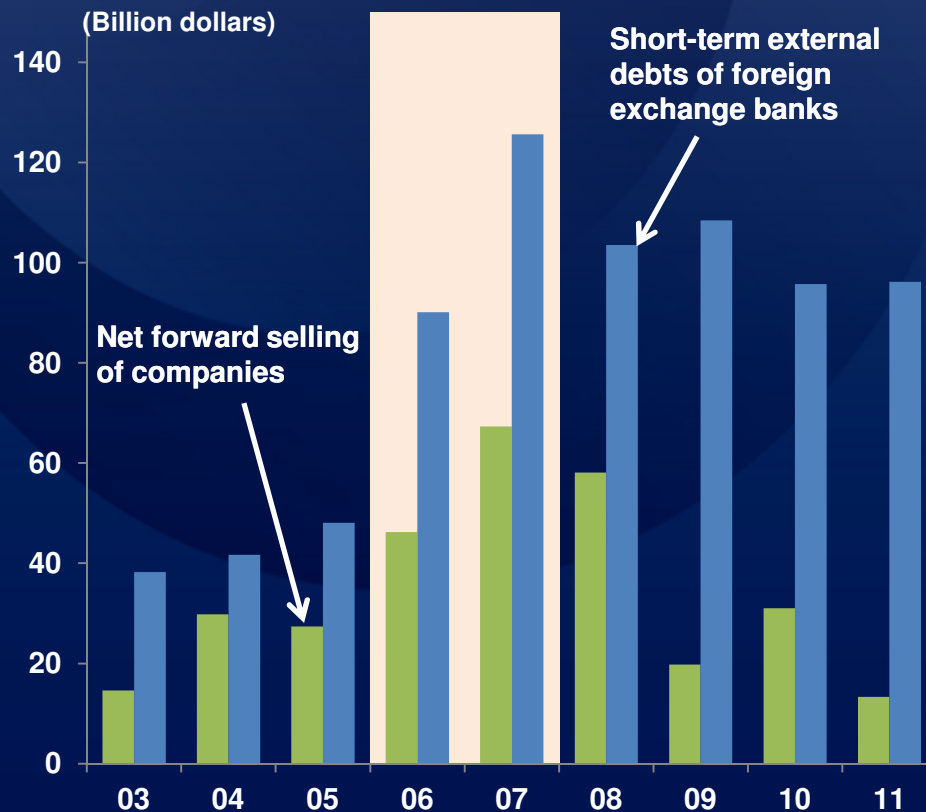
Financial Market Volatilities (std. dev*)



