Financial possibility frontier:
Understanding Structural and Policy Gaps in Financial Systems

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Motivation and background

- Ambiguity about financial depth
  - Positive relationship between financial depth and long-term growth
  - Rapid financial deepening is crisis predictor
- What drives financial deepening (history, policies, politics)
- Challenge: how to compare financial depth across countries
  - Similar to discussion on trade openness
  - Is there a “natural” level of financial depth
- More specifically, this paper has two origins
  - Access possibilities frontier (Beck and de la Torre, 2007)
  - Benchmarking Financial Development (Beck et al., 2008)

Questions to be asked?

- How far can and should countries go in facilitating financial deepening?
- How fast can we expect LICs to catch up to MICs and MICs to HICs?
- Should 100% of population have access to savings/credit services?
- Might there be levels/speeds of financial deepening too high for good of economy and society?

Framework

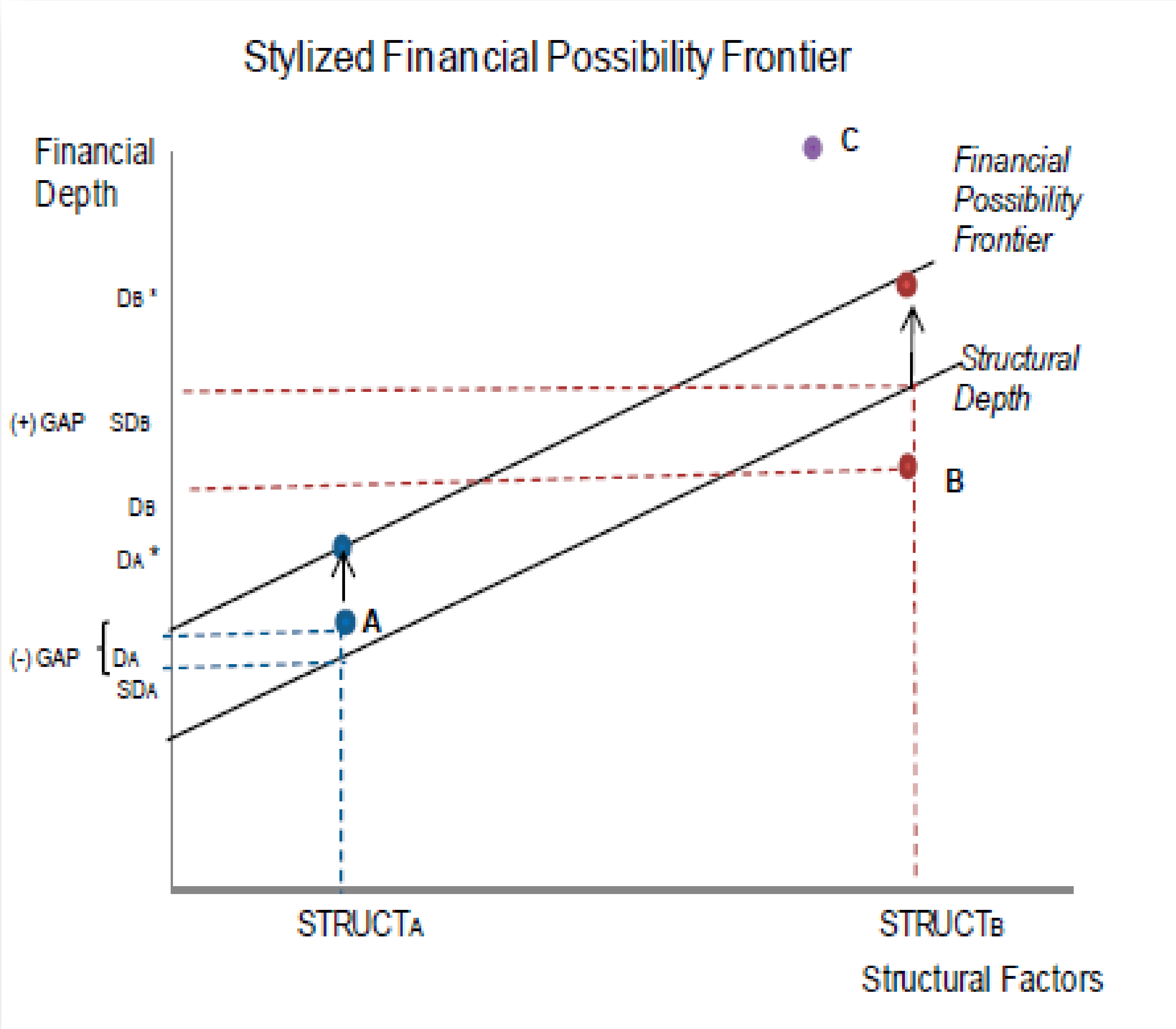
Market frictions

- Transaction costs
- Idiosyncratic and systemic risk

State variables:

