

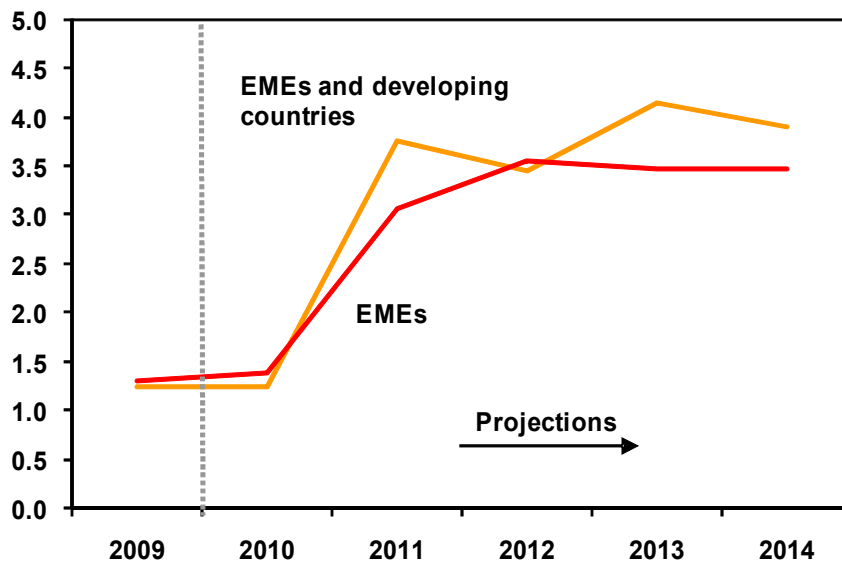
COPING WITH SURGES IN CAPITAL INFLOWS

Structure of the presentation

- Policy toolkit for managing inflow surges
- Evidence on effectiveness of capital controls
- Main messages
- *The views expressed herein are based on “Capital Inflows: The Role of Controls” (Ostry, Ghosh, Habermeier, Chamon, Qureshi, and Reinhardt) and should not be attributed to the IMF, its Executive Board or its management*

Capital Flows Back on the Radar Screen

Net private capital inflows to EMEs (in percent of GDP)



Source: IMF's WEO database.

Capital Flows Back on the Radar Screen



- Much of the flows perceived to be temporary, driven by low interest rates in advanced economies
- Crisis has heightened concerns that inflows could inflate asset price bubbles, and lead to exchange rate overshooting, contributing to financial fragilities
- Macroeconomic and prudential challenges
- Capital controls again in the news