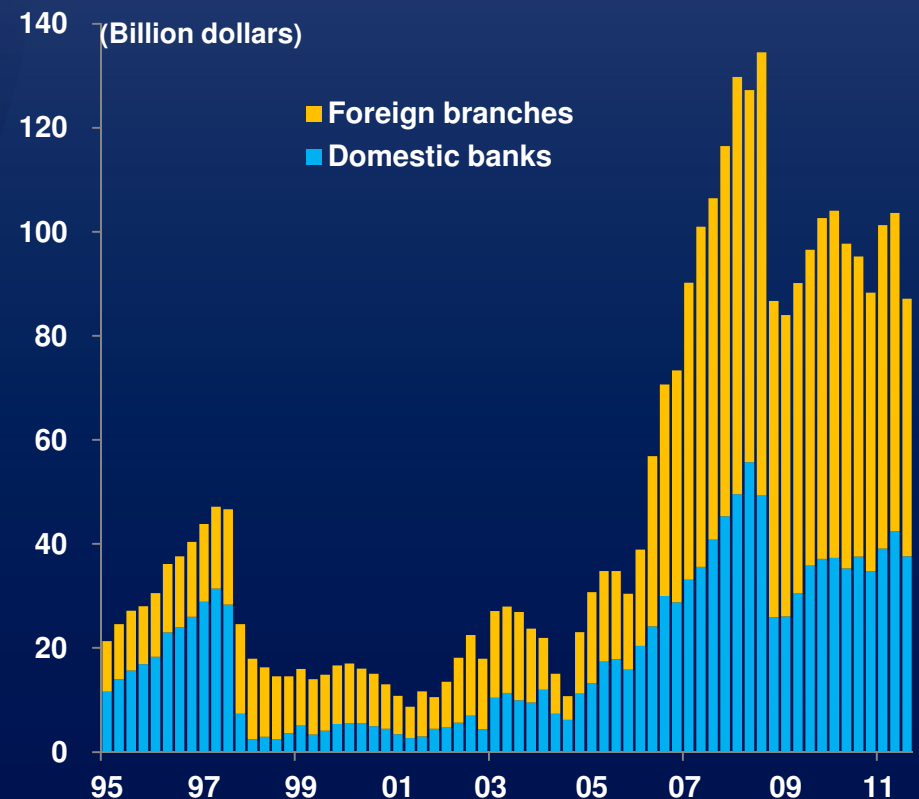
Source: BOK staff calculation

External Vulnerabilities Prior to GFC

Over-hedging and ST Debt



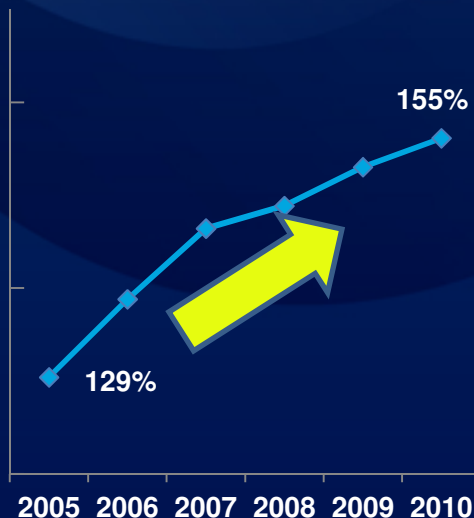
Net FX liabilities of Banks



Build-up of Household Debt (1/4)

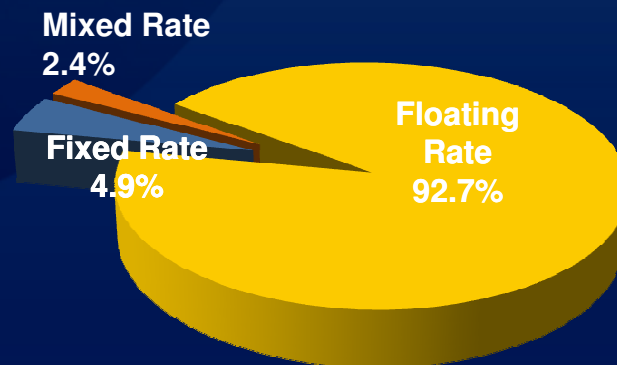
- ✓ Household leverage at historical peak
- ✓ Variable interest rate mortgages (93%)
- ✓ Interest only paid, No Principal (78%)

Household debt-to-disposable income



Source : Bank of Korea

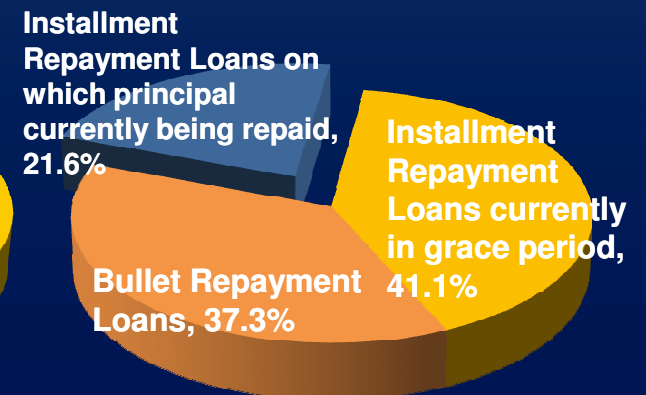
Mortgage Loans, by Interest Rate Type¹⁾



Source : Bank of Korea

Note: 1) As of end-June 2011

Mortgage Loans, by Repayment Type

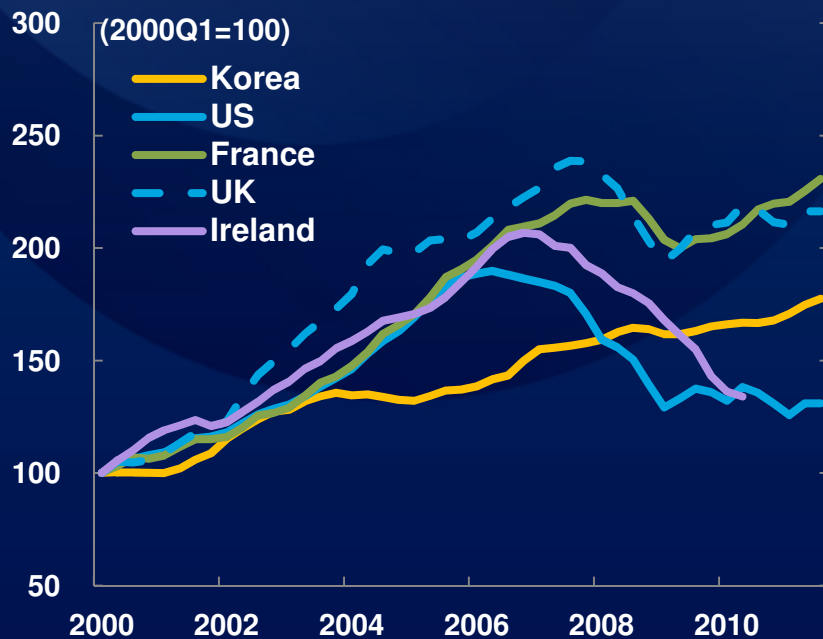


Source: Seoul metropolitan area home mortgage loan data of 4 major banks

Build-up of Household Debt (2/4)

