Interest Rate Spreads in an Emerging Economy Under Different Macroeconomic Regimes: Argentina, 1994-2013

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Outline

- Banking (intermediation) spreads
  - Definitions: ex ante (explicit) and ex post (implicit) spreads
  - Overview and descriptive analysis
  - The evolution of implicit spreads: direct determinants
  - Determinants of explicit spreads: econometric evidence
- Concluding remarks

Introduction

- Financial stability analysis has become increasingly relevant for monetary policy since the outbreak of the international financial crisis
- Analysts and policymakers look for variables that can be monitored to follow the development of financial markets and the risks they face: interest rate spreads are a natural candidate.
- We study the interest rate spread of the Argentine financial system during the last nineteen years under two definitions –explicit and implicit- analyzing its dynamics and possible determinants.
- Are spreads a result of the macroeconomic environment, of financial system variables, or a combination of both type of determinants?
- Our sample enables us to analyze the importance of different factors over two distinct macroeconomic regimes.

Selected literature (recent Argentine experience)

- Decade of 1990: “Why so high?” (Brock and Rojas Suárez, 2000). Paradox: high degree of financial integration together with high spread (Catão, 1998; Ahumada et al., 2000).

- After the 2001-02 crisis: importance of macroeconomic and structural factors (Kiguel and Okseniuk, 2006); financial variables are also significant (Grasso and Banzas, 2006).

Our paper

We extend the sampling period (until 2013): more complete depiction of spread dynamics, including impact of international financial crisis.

Ability to identify differential behaviour under different macroeconomic regimes.

Intermediation spread

Difference between interest rates charged for loans (active) and paid for deposits (passive or funding cost)

We use two alternative operational definitions:

*E*x ante or explicit spread: interest rates as operated between financial institutions and their customers (implicit rates).

Ex post or implicit s*pread* : relationships between income from loans (implicit active rate) and expenses due to deposits (implicit funding cost).

Data sources

Explicit spread: *Sistema Centralizado de Requerimientos Informativos* (SISCEN), Central Bank of Argentina (BCRA).

Implicit spread: balance sheet of financial institutions, as informed to the Superintendence of Financial and Foreign Exchange Institutions (SEFyC-BCRA).

Definitions (1)

Explicit spread

Based on market or *ex ante* rates:

$Spread_{ijkm} = lending\ rate_{ijkm} - cost\ of\ funding_{km}$

Lending or active rates (new operations)

i = loan type: overdrafts, promisory notes' discount, pledges, mortgages, personal loans, credit cards

j = borrower type: households, companies, small and medium-sized enterprises (SMEs)

k = currency: pesos, foreign currency (USD)

m = type of institution (public banks, national private banks, foreign private banks, non-banking financial institutions)

Definitions (2)

Cost of funding, or passive rates

Based on deposit data (currently around 80% of banks' assets) and their corresponding interest rates.

1) Weighted by all types of deposits' stock (broader measure, employed here)

$Cost\ of\ funding = \alpha_{ca}.i_{ca} + \alpha_{pf}.i_{pf}$

α= deposit stock in savings account (*ca*), fixed time deposits (*pf*) over total deposits (including current accounts).

i = interest rates on savings accounts, fixed time deposits

2) Weighted by new time deposits (more explicit measure, as it considers new operations; similar to deposit rate as considered in WB spread calculations):

$Cost\ of\ funding = \sum \beta_n.i_n$

β = share of time deposit tranche in total new time deposits .

i = interest rate on each tranche of new time deposit.

n = new time deposit tranche, depending on amount (4 tranches).

Definitions (3)

Implicit spread

Based on balance sheet data. Although it is a historical analysis, it may help discriminate among factors that determined spread during a specific period.

$$Spread_{km} = implicit\ lending\ rate_{km} - implicit\ deposit\ rate_{km}$$

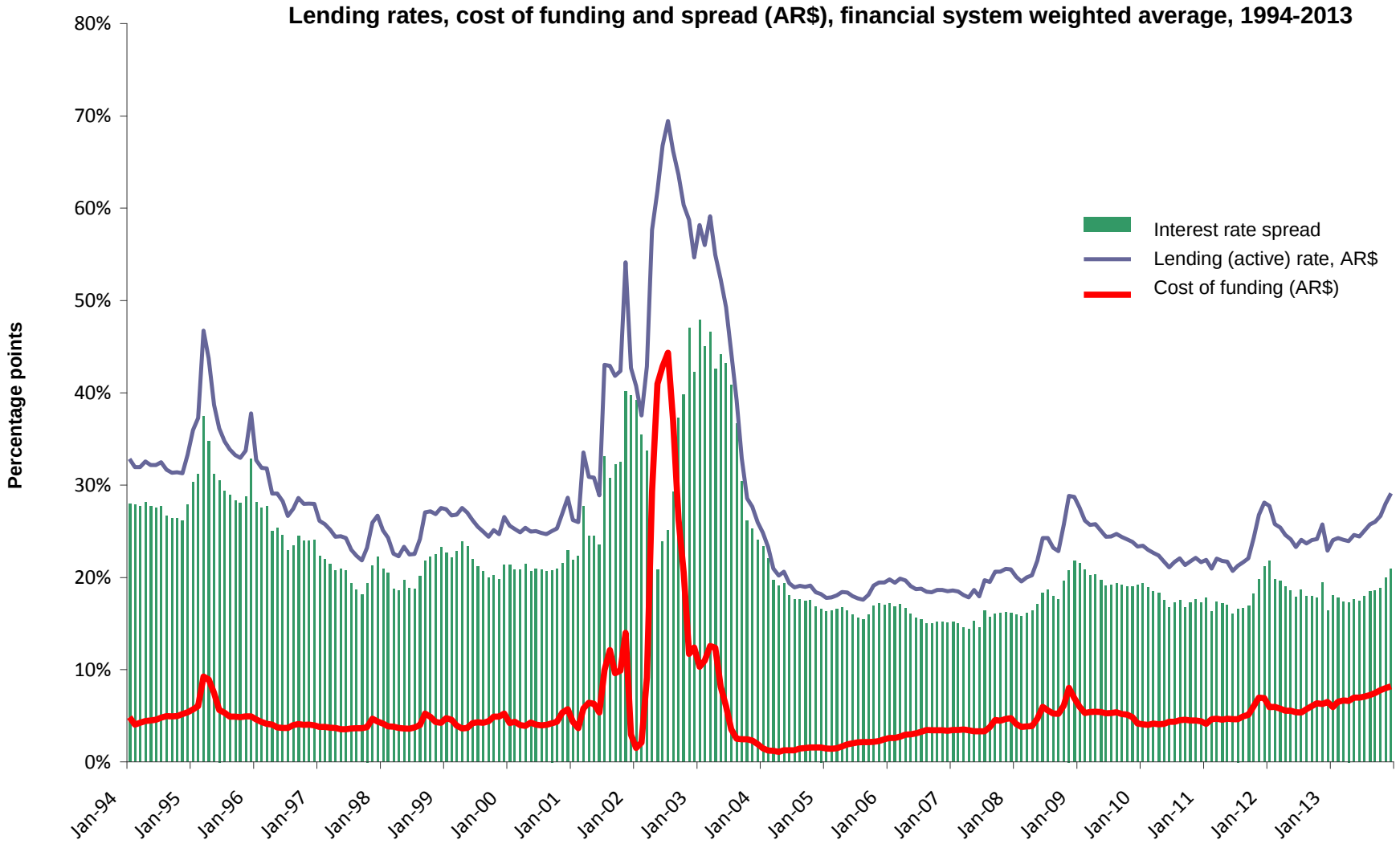
k = currency: total, pesos and foreign currency
m = type of institution (public banks, national private banks, foreign private banks, non-banking financial institutions)

