Credit Booms and Capital Flows: Role of Financial Systems and Policies

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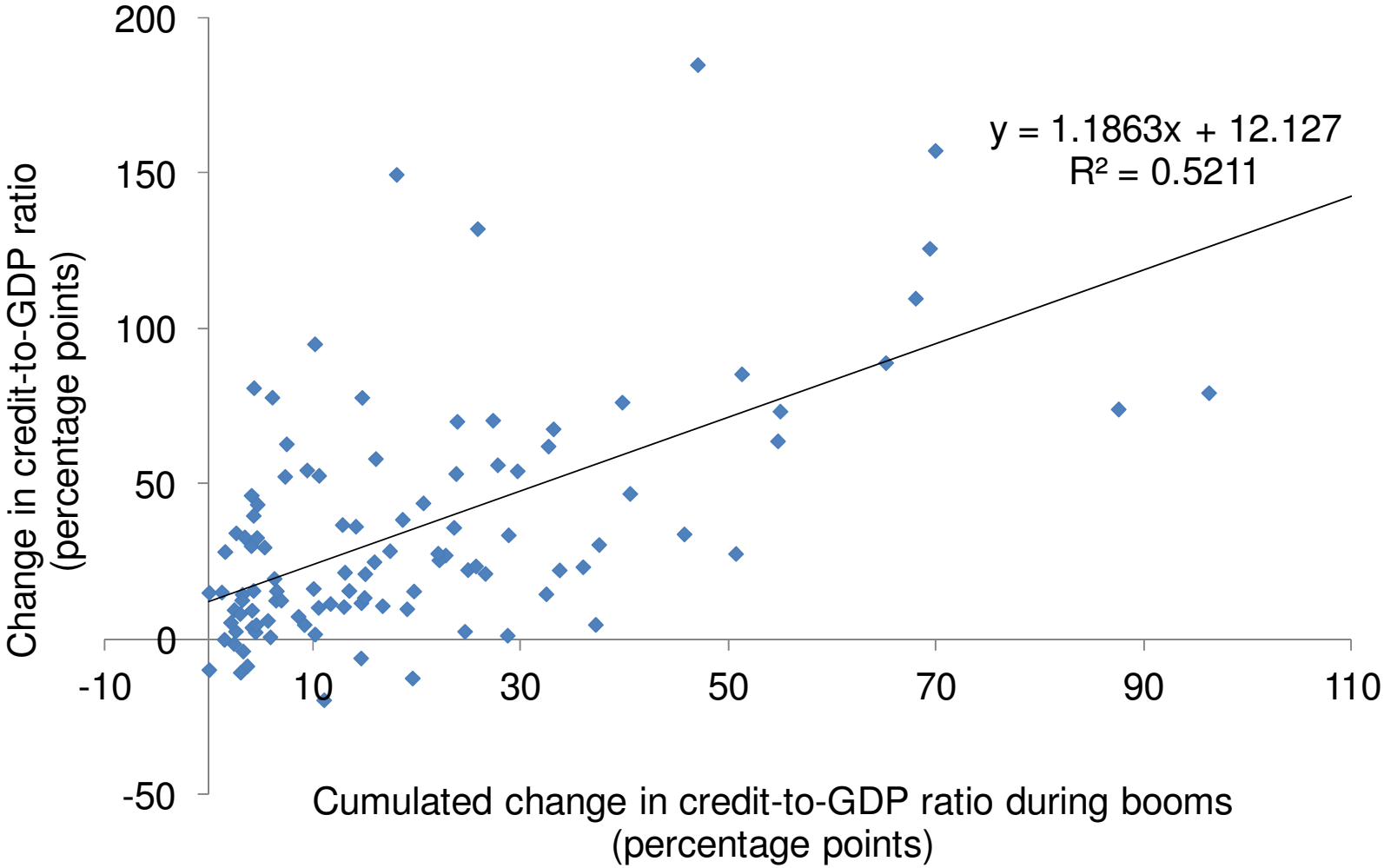
The Good, the Bad, and the Ugly