- Invariant in the short-run and impose an upper limit on financial deepening
- Socio-economic factors (income, market size, population density, age dependency ratio, conflict)
- Macroeconomic management and credibility
- Contractual and information frameworks
- Available technology and infrastructure

Graphical illustration



Taxonomy of challenges

- Frontier too low
  - Structural variables
  - Institutional variables
  - Market-developing policies
- Financial system below frontier
  - Lack of competition
  - Regulatory constraints
  - Demand-side constraints
  - Market-enabling policies
- Financial system beyond frontier
  - Incentive compatible regulatory framework
  - Also on demand-side
  - Market-harnessing policies

Repercussions for policy work

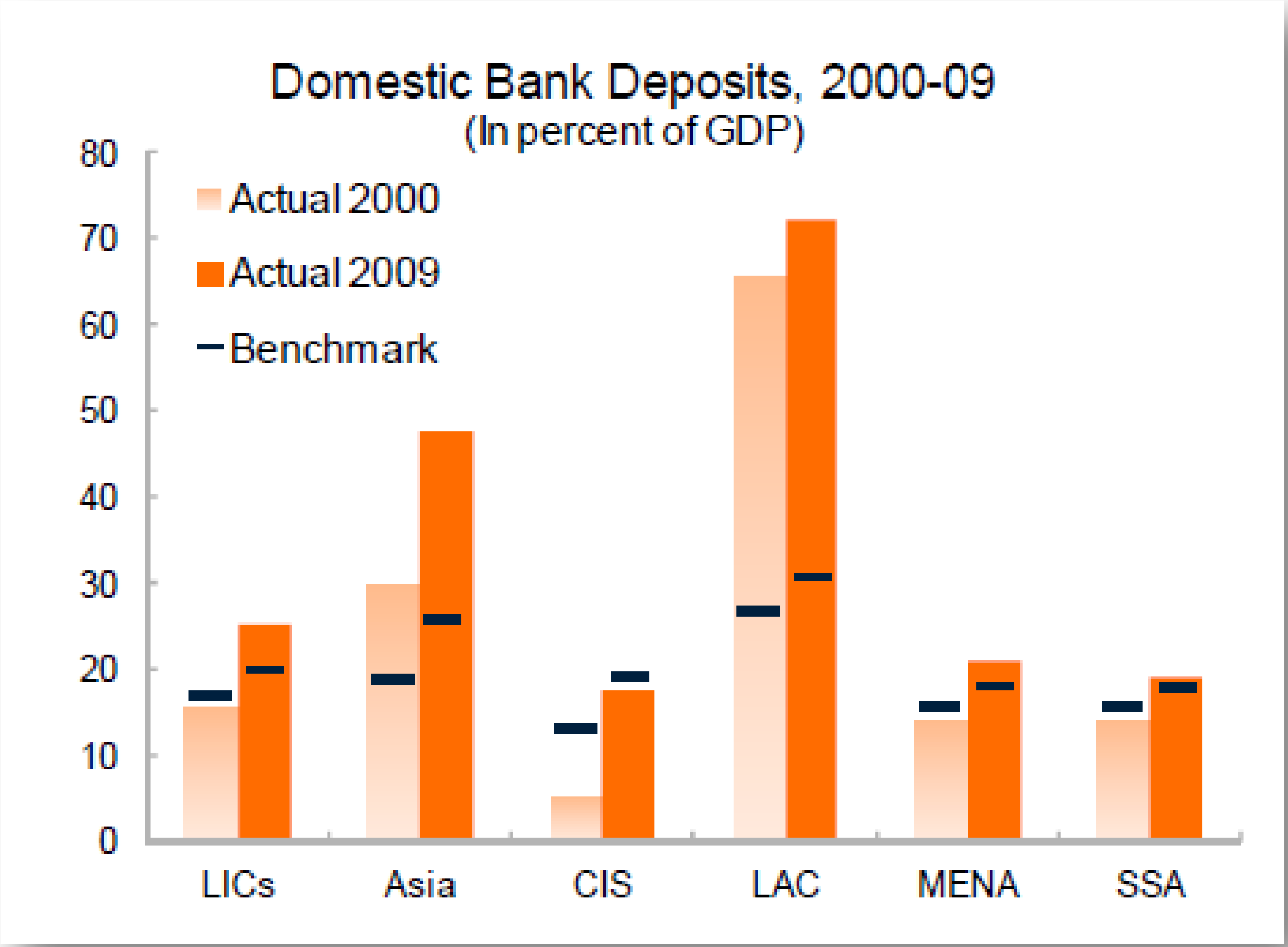
- How to compare countries?
  - Benchmarking model (Feyen et al., 2011; World Bank FinStats)
- Gap? Overshooting?
- What explains discrepancy
  - Cross-country comparisons
  - Country-level analysis