Implicit lending rate: interest revenue on loans accumulated during the last 12 months, over 12-month average of loans (stocks).

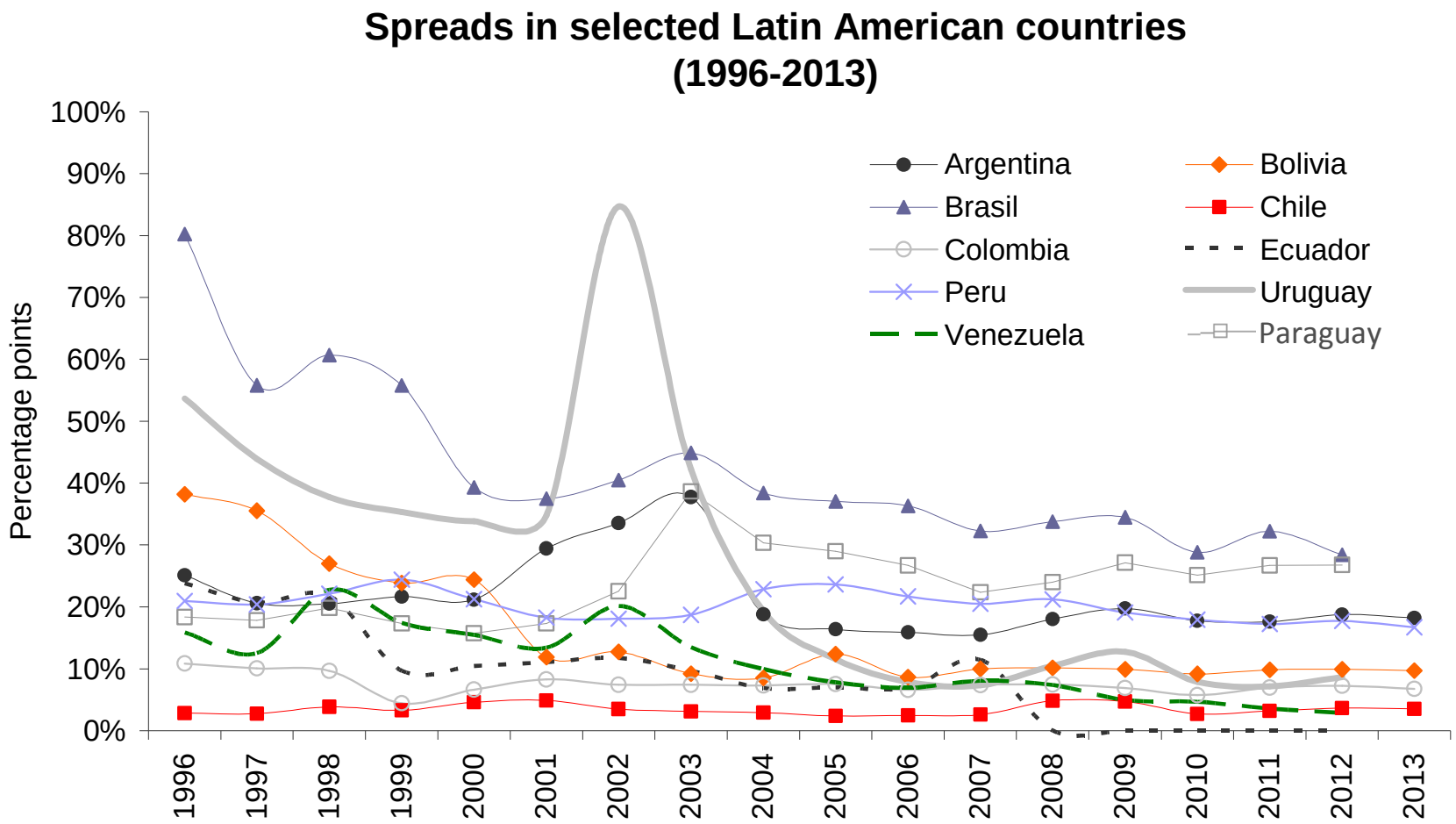
Implicit deposit rate: interest expenses on deposits accumulated during the last 12 months, over 12-month average of deposits (stocks)