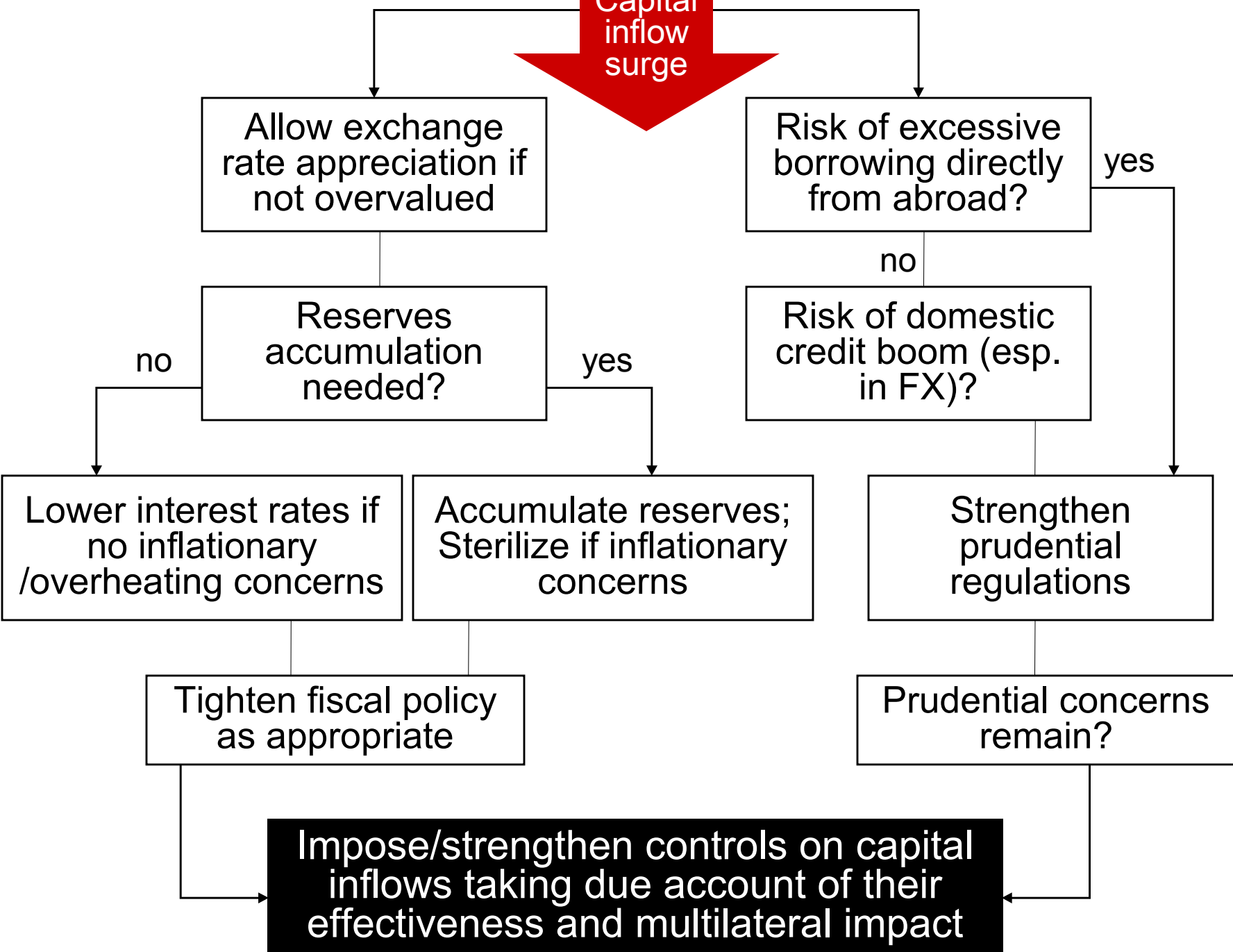
Managing Surges in Inflows

- Capital controls on inflows—residency-based restrictions on the movement of capital across countries
- Why potentially part of the toolkit?
 - Macroeconomic considerations
 - Prudential concerns

Macroeconomic Considerations

Prudential Concerns

Capital
inflow
surge



Macroeconomic Considerations

**Capital
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surge**

Prudential Concerns

Allow exchange
rate appreciation if
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Reserves
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yes

Accumulate reserves;
Sterilize if inflationary
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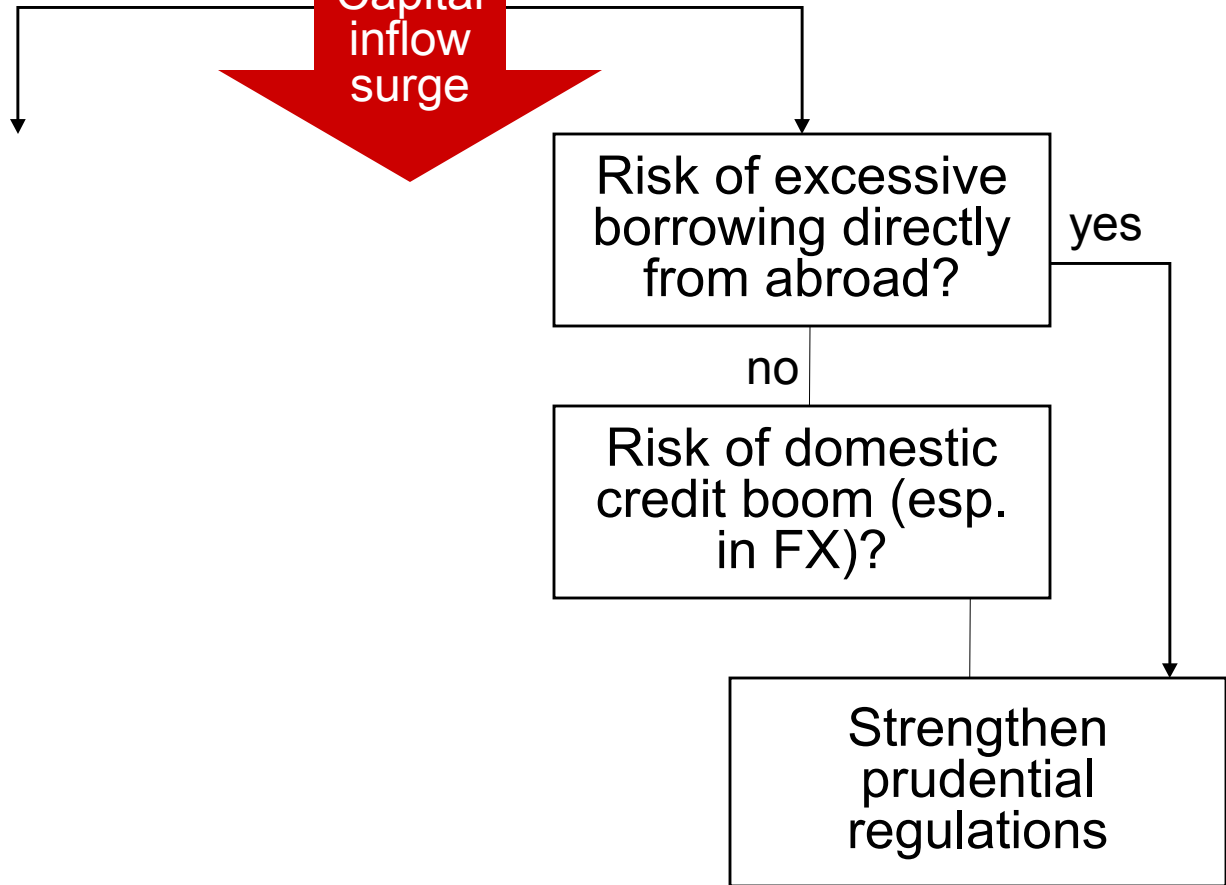
Tighten fiscal policy
as appropriate

**Impose/strengthen controls on capital
inflows taking due account of their
effectiveness and multilateral impact**

Macroeconomic Considerations

Capital
inflow
surge

Prudential Concerns



Risk of excessive
borrowing directly
from abroad?