Benchmarking model

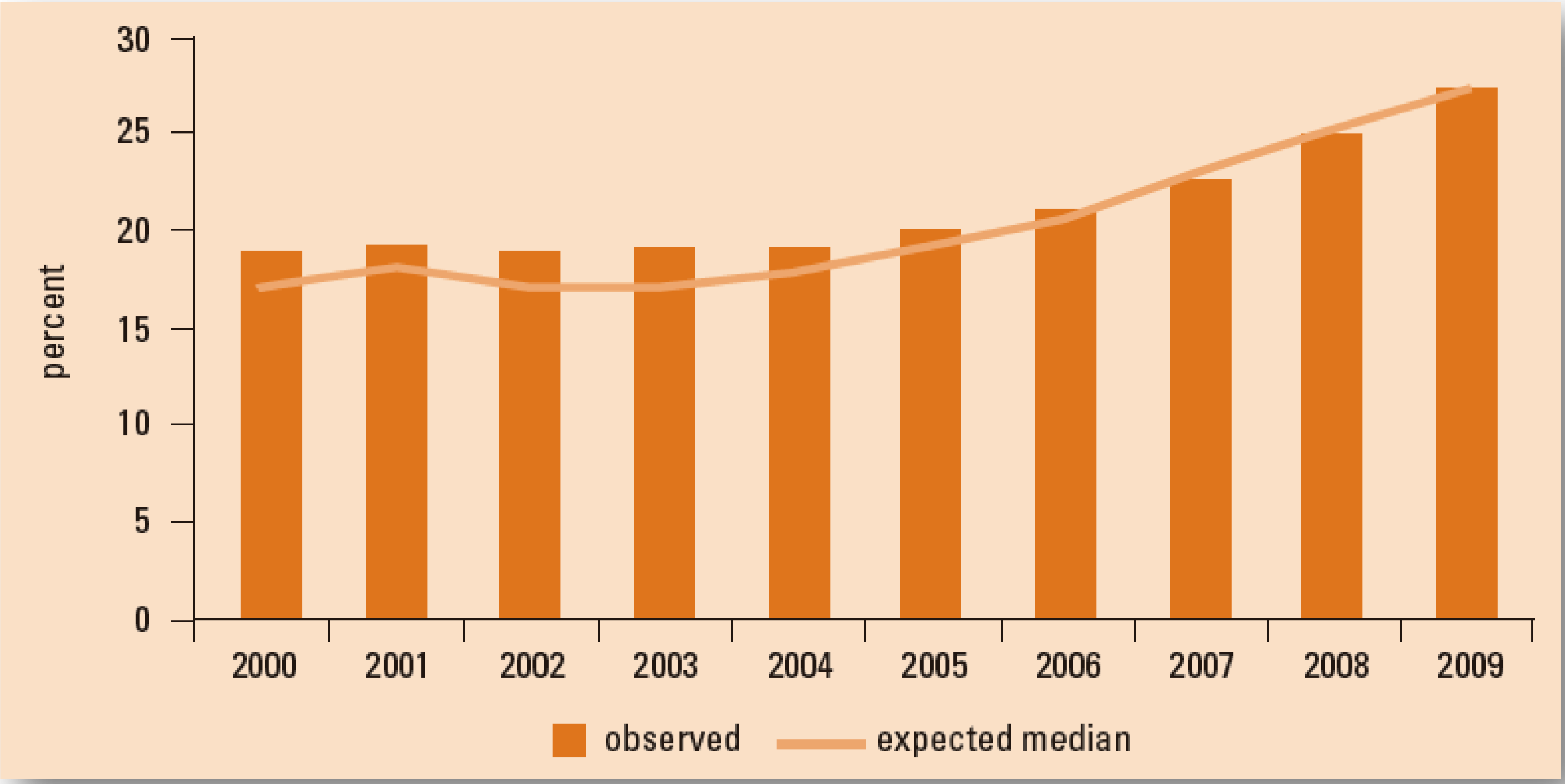
- $FD_{i,t} = \beta X_{i,t} + \varepsilon_{i,t}$
- X = log of GDP per capita and its square
  log of population
  population density
  age dependency ratio
  Offshore center dummy
  Transition economy dummy
  Oil-exporting country dummy