Explicit spreads

Evolution over time: financial system average

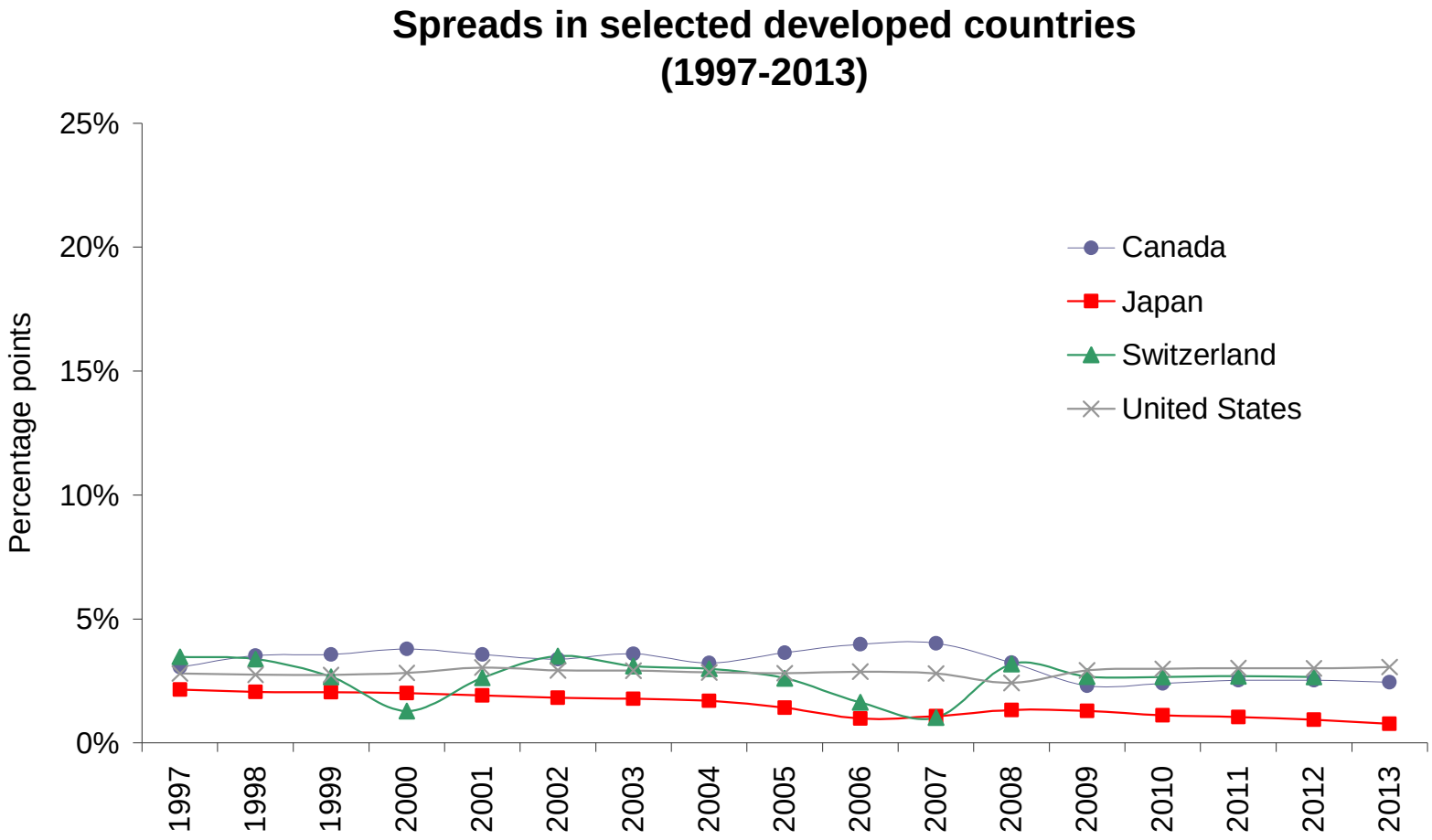


Explicit spread: international comparison



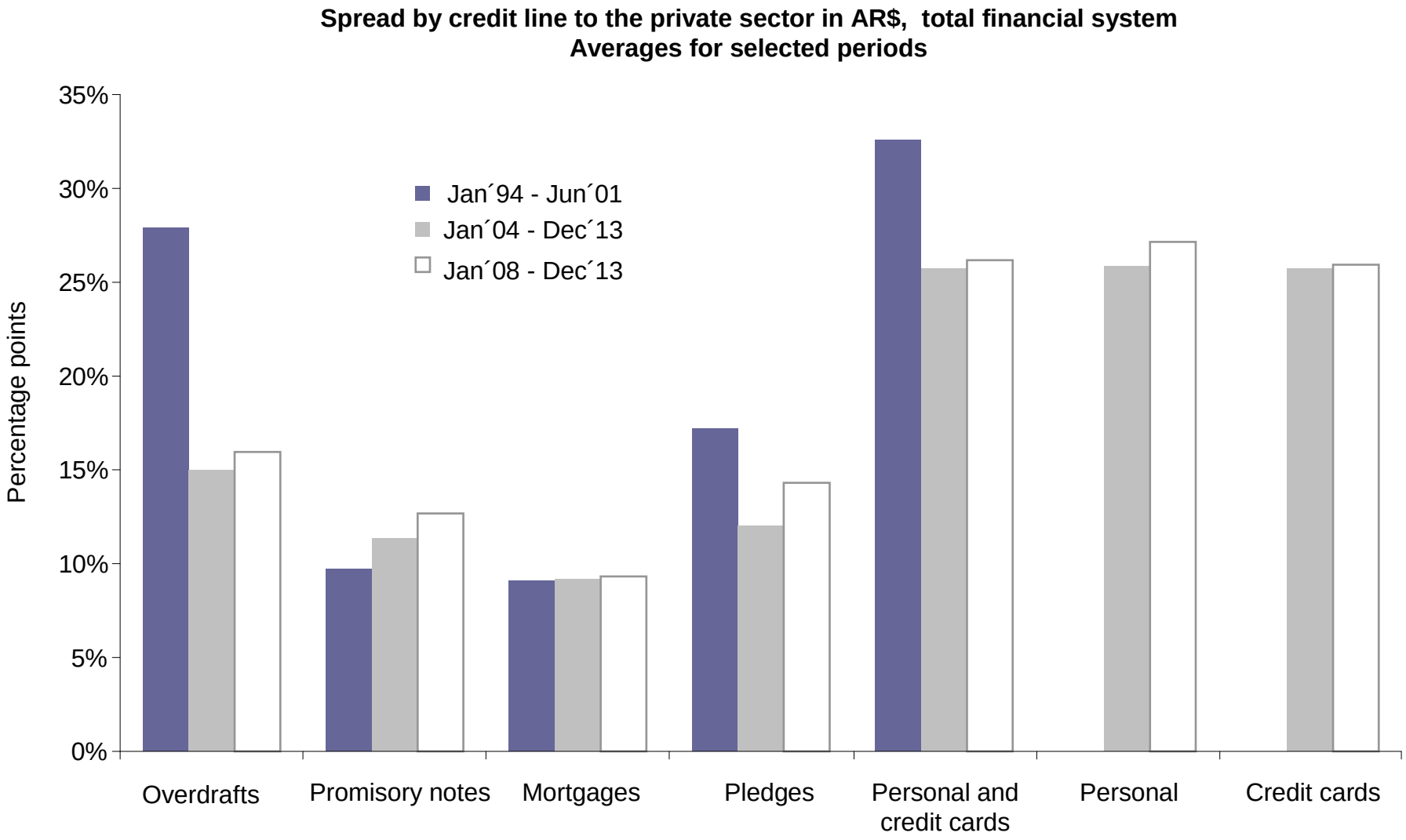
Source: Central Banks and IMF.

Explicit spread: international comparison (II)



Source: IFS.

Explicit spread: different credit lines



Explicit spread: descriptive measures across different macroeconomic regimes

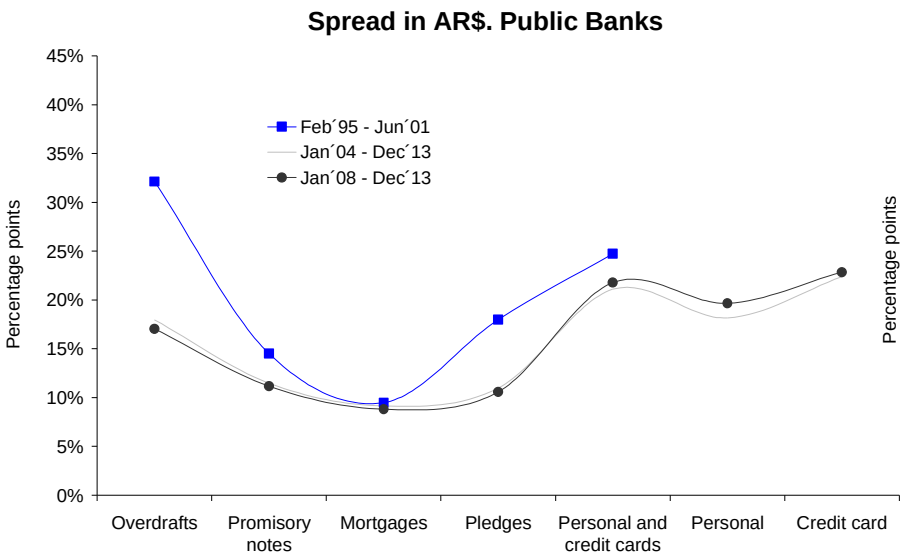