yes

no

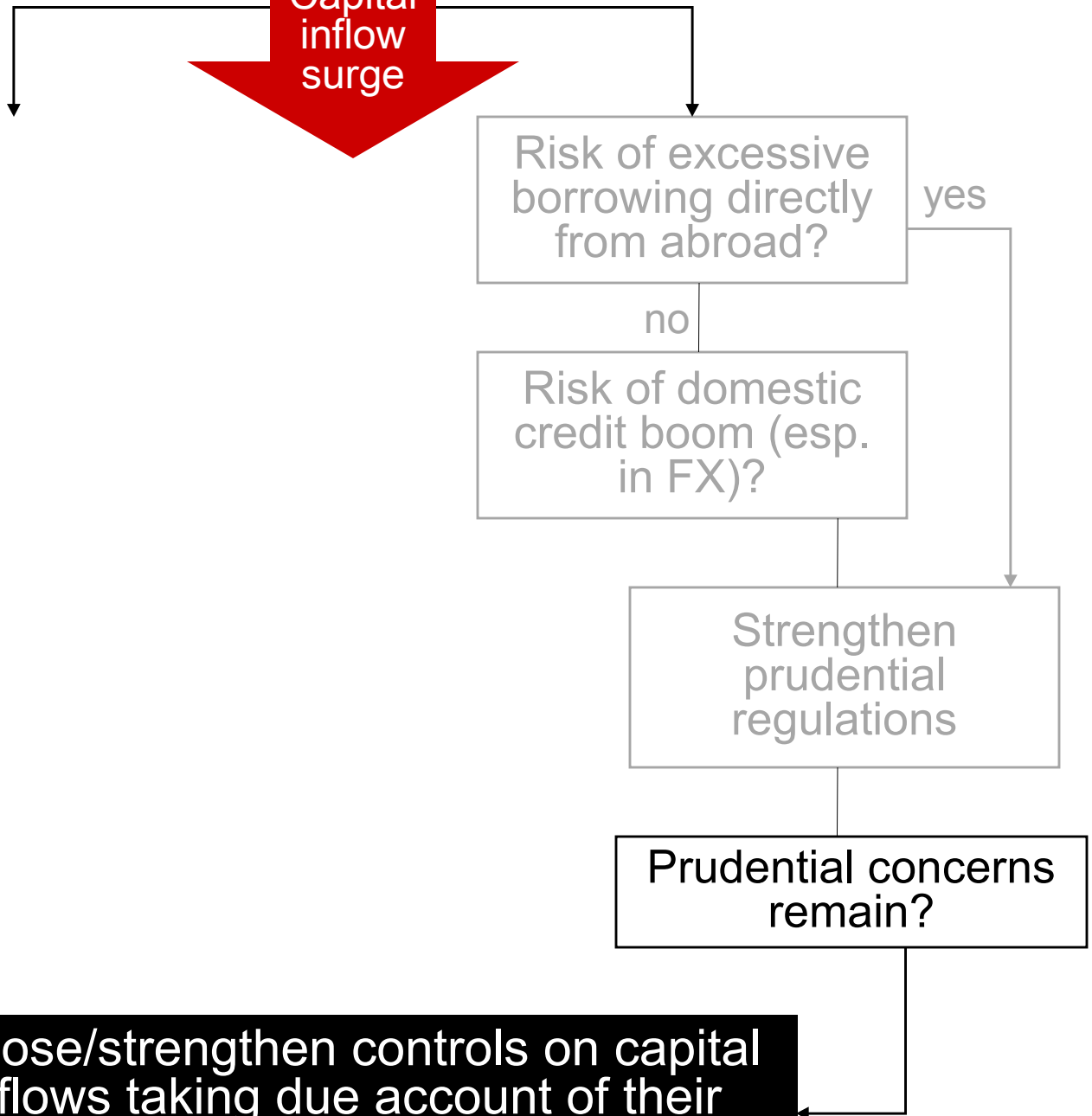
Risk of domestic
credit boom (esp.
in FX)?

Strengthen
prudential
regulations

Macroeconomic Considerations

Prudential Concerns

Capital inflow surge



Impose/strengthen controls on capital inflows taking due account of their effectiveness and multilateral impact

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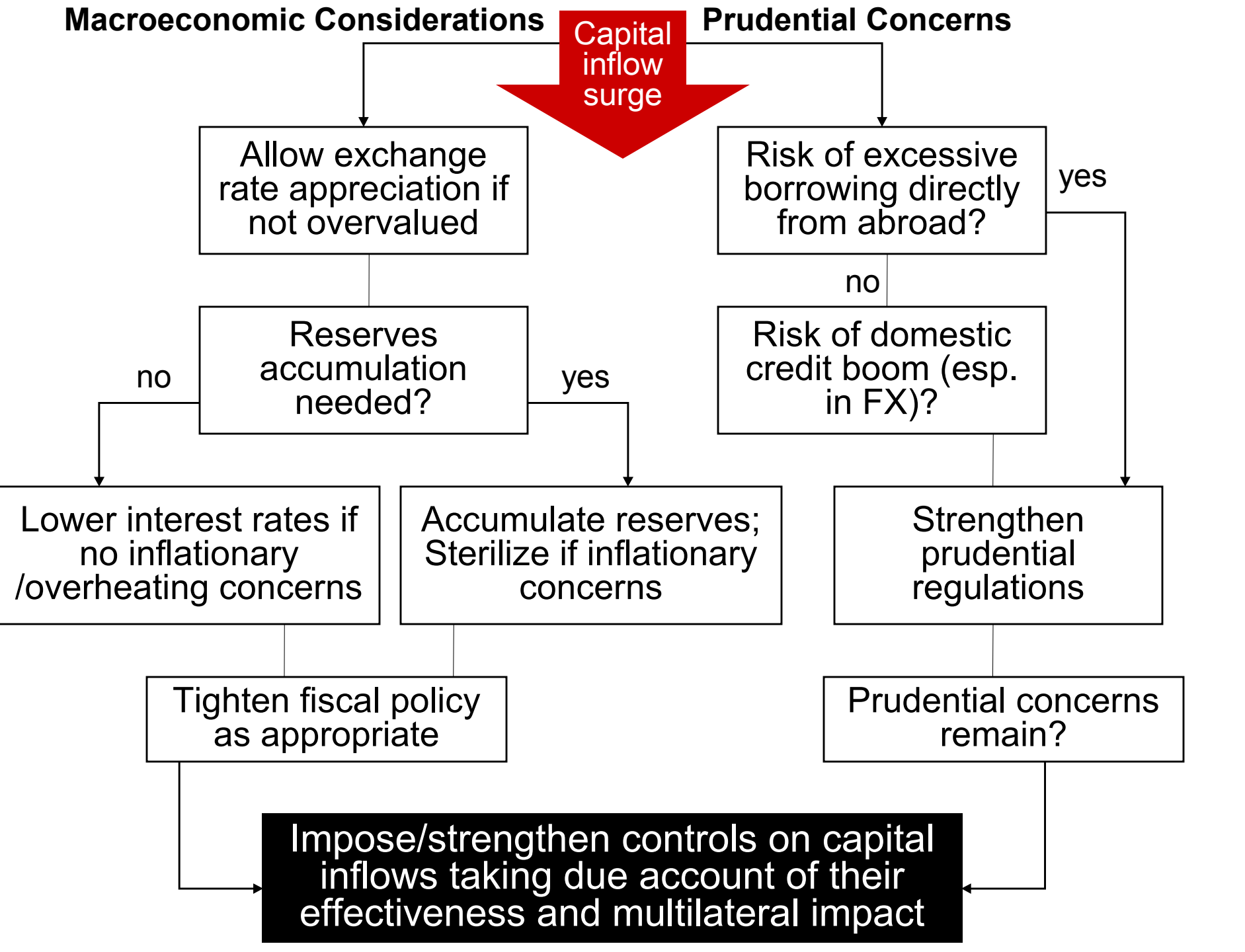
Accumulate reserves;
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Strengthen
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Tighten fiscal policy
as appropriate