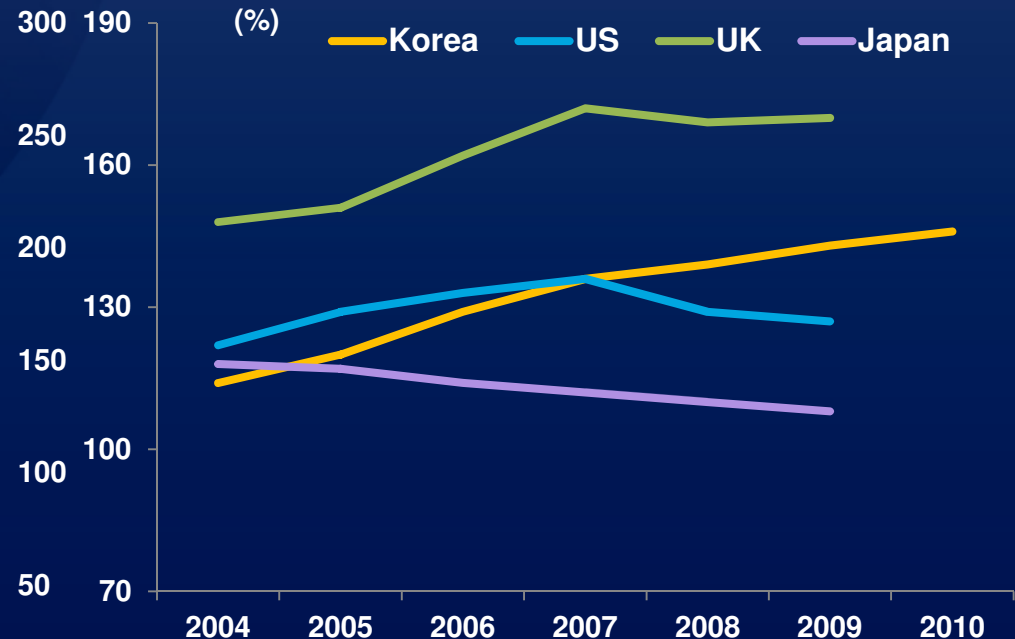
- ✓ Increased financial access by households since AC
- ✓ Housing boom (albeit milder than observed in AEs)
- ✓ Steady decline in interest rate (and inflation)

House Price : Selected Countries



Source : Bank of Korea

Household Debt to Disposable Income



Source : Bank of Korea

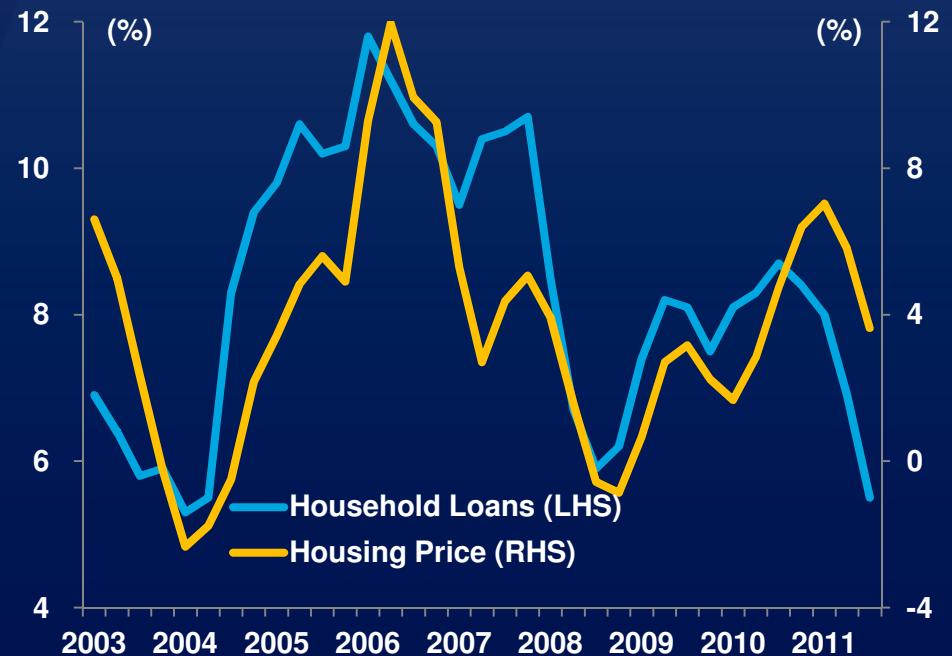
Build-up of Household Debt (3/4)

- ✓ Housing boom of 2005-08 driven by credit cycle (with cumulated price increase of more than 30%)

Housing Price Index
(Seoul metropolitan area)