Spread by credit line in AR$, financial system total, January 1994- June 2001, p.p.

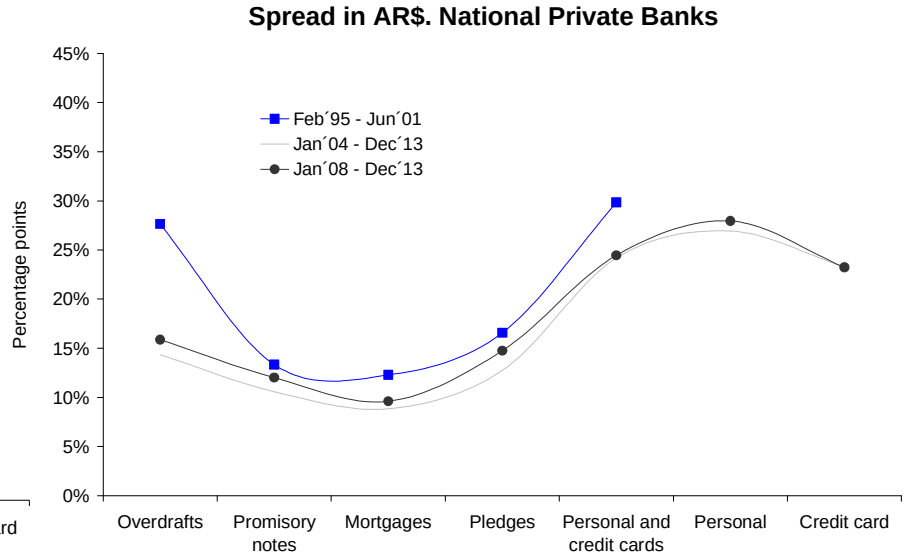
	Overdrafts	Promisory notes	Mortgages	Pledges	Personal and credit cards	All lines (average)
Average	27,90	9,73	9,08	17,20	**32,61**	0,24
Median	26,46	8,76	9,51	16,97	**31,88**	0,23
Maximum	41,27	28,45	12,84	38,61	**41,98**	**0,37**
Minimum	22,85	5,70	3,15	13,05	**26,70**	0,18
Standard deviation	3,90	3,88	1,92	2,91	**4,17**	0,04
Coefficient of variation	0,14	**0,40**	0,21	0,17	0,13	0,17