Prudential concerns
remain?

**Impose/strengthen controls on capital
inflows taking due account of their
effectiveness and multilateral impact**



Effectiveness of Capital Controls

- Evidence from empirical studies on the effectiveness of controls on *aggregate* inflows and REER mixed:
 - ▣ Cross-country analyses suggest controls dampen surges
 - E.g. Cardarelli, Elekdag and Kose (2007) and Kim, Qureshi and Zalduendo (2010)
 - ▣ Weaker evidence from individual country studies
 - ▣ Obvious endogeneity/econometric problems
- Stronger evidence linking controls to changes in the *composition* of capital inflows—key for financial fragility

Table 1. Selected Cases of Control Measures on Capital Inflows

Country	Year	Controls	Study	Did controls on inflows:		
				Reduce the volume of net flows	Alter the composition	Reduce real exchange rate pressures
Brazil	1993–97	- Explicit tax on capital flows on stock market investments, foreign loans, and certain foreign exchange transactions. - Administrative controls (outright prohibitions against, or minimum maturity requirements for, certain types of inflows).	Cardoso and Goldfajn (1998)	Yes (ST)	Yes (ST)	
			Reinhart and Smith (1998)	Yes (ST)	Yes (ST)	
			Ariyoshi and others (2000)	No	No	No
			Edison and Reinhart (2001)			No
			Carvalho and Garcia (2008)	Yes (ST)		
Chile	1991–98	- Introduced URR on foreign borrowing, later extended to cover nondebt flows, American Depository Receipts, and potentially speculative FDI. - Raised the discount rate.	Valdes-Prieto and Soto (1998)	No	Yes	No
			Le Fort and Budnevich (1997)	No		Yes
			Larrain, Laban, and Chumacero (1997)	No	Yes	
			Cardoso and Laurens (1998)	Yes (ST)	Yes	No
			Reinhart and Smith (1998)	Yes (ST)	Yes (ST)	
			Edwards (1999)	No	Yes	No
			Gallego and Schmidt-Hebbel (1999)	Yes (ST)	Yes (ST)	No
			Ariyoshi and others (2000)	No	No	No
			De Gregorio, Edwards, and Valdes (2000)	No	Yes	Yes (ST)
Edwards and Rigobon (2009)			Yes			
Colombia	1993–98	- Introduced URR on external borrowing (limited to loans with maturities up to 18 months) and later extended to cover certain trade credits.	Le Fort and Budnevich (1997)	Yes (ST)	Yes	Yes
			Cardenas and Barrera (1997)	No	Yes	
			Reinhart and Smith (1998)	No	No	
			Ariyoshi and others (2000)	No	No	No
	2007–08	- Introduced URR of 40 percent on foreign borrowing and portfolio inflows. - Imposed limits on the currency derivative positions of banks (500 percent of capital).	Concha and Galindo (2008)	No	Yes	
Cardenas (2007)	No	Yes (ST)				
Clements and Kamil (2009)	No	Yes	No			
Croatia	2004–08	- Introduced prudential marginal reserve requirements on bank foreign financing.	Jankov (2009)		Yes	

Table 1. Selected Cases of Control Measures on Capital Inflows (concluded)