No financial sector policy variables included

Bank deposits across regions



Private Credit to GDP:
Expected Versus Actual across Africa



Univariate Regressions
(Private Credit Gaps)

Variables	Coefficient
Banking Supervision	-7.668**
Privatization	-4.443
Credit Controls	-2.581
Foreign bank entry restriction	-0.432
Bank concentration	-12.729
Government ownership (share)	26.177**
Geographical diversity in lending requirements	16.322
Lagged growth	-1.701***
Banking Crisis	1.699
Exchange rate regime	0.814
Inflation (inverse)	-13.559
Remittance	-0.623*
Risk	-0.387*
Lerner	-39.286
Financial reform index	-13.899
Gross Inflows	0.004
Creditors rights	-4.364**
Foreign banks	0.088
Financial risk	-0.565
Political risk	-0.307*
Economic risk	-0.41
Banking Supervision	-7.668**

Which policy variables explain *gap* between benchmark and actual financial development?

Gap = Benchmark – actual FD average 2003-07

Drivers of Private Credit Gaps

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Banking Supervision		-2.4				-11.003*
Privatization		-10.239**		-8.300**	-8.017***	
Credit Controls		2.542				
Foreign Bank Entry Restriction		-8.924**	-9.941***			-9.404***
Bank Concentration		-11.172	-5.07			
Government Ownership (share)		7.088	16.804***			
Geographical Diversity in Lending Requirements		17.293	25.025	6.588		
Lagged Growth	-2.232*	-3.259**	-3.091**	-3.783***	-3.263***	-4.659***
Banking Crisis	0.964				1.481	-23.338**
Exchange Rate Regime	2.437**				2.528*	
Inflation (inverse)	-35.095*			-22.323		-37.336
Remittance	-1.411***					
Risk	0.326					
Lerner	-59.488*					
Financial Reform Index			(-2.076)	26.289		-39.827
Gross Inflows				0.013	0.01	0.028***
Creditors Rights				-8.064**		-6.872**
Foreign Banks					0.15	
Financial Risk					-1.199	-1.547
Political Risk						0.655
Economic Risk						0.925
Observations	57	55	0.268	67	78	65
R-squared	0.343	0.328		0.299	0.271	0.383

Univariate Regressions
Change in Private Credit Gap

Variable	Coefficient
Banking Supervision	-9.915***
Privatization	-2.061
Credit Controls	-3.243
Foreign Bank Entry Restrictions	6.158*
Bank Concentration	-20.738*
Government Ownership (share)	11.674**
Geographical Diversity in Lending Requirements	11.700*
Banking Crisis	6.169
Exchange Rate Regime	-0.653
Inflation (inverse)	-16.899*
Remittances	-0.139
Risk	-0.394**
Lerner index	-22.673
Financial Reform Index	-18.789
Gross Inflows	-0.011
Creditors Rights	-0.903
Foreign Banks	0.053
Financial Risk	-0.345
Political Risk	-0.410**
Economic Risk	-0.638*
Banking Supervision	-9.915***

Which policy variables explain *changes in the gap*?