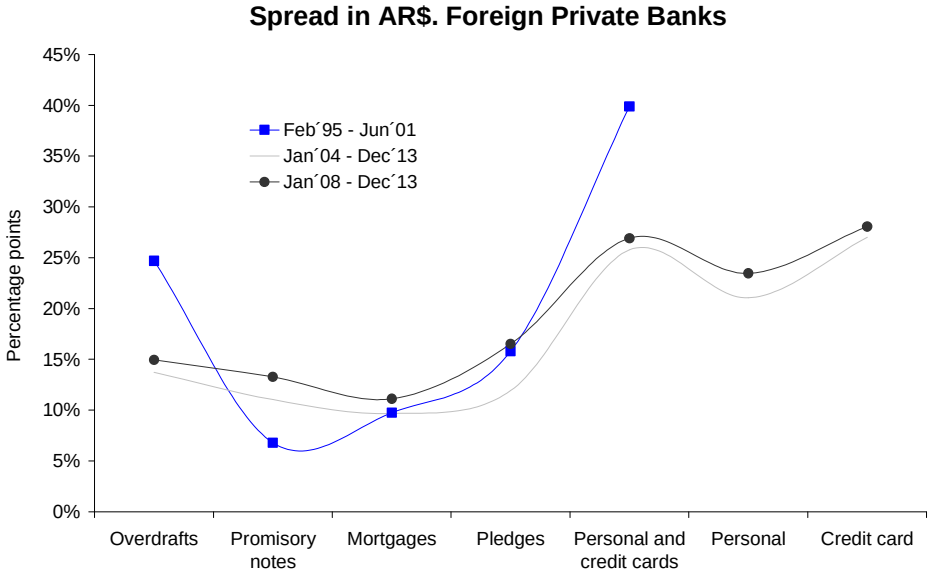
Spread by credit line in AR$, financial system total, January 2004- December 2012, p.p.

	Overdrafts	Promisory notes	Mortgages	Pledges	Personal and credit cards	Credit cards	Personal	All lines (average)
Average	14,91	11,21	9,25	11,92	25,59	**25,65**	25,61	17,59
Median	14,41	10,61	9,59	12,61	25,53	**25,66**	25,06	17,24
Maximum	21,86	19,27	11,85	20,75	31,04	32,03	**36,96**	23,34
Minimum	11,47	7,53	6,63	4,79	21,51	**20,73**	20,71	14,41
Standard deviation	2,20	2,43	1,22	**3,85**	2,43	2,57	3,17	1,84
Coefficient of variation	0,15	0,22	0,13	**0,32**	0,10	0,10	0,12	0,10

Differences among bank groups (according to ownership)