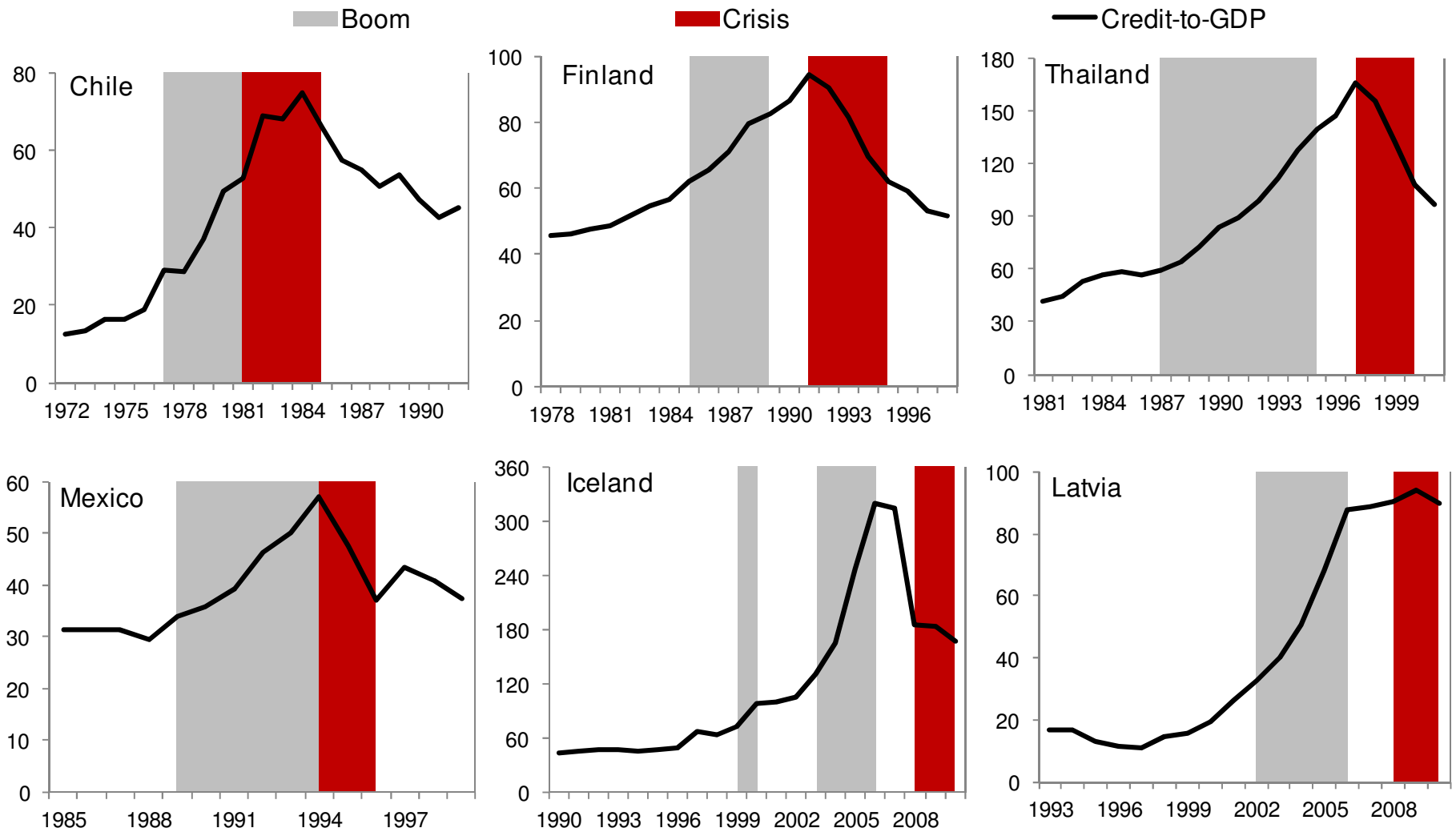
- Credit booms
  - As signs of financial deepening
    - Financial intermediation relaxes constraints and helps growth
  - As systemic risk indicators
    - Lending standards deteriorate, which may destabilize the system
- Capital flows
  - Allocation efficiency, diffusion of know-how
  - Sudden stops

Figure 3. Credit Booms and Financial Deepening,1970-2010



Sources: IMF *International Financial Statistics;* staff calculations.