Gap = Benchmark – actual FD
Change in gap between 1995 to 2005

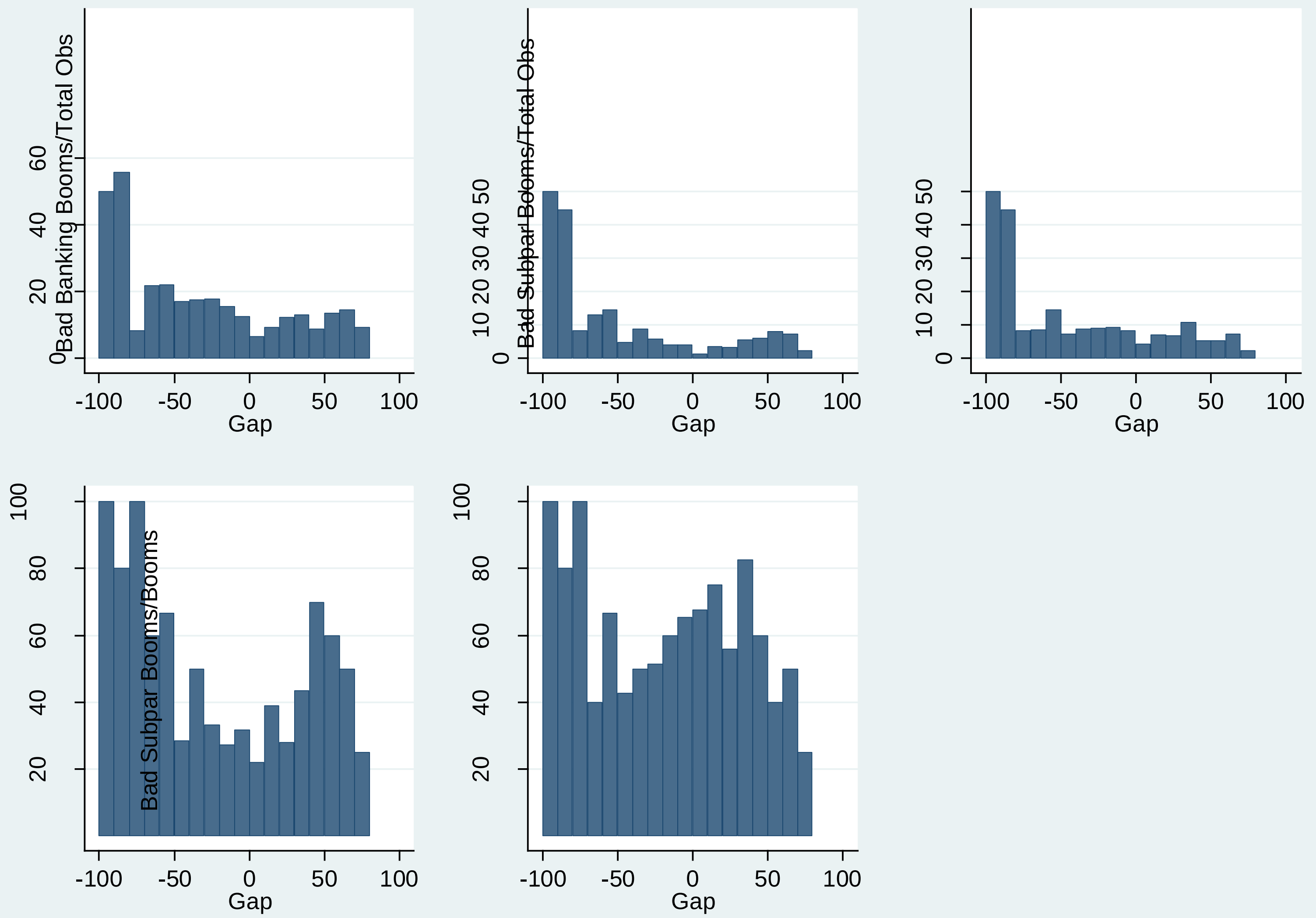
Changes in Private Credit Gap

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Banking Supervision		-7.172*				-17.338***
Privatization		0.568		2.107	-1.015	
Credit Controls		-4.835				
Foreign Bank Entry Restriction		4.844	5.401			4.939
Bank Concentration		-32.470**	-36.255**			
Government Ownership (share)		14.048***	10.607***			
Geographical Diversity in Lending Requirements		16.385**	19.508***	18.654**		
Banking Crisis	12.029				17.147**	20.893**
Exchange Rate Regime	3.805**				3.025**	
Inflation (inverse)	36.048**			0.868		20.401
Remittance	-0.66					
Risk	-0.178					
Lerner	-50.595**					
Financial Reform Index			-18.012	-49.247**		35.599*
Gross Inflows				0.012	-0.002	0.027***
Creditors Rights				-0.647		-1.195
Foreign Banks					0.035	
Financial Risk					-0.449	1.547*
Political Risk						-0.142
Economic Risk						-2.268*
Observations	51	54	54	63	75	61
R-squared	0.26	0.301	0.229	0.137	0.124	0.429