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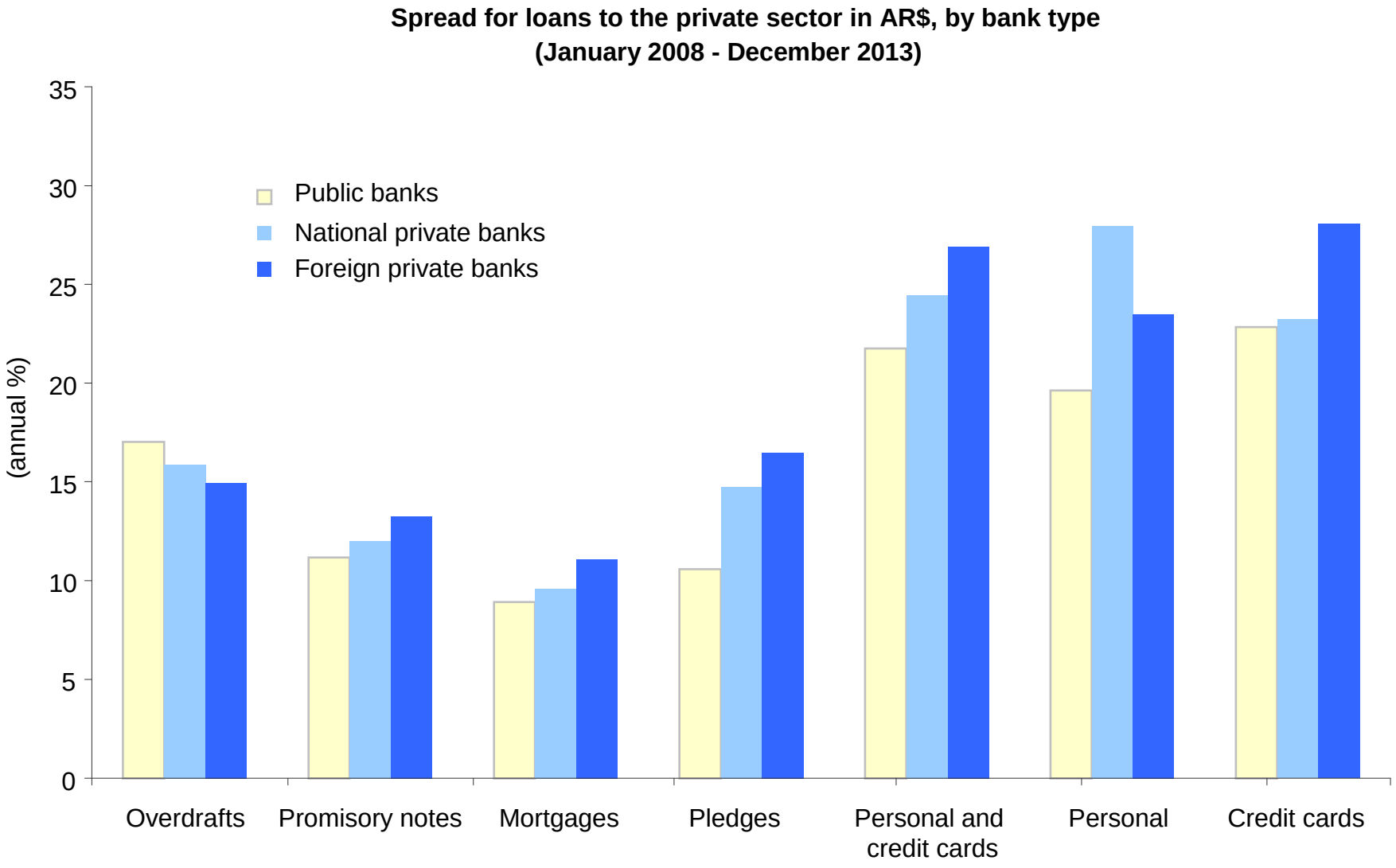
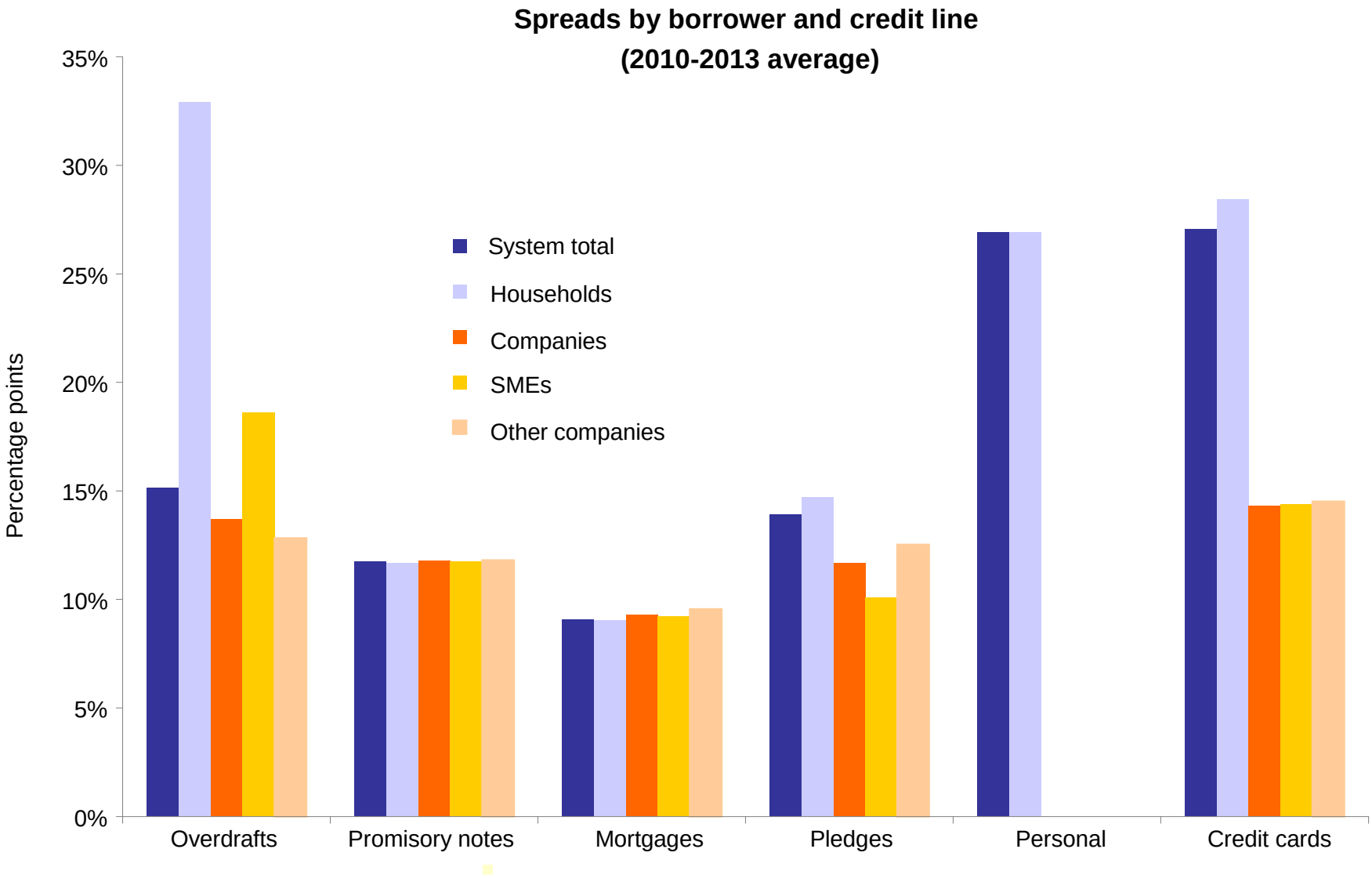