Housing Prices & Household
Debt Growth Rates¹⁾

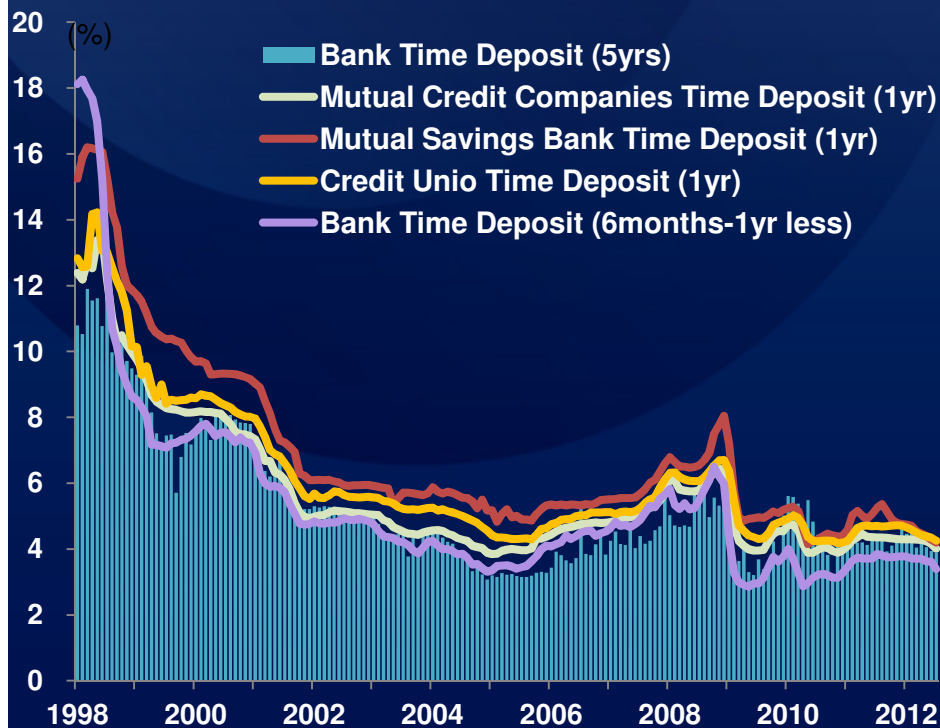


Note: 1) Year-on-year

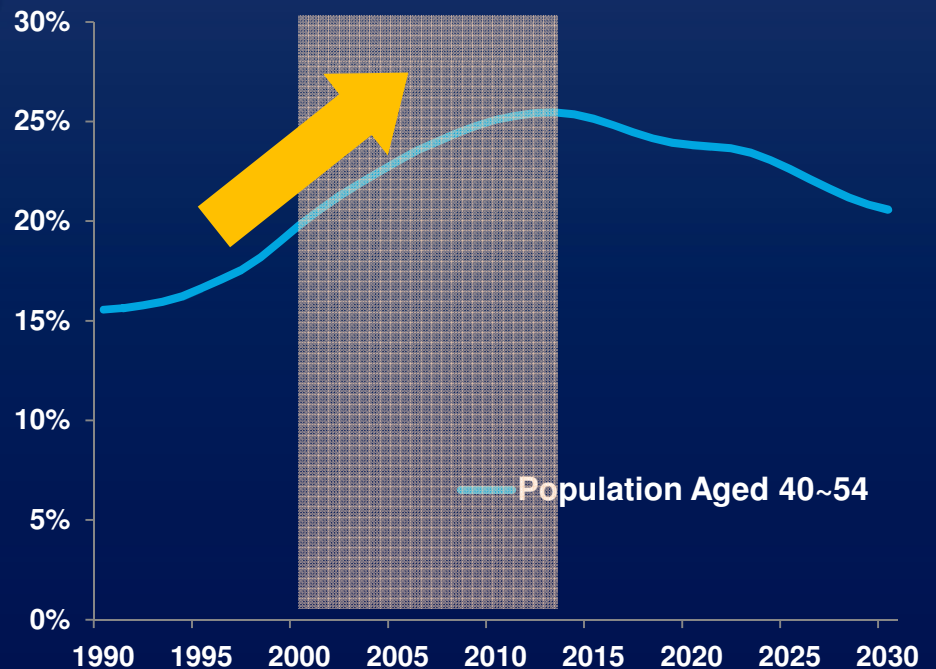
Build-up of Household Debt (4/4)

- ✓ Steady decline in interest rates in the 2000s amid rising prime-age population