Figure 5. Credit Booms and Financial Crises: Examples of Bad Booms



Sources: Laeven and Valencia (2010), IMF *International Financial Statistics*; staff calculations.

Shaping our research agenda

- Lack of a robust early warning model that tells the good and the bad apart
- Explore different pieces of the puzzle separately to identify regularities
  - 1 out of 3 credit booms preceded by financial account liberalization, only 2 percent associated with reversals (Dell'Ariccia et al, 2016)
  - Capital inflow surges another regularity as net inflows increase from 2.3 to 3.1 percent of GDP in the three-year period before a boom

This presentation

- Capital flows and credit growth
- Capital flows and economic growth
- A word on policies

General research approach

- Evidence at the aggregate level using more granular data than most literature
  - Capital inflows: FDI, portfolio, other
  - Credit: Households, firms
- Further supported with firm-level and sector-level data
  - Variation in external finance dependence across sectors
- Differentiating between financial system characteristics
  - Depth, bank- versus market-based

Data and methodology

- Range of sources from IMF and BIS to WorldScope
- 20+ countries, more than a decade
  - 1980–2011 for aggregate data, 1991–2011 for firm-level data, 1998–2010 for sectoral data

- Standard fixed-effect panel regressions

$$Y_{it} = \alpha CI_{it-1} + \beta X_{it-1} + \upsilon_i + n_t + \varepsilon_{it}$$

- Extend to firm-level and sectoral analysis

$$Y_{ijkt} = \gamma\, RZ_{jt} \times CI_{kt} + \alpha_1 RZ_{jt} + \alpha_2 CI_{kt} + \beta_1 F_{ijkt-1} + \beta_2 M_{kt} + \upsilon_i + n_t + \varepsilon_{ijkt}$$

Credit growth and booms are significantly related to portfolio and other flows

	Credit growth		Boom	
HOUSEHOLDS				
CI	0.337**		0.010**	
FDI		0.102		0.007
Portfolio		0.329*		0.011**
Other		0.380***		0.010**
FIRMS				
CI	0.252**		0.007**	
FDI		0.082		0.007*
Portfolio		0.161		0.008**
Other		0.341***		0.006**

Depth and type of flow is important for households while less market-based systems transform any flow into firm credit

	Financial Development		Financial Structure	
Households	**High**	**Low**	**High**	**Low**
FDI	0.060	0.128	-0.212	-0.174
Portfolio	0.180**	0.687	0.390	0.042
Other	0.190**	0.857*	0.269	0.229
Firms	**High**	**Low**	**High**	**Low**
FDI	0.057	-0.070	-0.091	0.332**
Portfolio	0.089	0.388*	0.110	0.315**
Other	0.235**	0.438**	0.368***	0.381***

Channels

- Demand
  - Boost asset prices
  - Enhance firm value
  - Improve balance sheets
  - Decrease external finance premium
- Supply
  - Domestic bank health determines existing credit constraints
    - Less healthy banks → failure to meet demand

Demand side has relevance for other flows: firms with increasing equity and collateral values are able to raise more loans

DV: Total debt growth	Demand Side	
	Net equity growth	Collateral value growth
Indicator×FDI	-0.004	0.825
Indicator×Portfolio	-0.128	0.337
Indicator×Other	0.297**	1.726*

Supply side also has some relevance: when domestic banks are constrained, capital inflows are more closely associated with credit growth

	Capitalization		Distance to default		NPLs	
	High	**Low**	**High**	**Low**	**High**	**Low**
FDI	-0.185	0.301***	-0.033	0.127	0.265	-0.046
Portfolio	0.170	0.222**	-0.014	0.270**	0.583**	0.036
Other	0.351**	0.258**	0.153	0.347***	0.641***	0.231*