Country	Year	Controls	Study	Did controls on inflows:		
				Reduce the volume of net flows	Alter the composition	Reduce real exchange rate pressures
Malaysia	1994	<ul style="list-style-type: none"> - Prohibition against sale of short-term debt securities and money market instruments to nonresidents, and against commercial banks' engagement in non-trade-related swaps or forward transactions with nonresidents. - Ceilings on banks' net liability position. - Non-interest-bearing deposit requirement for commercial banks against ringgit funds of foreign banks. 	Ariyoshi and others (2000)	Yes	Yes	Yes (ST)
			Tamirisa (2004)			No
Thailand	1995–96	<ul style="list-style-type: none"> - URR imposed on banks' nonresident baht accounts. - Introduced asymmetric open-position limits to discourage foreign borrowing. - Imposed reporting requirements for banks on risk-control measures in foreign exchange and derivatives trading. 	Ariyoshi and others (2000)	Yes	Yes	Yes
	2006–08	<ul style="list-style-type: none"> - URR of 30 percent imposed on foreign currencies sold or exchanged against baht with authorized financial institutions (except for FDI and amounts not exceeding US\$20,000). Equity investments in companies listed on the stock exchange were made exempt from the URR. 				
Cross-country evidence			Reinhart and Smith (1998)	Yes (ST)	Yes (ST)	
			Montiel and Reinhart (1999)	No	Yes (ST)	
			Edison and Reinhart (2001)			
			Binici, Hutchison, and Schindler (2009)	No	No	No

Sources: Magud, Reinhart, and Rogoff (2007), and IMF staff.

Note: A blank entry refers to the cases where the study in question did not analyze the particular relationship. (ST) refers to cases where only short-term effects were detected

Design of Controls