Bank and Non-bank Deposit Rates



Demographic change

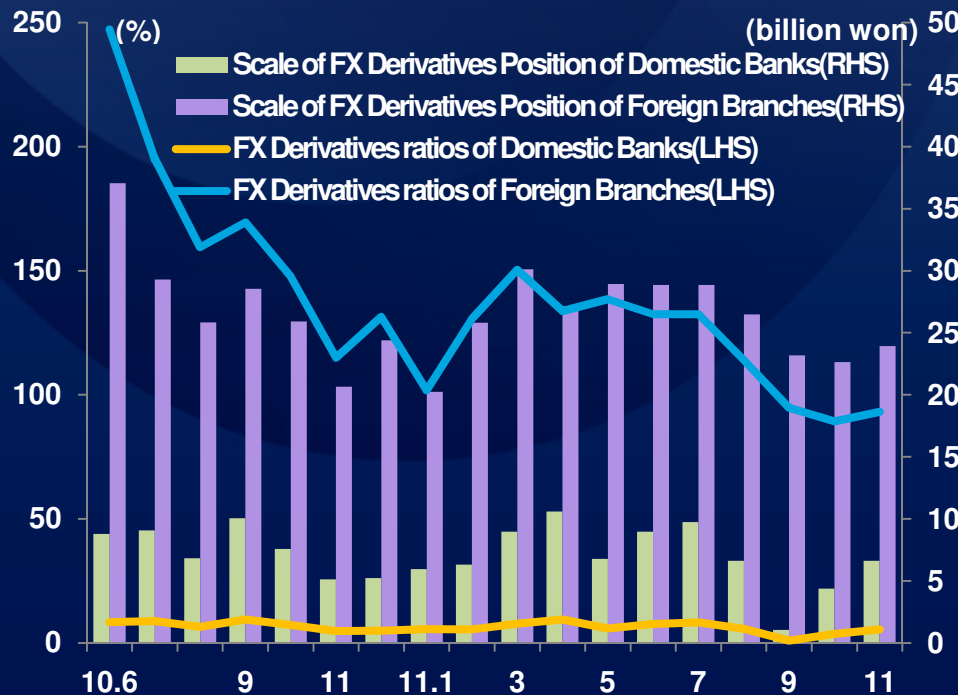


II. Macroprudential Policy Responses

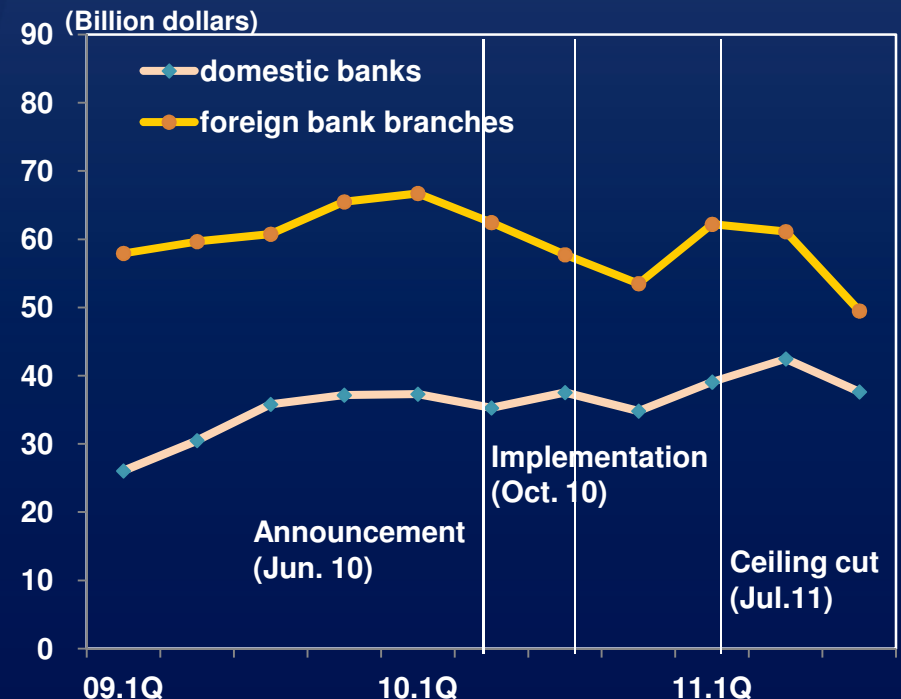
Addressing Capital Flow Volatility (1/2)

Cap on FX Derivative Positions (October, 2010)

FX derivatives positions of banks



Currency Mismatches of Banks





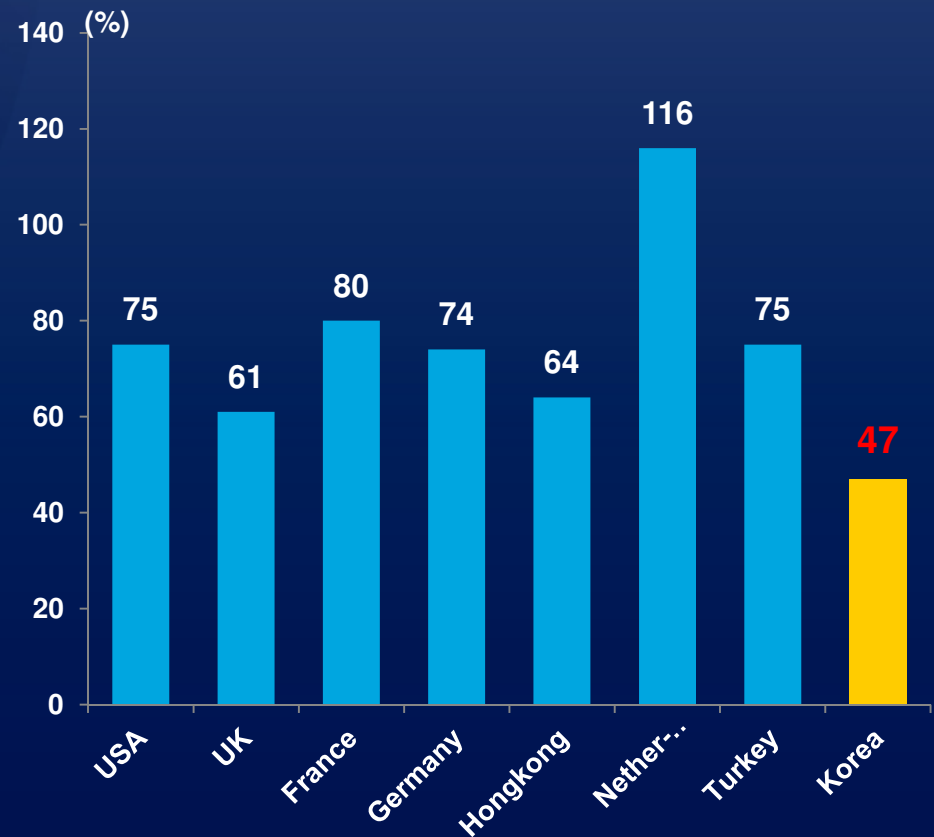
Addressing Household Leverage (1/2)