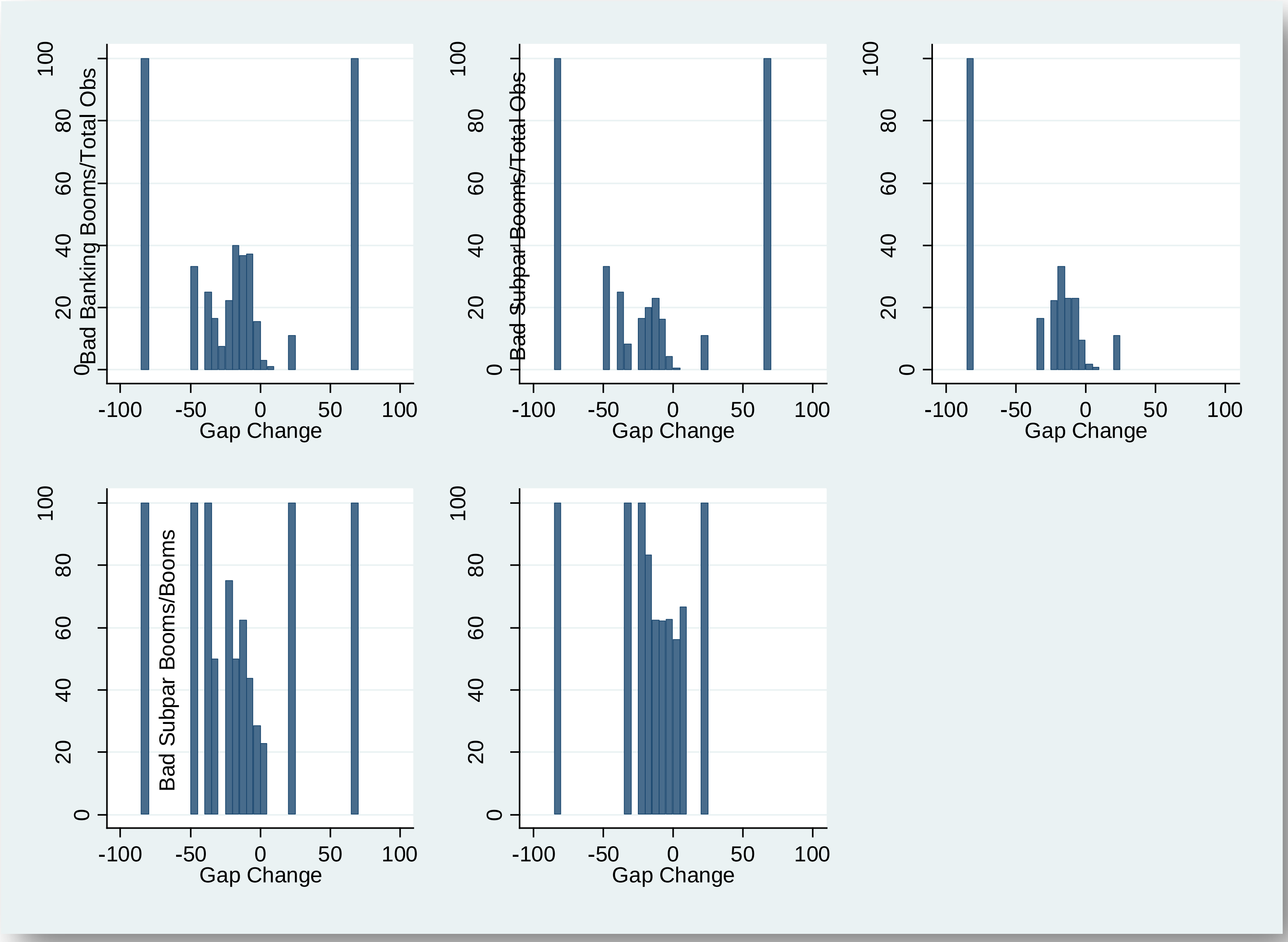
The other side of the coin

- Overshooting the benchmark
- Warning signals
  - Actual level of financial depth above benchmark
  - Change in gap
- Some illustrative evidence