Debt inflows associated with faster output growth while equity inflows associated with reduced output volatility

	Equity inflows		Debt inflows	
Output growth	**FDI**	**Portfolio**	**Banks**	**Nonbanks**
Capital flows	0.002	0.009	0.004	0.007*
CF*RZ	0.004	-0.001	0.022***	0.014*
Output volatility	**FDI**	**Portfolio**	**Banks**	**Nonbanks**
Capital flows	0.002	-0.005	0.004*	-0.003
CF*RZ	-0.007**	-0.004	-0.006	-0.003

Capital inflows' association with output growth stronger with more foreign presence and in well-functioning banking systems

	Foreign Bank Share		Profitability		NPLs	
	High	**Low**	**High**	**Low**	**High**	**Low**
FDI	0.005	0.001	0.010	-0.028*	-0.002	0.008
Portfolio	0.016	-0.020	0.016	-0.006	-0.050*	0.009
Other	0.015**	0.010	0.017**	0.011	0.013	0.012**

What to do?

- Encourage deepening of financial markets to harness benefits:
  Institutional quality, Macroeconomic stability
- But be cognizant of risks from rapid growth:
  Use a mix of policies to deal with financial booms & busts
- Macroprudential policy first line of defense, especially if concern is a single sector/segment:
  Target leverage and strengthen balance sheets
- Monetary policy definitely to be involved when there are other signs of overheating
- Fiscal and structural policies to limit distortions with a long-term view

Evidence on effectiveness of macroprudential policies (so far)

- Promising
  - Reduction in procyclicality of credit
  - Negative link to booms and to booms turning bad
  - Capital inflow-credit relation no longer significant
- More success in building up buffers than preventing a boom
- Analysis of household surveys point to an impact on expectations
- Emerging Europe case indicates effectiveness of some (CAR and non-standard liquidity) measures
- Latin America case shows moderate, transitory effect

Summary

- Capital inflows:
  - boost credit growth and increase the likelihood of credit booms for both households and firms
  - increase output growth in financially constrained firms
- Composition matters:
  - Debt flows appear to be the main driver for credit and output growth
  - Equity flows associated with reduction in volatility
- System matters:
  - Association with faster household credit growth in more developed systems and with faster corporate credit in less market-based systems
  - Output growth benefits in well-functioning systems
- Promising evidence on macroprudential policies

Resources from the IMF

- Main references for this presentation
  - Igan, Kutan, and Mirzaei, forthcoming, "Real effects of capital inflows in emerging markets"
  - Dell'Ariccia et al. 2016 "Credit booms and macrofinancial stability"
  - Igan and Tan 2015 "Capital inflows, credit growth, and financial systems"
  - Cerutti et al. 2015 "Housing finance and real estate booms: A cross-country perspective"
  - Crowe et al. 2013 "How to deal with real estate booms: Lessons from cross-country experiences"

- Global Housing Watch (see the latest developments in and research on housing markets around the world)
- Other related publications (not an exhaustive list)
  - LTV and DTI Limits—Going Granular (WP, 2015)
  - An Overview of Macroprudential Policy Tools (WP, 2014)
  - Macroprudential Policies to Mitigate Financial System Vulnerabilities (WP, 2014)
  - Leaning Against the Wind: Macroprudential Policy in Asia (WP, 2014)
  - Evaluating the Net Benefits of Macroprudential Policy: A Cookbook (WP, 2013)
  - Macroprudential Policy: A Practical Approach to Systemic Risk Monitoring (WP, 2013)
  - Key Aspects of Macroprudential Policy (PP, 2013)
  - The Interaction of Monetary and Macroprudential Policies (PP, 2013)
  - Global Housing Cycles (WP, 2012)
  - Toward Operationalizing Macroprudential Policies: When to Act? (GFSR, 2012)
  - Externalities and Macroprudential Policy (PP, 2012)
  - Macroprudential Policy: An Organizing Framework (PP, 2011)
  - Do Loan-To-Value and Debt-To-Income Limits Work? Evidence From Korea (WP, 2011)