Use of LTV and DTI since 2003

LTV and DTI Regulations: 2003-11

	LTV	DTI
Jun-2003	50~60%	
Oct-2003	40~60%	
Mar-2004	50~70%	
Aug-2005		40%
Sep-2006	40~70%	
Jul-2009	50~70%	
Apr-2010		50%
Sep-2010		Temporary de-regulation
Apr-2011		Re-regulated

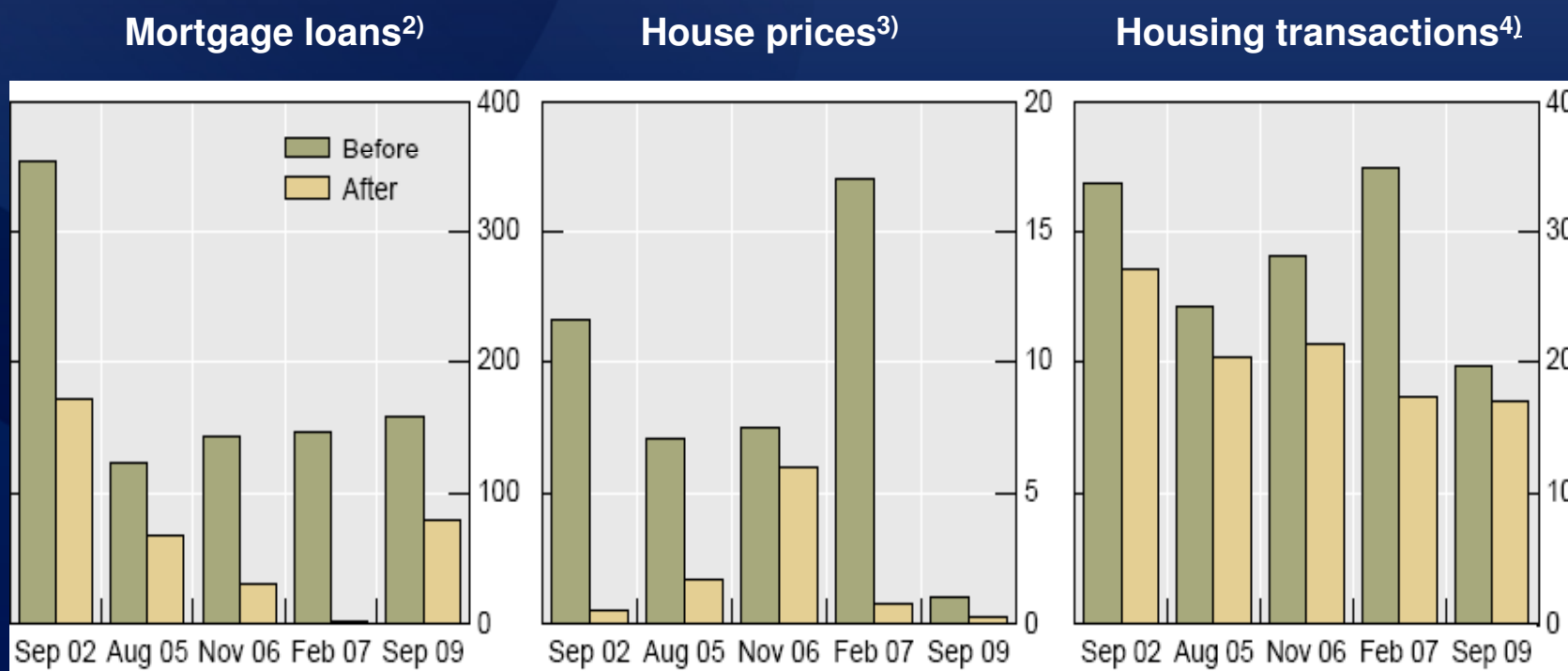
LTV Ratios: A Comparison



Addressing Household Leverage (2/2)

LTV and DTI Regulations: Seemingly Effective

Housing Indicators (Seoul area) Before and After Regulatory Tightening¹⁾



1) Comparison between six-month periods before and after strengthening of loan regulations

2) In trillions of won 3) Apartment basis 4) In units of 10,000 * Source: Bank of Korea