- Purpose of the controls:
- Macroeconomic concerns- exchange rate appreciation
 - ▣ Can outflow liberalization help?
 - Sequencing of liberalization measures
 - ▣ Broad- based capital controls
- Financial stability concerns
 - ▣ Volume of inflows
 - ▣ Maturity structure of inflows

} Prudential type controls
targeting the financial sector

Design of Controls

- Coverage of controls
 - ▣ Broad based
 - if purpose is to limit the volume of inflows or
 - if financial market sophisticated
 - ▣ Specific
 - to change the maturity structure or
 - to address financial stability concerns
 - ▣ Exempt flows
 - FDI, unless used for circumvention
 - (minimum stay or verification requirement)

Design of Controls

- Types of controls
 - ▣ Administrative
 - Can be discretionary, prone to corruption
 - But, if existing system of administrative controls
 - new administrative controls can be more easily integrated
 - ▣ Market- based
 - More transparent,
 - Does not prohibit, only discourages flow by increasing cost of transaction
 - Requires setting the right rate of tax (URR)
- No clear evidence on the effectiveness

Design of Controls

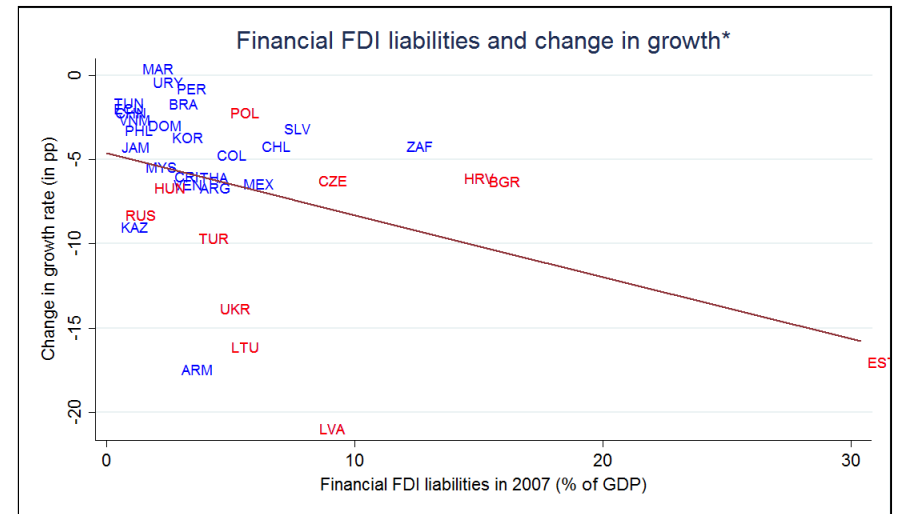
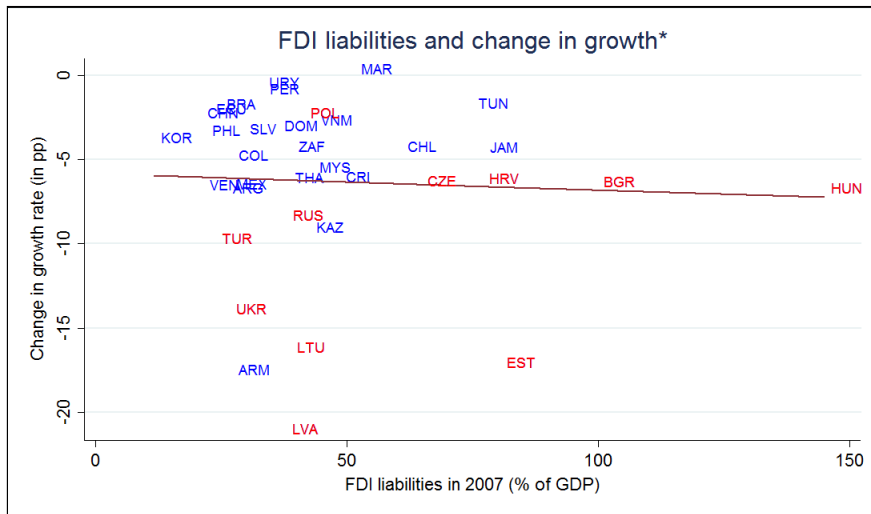
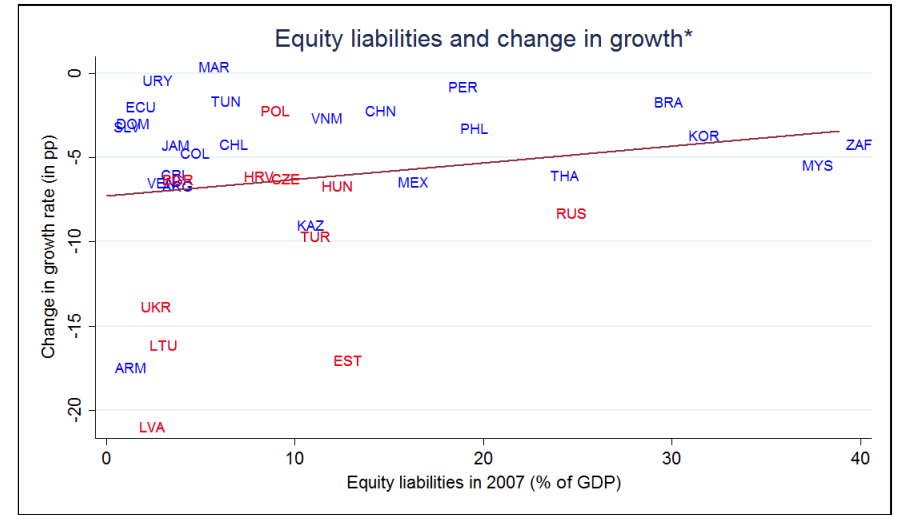
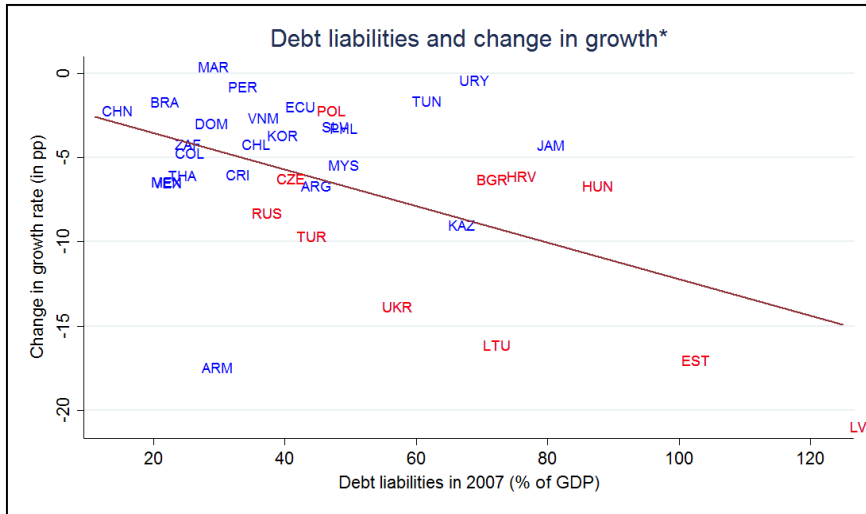
- Implementation
 - ▣ Administrative capacity in the central bank
 - Can be a constraint
 - Tax can be administered by the tax authority if more efficient
 - ▣ Role of banking sector
 - Needs adequate supervision of compliance
 - ▣ Monitoring of flows
 - Regular reporting of information by the financial sector involved in capital transactions
- Communication with the market
 - ▣ Signaling the intention to implement controls can reduce inflows