Differences among credit recipients



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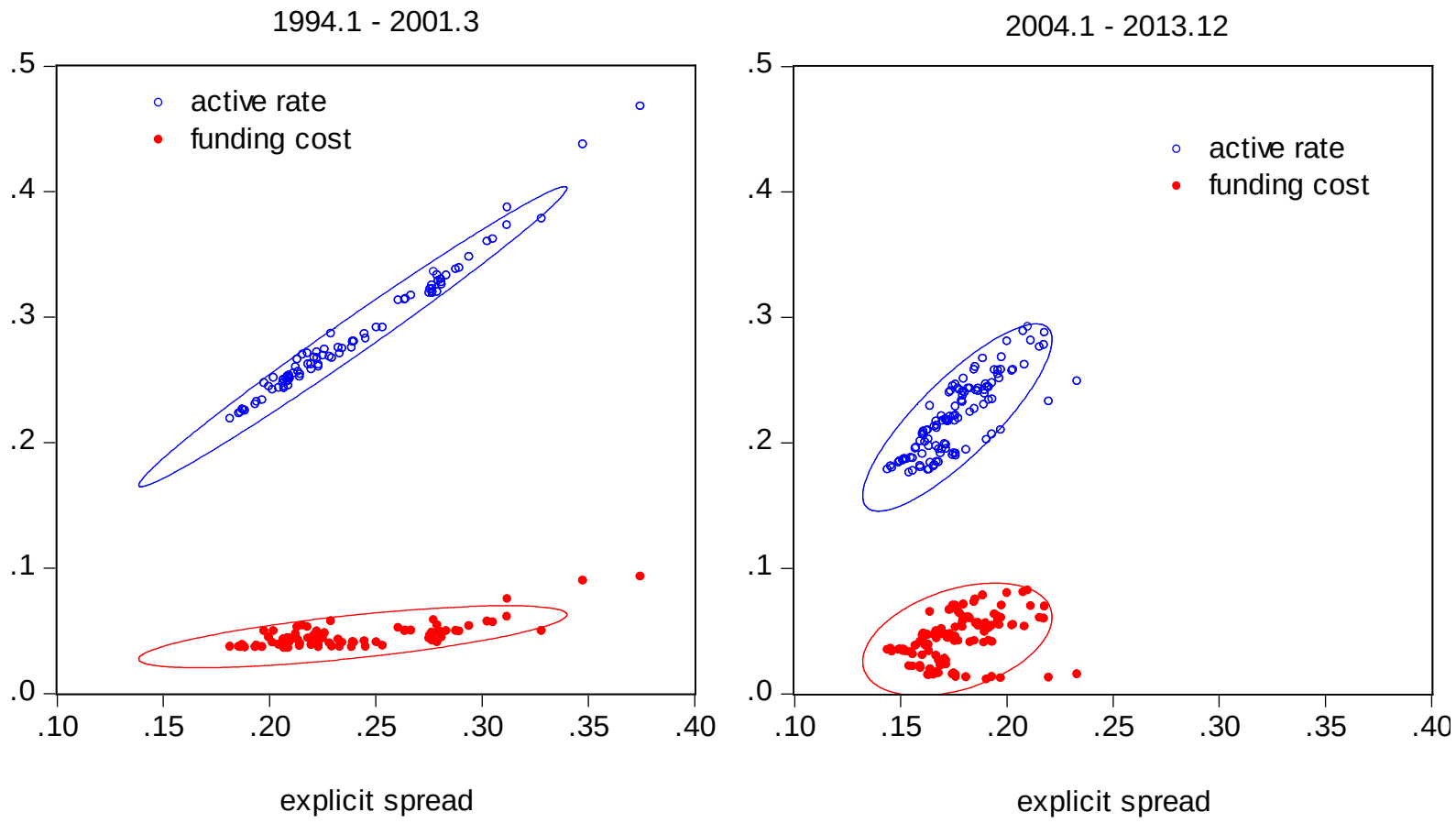
Note: distinction of households from companies is based on legal definition of “physical persons” and “legal persons”.

Banking spread components: correlation

Average explicit spread, lending rates and cost of funding (AR$): scatterplot and correlations



Banking spread components: correlation by type of bank (1995-2001)

Sample: 1995.2 - 2001.6
Included observations: 77 after adjustments

		Funding cost			Active rate			Explicit Spread		
		Foreign-owned banks	Private national banks	Public banks	Foreign-owned banks	Private national banks	Public banks	Foreign-owned banks	Private national banks	Public banks
Funding cost	Foreign-owned banks	1 ----- -----								
	Private national banks	**0.925** 21.130 0.000	1 ----- -----							
	Public banks	**0.827** 12.727 0.0000	**0.855** 14.281 0.0000	1 ----- -----						
Active rate	Foreign-owned banks	**0.760** 10.134 0.000	**0.846** 13.736 0.000	**0.750** 9.819 0.000	1 ----- -----					
	Private national banks	**0.699** 8.454 0.000	**0.784** 10.947 0.000	**0.927** 21.361 0.000	**0.780** 10.796 0.000	1 ----- -----				
	Public banks	**0.542** 5.588 0.000	**0.690** 8.260 0.000	**0.808** 11.868 0.000	**0.727** 9.162 0.000	**0.872** 15.442 0.000	1 ----- -----			
Explicit Spread	Foreign-owned banks	**0.605** 6.587 0.000	**0.735** 9.380 0.000	**0.649** 7.394 0.000	**0.977** 39.969 0.000	**0.728** 9.195 0.000	**0.714** 8.822 0.000	1 ----- -----		
	Private national banks	**0.582** 6.191 0.000	**0.664** 7.688 0.000	**0.876** 15.761 0.000	**0.702** 8.541 0.000	**0.985** 48.844 0.000	**0.857** 14.407 0.000	**0.671** 7.830 0.000	1 ----- -----	
	Public banks	**0.322** 2.944 0.004	**0.509** 5.123 0.000	**0.596** 6.433 0.000	**0.612** 6.699 0.000	**0.721** 9.009 0.000	**0.955** 27.849 0.000	**0.645** 7.304 0.000	**0.726** 9.134 0.000	1 ----- -----

Banking spread components: correlation by type of bank (2004-2013)