III. Macroprudential Policy Framework

Financial Stability Policy Framework

Ex-ante Prevention	Ex-post Resolution
<div>Macprudential Policy</div> <ul style="list-style-type: none">➤ Financial Services Commission (FSC)➤ Financial Supervisory Service (FSS)➤ Bank of Korea	<div>Crisis Management</div> <ul style="list-style-type: none">➤ BOK: Lender of Last Resort➤ Korea Deposit Insurance Corp. (KDIC): Deposit Insurance and Resolution of FIs➤ Ministry of Strategy & Finance (MOSF): FX Policies and Bail-out
<div>Microprudential Policy</div> <ul style="list-style-type: none">➤ Financial Services Commission (FSC)➤ Financial Supervisory Service (FSS)	

Amendment of BOK Act (31 Aug, 2011)

Financial Stability Mandate Re-introduced

Assessment of Systemic Risk & starting point of Financial Stability Policy Framework



Enhanced Access to Microprudential Data

Amended Act mandates BOK Access to B/S info of both Banks and Non-Bank FIs

MOU with FSS allowing BOK to Access Wider Range of Microprudential Data



Greater Accountability for Financial Stability

Semiannual Report on Financial Stability (FSR) to National Assembly



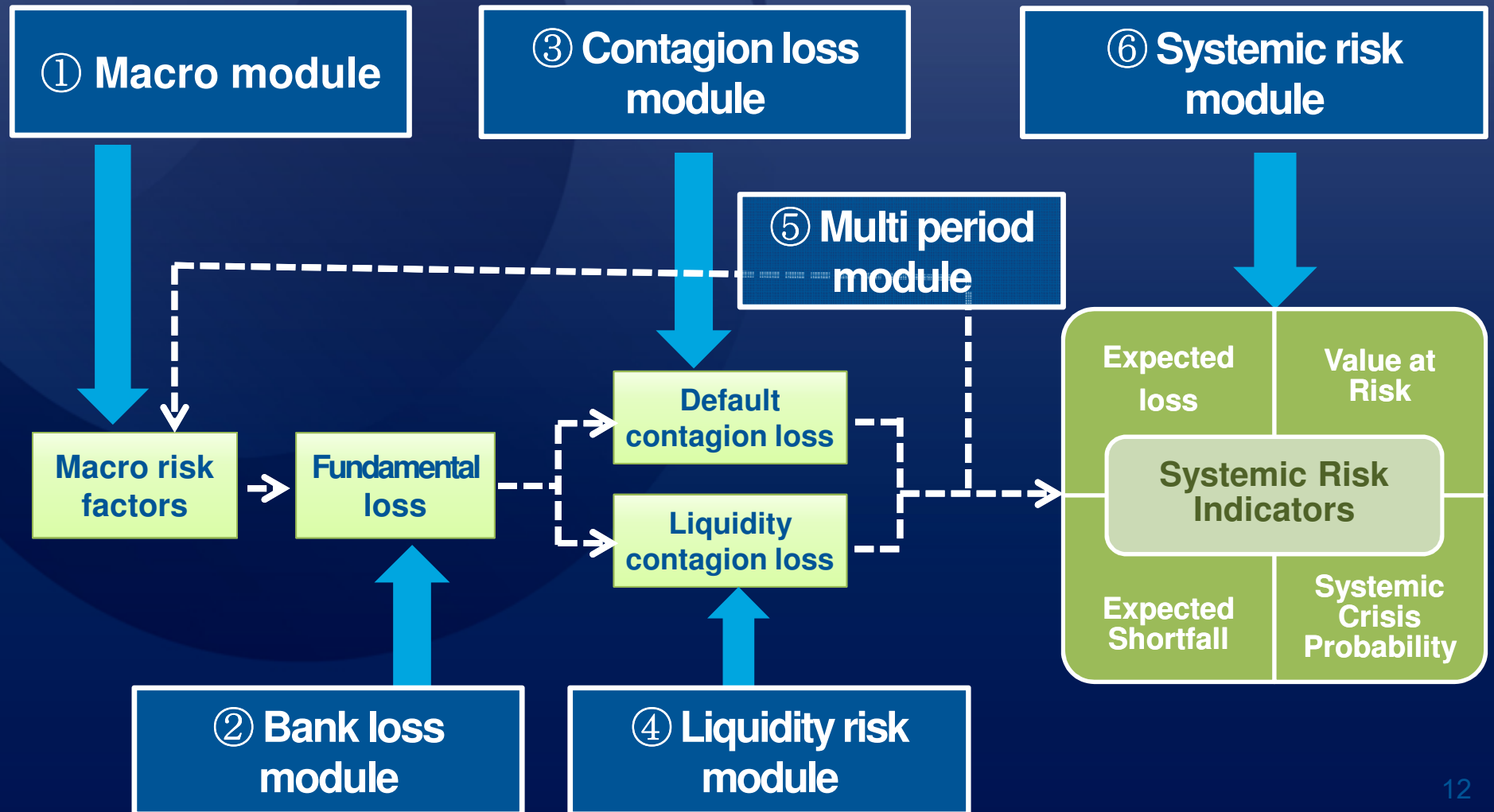
Greater Role in Addressing Systemic Risk