Design of Controls

- International obligations
 - IMF
 - Members are generally free to implement capital controls, except affecting Art VIII.
 - Also qualified by members' obligations subject to IMF surveillance under Art IV
 - GATTs, OECD
 - Controls can be implemented only under specific conditions
 - BITs, FTAs
 - May include specific obligations

Evidence from the Recent Crisis

- External liability structure matters for crisis resilience
 - ▣ Debt and financial FDI (disguised debt flows?) → Larger output decline
 - ▣ Non-financial FDI and equity flows → More resilience



Evidence from the Recent Crisis

Foreign Liabilities and Banking System

□ Why?

- Debt and Financial FDI imply credit/FX lending booms
- Ensuing credit/FX lending busts imply deeper recession
- Debt has residual effect controlling for domestic credit/FX lending booms

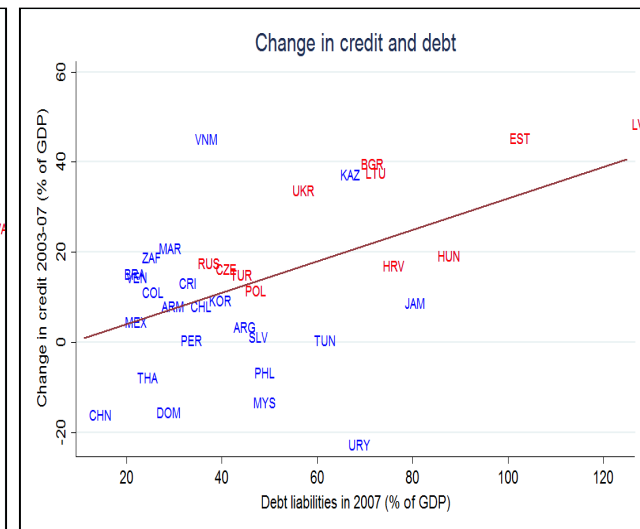
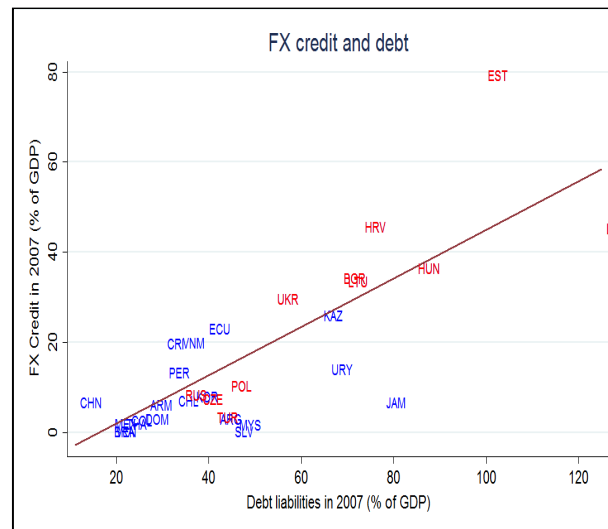
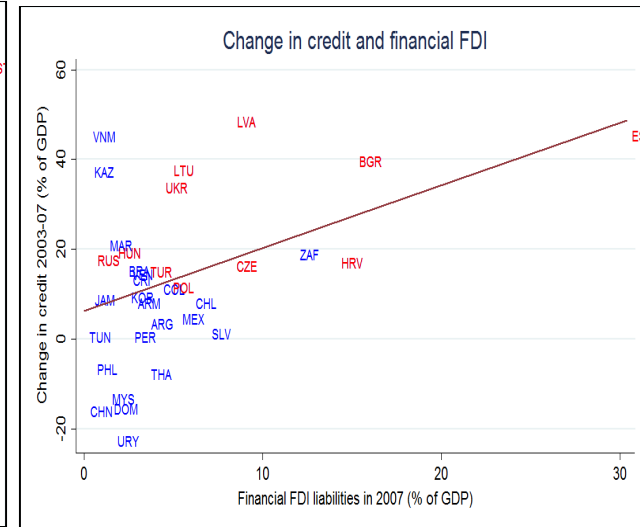
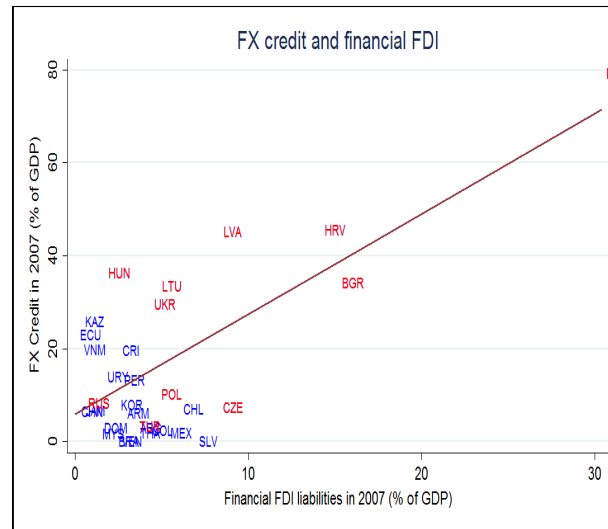


Table A1. Composition of Flows and Output Growth Decline, 2008–09 1/

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
<i>Foreign Liabilities 2/</i>							
Non-Financial FDI (% of GDP, 2007)	-0.071** (0.031)	-0.086*** (0.030)			-0.087*** (0.027)	-0.090*** (0.028)	-0.087*** (0.024)
Financial FDI (% of GDP, 2007)	0.195** (0.087)	0.134 (0.087)			0.002 (0.145)	0.021 (0.106)	-0.045 (0.157)
Debt Liabilities (% of GDP, 2007)	0.116*** (0.036)	0.116*** (0.032)			0.102** (0.042)	0.091*** (0.032)	0.084* (0.042)
Equity Liabilities (% of GDP, 2007)	-0.047 (0.064)	-0.039 (0.051)			-0.057 (0.065)	-0.040 (0.041)	-0.061 (0.053)
<i>Domestic Banking System Credit</i>							
FX Credit (% of GDP, 2007)			0.153*** (0.0534)		0.043 (0.069)		0.008 (0.057)
Change in Credit/GDP from 2003 to 2007				0.151*** (0.051)		0.101* (0.051)	0.100 (0.064)
<i>Other regressors:</i>							
Growth in trading partners 3/		-0.048** (0.022)	-0.018 (0.019)	-0.038** (0.016)	-0.054** (0.025)	-0.047** (0.020)	-0.053** (0.022)
Change in terms of trade 4/		-0.122 (0.099)	-0.017 (0.122)	0.0162 (0.100)	-0.084 (0.102)	-0.068 (0.101)	-0.029 (0.113)
Constant	3.49 (2.19)	0.873 (1.545)	2.857** (1.269)	1.814 (1.138)	1.532 (1.785)	1.64 (1.495)	2.253 (1.504)
Observations	35	34	30	33	30	33	29
R-squared	0.43	0.608	0.411	0.473	0.619	0.717	0.727

Note: Robust standard errors in parentheses*, **, and *** denote statistical significance at the 1, 5, and 10 percent levels, respectively.

1/ Dependent variable defined as average growth in 2003-07 minus average growth in 2008-09. Positive coefficient indicates that the regressor is associated with a larger decline in the real GDP growth rate.

2/ End-2007 stock (in percent of GDP) based on Lane and Milesi-Ferretti (2007) updated database. Breakdown of FDI into Financial and Non-Financial sectors based on Reinhardt (2009) estimates.

3/ Average annual real growth rate in trading partners over 2008-09 weighted by average export to GDP ratio in 2003-07 (in percent).

4/ Average annual percentage change in terms of trade over 2008-09.

Table A2. Foreign Liabilities and Banking System FX-Credit and Credit Booms 1/

	Dependent variable	
	FX Credit (% of GDP 2007) 1/	Change in Credit/GDP 2/
Financial FDI (% of GDP, 2007)	1.305*** (0.346)	0.914** (0.398)
Debt Liabilities (% of GDP, 2007)	0.389*** (0.071)	0.258** (0.104)
Constant	-8.044*** (2.838)	-0.031 (0.045)
Observations	31	34
R-squared	0.75	0.31

Note: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 1, 5, and 10 percent levels, respectively.