Gap Frequency



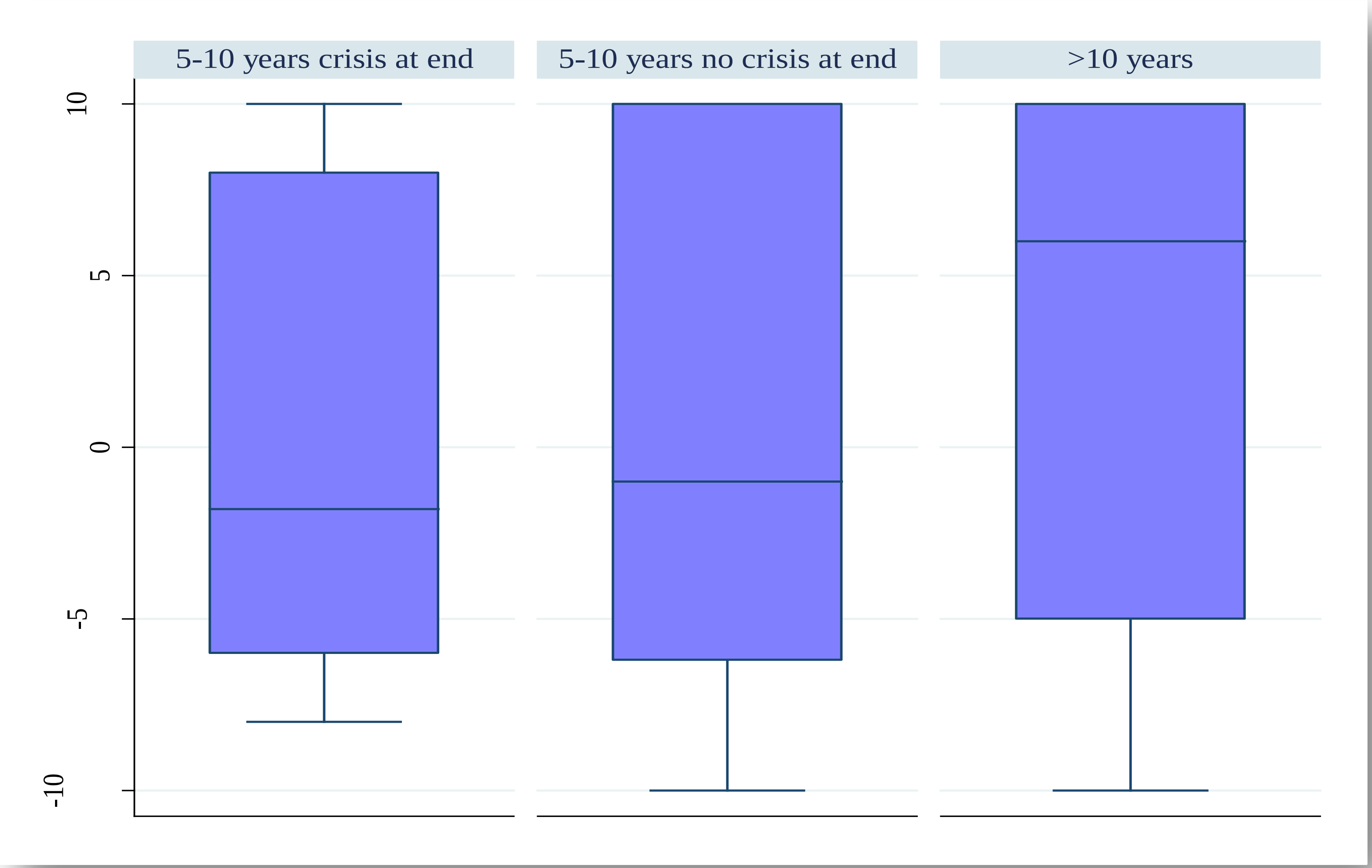
Changes in Gap Frequency



Summary of findings

- Several policy areas are associated with a lower gap and more rapid closing of the gap
  - Private financial service provision
  - Quality of supervision
  - Financial sector reform
  - Contractual framework\Openness
- Large changes in gap or overshooting are associated with higher crisis probability and with more severe bust periods

Looking beyond policies…



Source: Quintyn and Verdier (2012)

Conclusions

- Understand where financial system is relative to financial possibility frontier
  - Structural problems holding back frontier
  - Institutional deficiencies holding back frontier
  - Policy restrictions keeping country below frontier
  - Being beyond frontier might indicate overshooting
- Applying to country analysis
  - Benchmarking
  - Cross-country comparison that can identify policies that can explain country's position relative to frontier
  - Country-specific analysis of binding constraints
  - Benchmarking analysis can serve as additional crisis indicator
- All financial sector reform is local! Ignore political economy at your own risk.