Systemic Risk Assessment Model of BOK

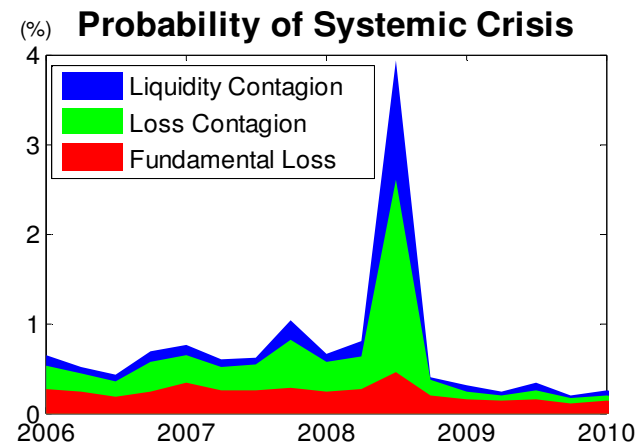
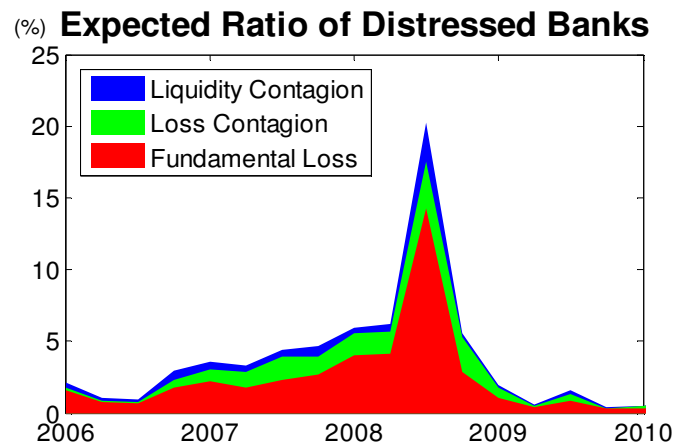
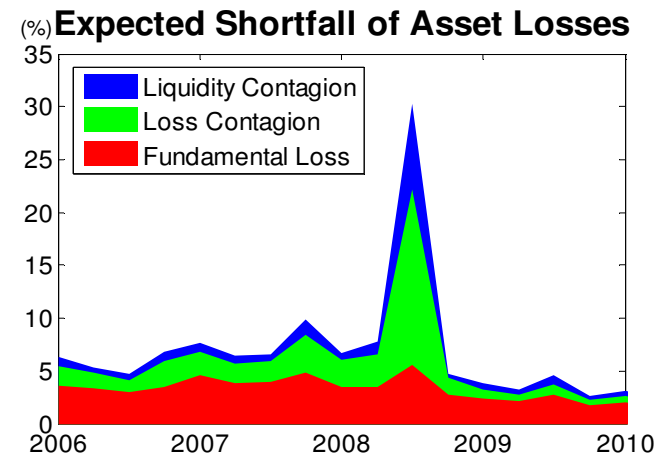
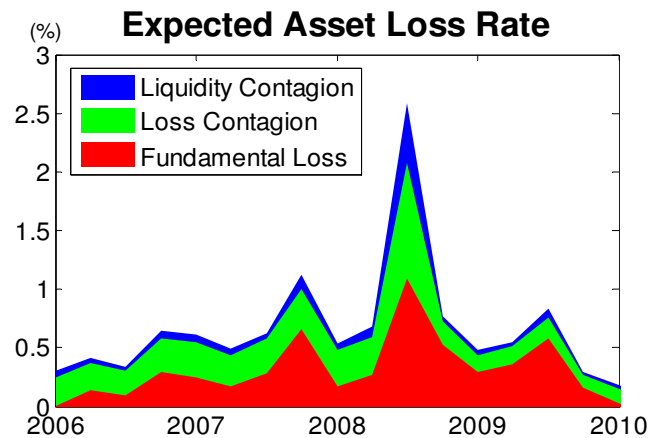
BOK SAMP

- ✓ **Nonlinear disequilibrium model to capture tail risks and feedback/threshold effects**
- ✓ **Integrated framework to reflect procyclicality and interconnectedness**
- ✓ **Macro stress test platform**
- ✓ **Evaluate policy effectiveness**
- ✓ **Test vulnerabilities of individual banks**

Structure of BOK SAMP: Six Modules



Systemic Risk Indicators from BOK SAMP



IV. Policy Issues

Circumventions and Unintended Side Effects

- ✓ **Circumventions: “3 years + 1month” mortgages offered when LTV or DTI applied to mortgages with maturity of 3 years or less**
- ✓ **Asymmetric effects: LTV or DTI is counter-cyclical during housing boom but pro-cyclical during downturn**
- ✓ **Balloon effects: Non-banks tend to increase mortgage loans when LTV or DTI applied only to banks**

Coordination and Data Gaps

- ✓ **Two macroprudential authorities (BOK and FSC/FSS) with no clear formal mechanism for policy coordination**
- ✓ **Communication with fiscal authority**
- ✓ **BOK: improved but yet no full access to needed data (e.g., limited access to non-banks)**
- ✓ **Data gap is substantial (e.g., limited availability of sufficiently granular data for SAMP)**



Thank you!