1/ FX-denominated banking system credit (in % of GDP).

2/ Change in banking system credit/GDP over 2003-07.

Evidence from the Recent Crisis

- Probit of pre-crisis capital controls on crisis dummy suggests more resilience

Table A3. Capital Controls and Growth Crisis 1/

	[1]	[2]	[3]	[4]
<i>Controls on 2/</i>				
Overall Inflows	-2.026* (1.043)	-2.644** (1.329)		
FDI Inflows			-0.032 (1.206)	1.939 (1.583)
Equity Inflows			2.057 (1.376)	3.443** (1.722)
Bond Inflows			-4.054* (2.294)	-8.548** (3.708)
Growth in trading partners 3/		-0.010 (0.012)		-0.030** (0.014)
Change in terms of trade 4/		-0.107** (0.054)		-0.145* (0.085)
Constant	-0.712* (0.385)	-1.480* (0.812)	-0.900** (0.351)	-3.097*** (0.882)
Observations	37	37	37	37
Pseudo R-squared	0.117	0.240	0.168	0.368

Note: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5 and 1 percent levels, respectively.

1/ Crisis is coded as equal to one if the decline in the country's real GDP growth (2008-09 relative to 2003-07) is in the lowest 10th percentile of the sample.

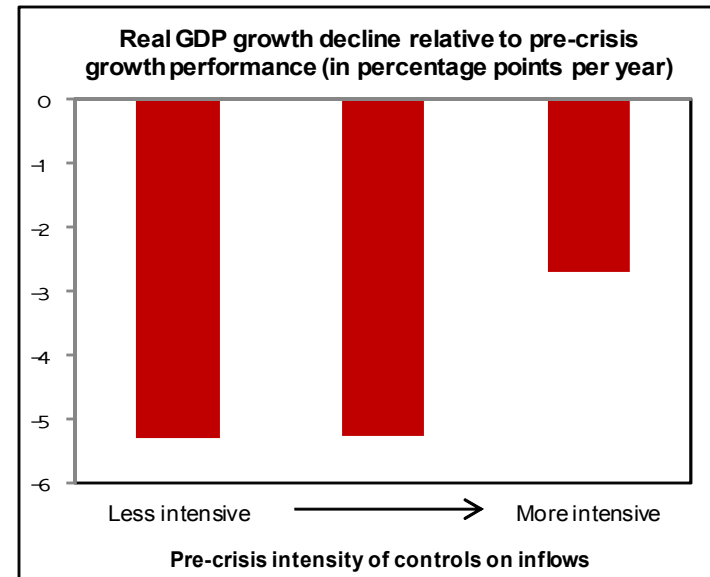
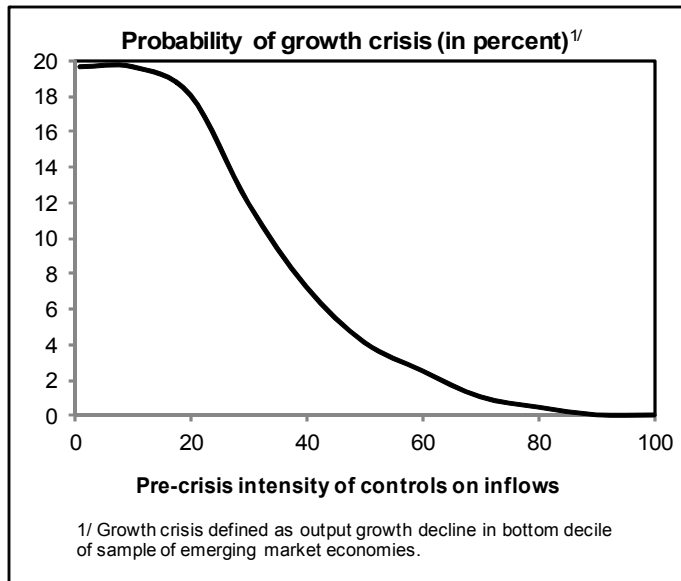
2/ Capital controls based on the Schindler (2009) index averaged over 2000-05 (the last year covered in the database is 2005).

3/ Average annual real growth rate in trading partners over 2008-09 weighted by average export to GDP ratio in 2003-07 (in percent).

4/ Average annual percentage change in terms of trade over 2008-09.

Evidence from the Recent Crisis

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Evidence from the Recent Crisis

- We conduct a number of sensitivity analysis, including:
 - Dropping Baltics
 - Extending the sample of countries
 - Using alternative measures of crisis (e.g. change in GDP growth as opposed to crisis dummy)
- Findings remain fairly robust:
 - Pre-crisis capital controls continue to point to more resilience
 - Debt liabilities remain associated with FX Credit; Financial FDI with credit booms
 - Financial FDI remains associated with sharper contractions

Conclusion

- Capital inflows fundamentally good: additional financing for productive investment, risk diversification, etc.
- But sudden surges can pose macro-prudential challenges
 - ▣ Recent evidence does suggest that capital controls improved resilience to crisis
 - ▣ Not surprising since source of the initial shock was global financial markets
 - ▣ Recent experience also confirms conventional wisdom that FDI/Equity flows are safer while Debt flows are riskier; But suggest closer attention should be paid to *financial sector-FDI*, which can embody some of the riskier types of flows

Conclusion



- Capital controls appropriate for inclusion in toolkit in specific circumstances:
 - ▣ Currency overvalued
 - ▣ Further reserve accumulation undesirable
 - ▣ Inflation/overheating concerns
 - ▣ Limited scope for fiscal tightening
 - ▣ Prudential framework still leaves high risk of financial fragility