Sample: 2004.1 - 2013.12
Included observations: 120 after adjustments

		Funding cost			Active rate			Explicit Spread		
		Foreign-owned banks	Private national banks	Public banks	Foreign-owned banks	Private national banks	Public banks	Foreign-owned banks	Private national banks	Public banks
Funding cost	Foreign-owned banks	1 ----- -----								
	Private national banks	**0.974** 46.259 0.000	1 ----- -----							
	Public banks	**0.894** 21.617 0.0000	**0.929** 27.308 0.0000	1 ----- -----						
Active rate	Foreign-owned banks	**0.816** 15.339 0.000	**0.847** 17.272 0.000	**0.797** 14.351 0.000	1 ----- -----					
	Private national banks	**0.836** 16.564 0.000	**0.894** 21.710 0.000	**0.865** 18.759 0.000	**0.941** 30.322 0.000	1 ----- -----				
	Public banks	**0.160** 1.766 0.080	**0.205** 2.279 0.024	**0.313** 3.577 0.001	**0.572** 7.565 0.000	**0.519** 6.600 0.000	1 ----- -----			
Explicit Spread	Foreign-owned banks	**0.457** 5.580 0.000	**0.525** 6.699 0.000	**0.513** 6.495 0.000	**0.887** 20.861 0.000	**0.781** 13.571 0.000	**0.751** 12.370 0.000	1 ----- -----		
	Private national banks	**0.517** 6.560 0.000	**0.594** 8.031 0.000	**0.614** 8.455 0.000	**0.835** 16.457 0.000	**0.891** 21.373 0.000	**0.725** 11.441 0.000	**0.871** 19.298 0.000	1 ----- -----	
	Public banks	**-0.524** -6.682 0.000	**-0.509** -6.422 0.000	**-0.462** -5.658 0.000	**-0.068** -0.736 0.463	**-0.168** -1.848 0.067	**0.698** 10.585 0.000	**0.315** 3.601 0.001	**0.214** 2.380 0.019	1 ----- -----

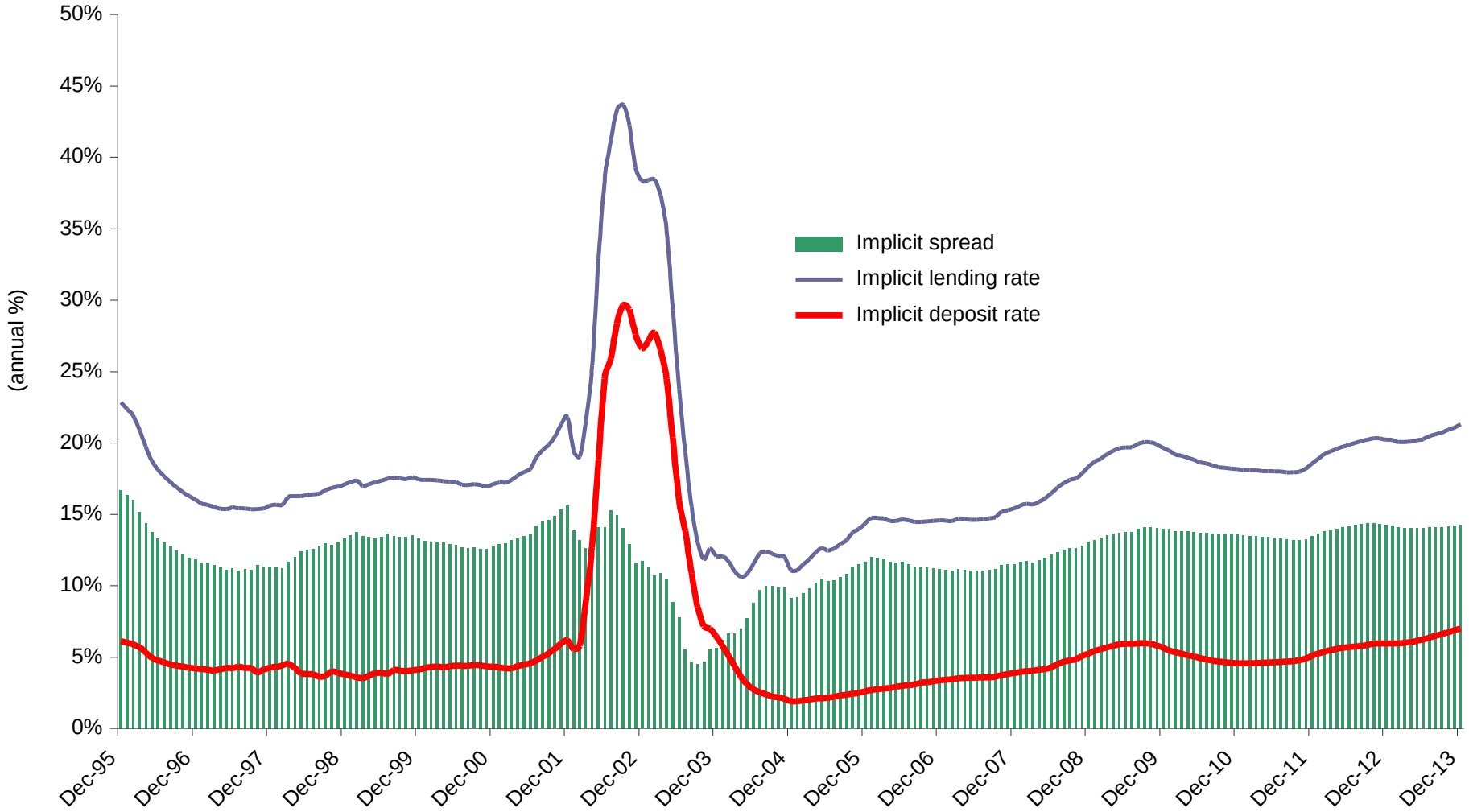
Banking spread components: Granger causality

H_0: does not Granger cause			2004.1-2013.12 Chi^2 statistic	p-value
Funding cost	does not cause	overdraft rate	32.226	0.000
		promisory note rate	38.580	0.000
		mortgage rate	10.627	0.001
		personal rate	2.973	0.085
		pledge rate	0.028	0.867
		credit card rate	5.356	0.021
overdraft rate	does not cause	funding cost	3.287	0.070
promisory note rate			3.169	0.075
mortgage rate			2.881	0.349
personal rate			0.210	0.647
pledge rate			2.139	0.144
credit card rate			0.817	0.366
overdraft rate	does not cause	promisory note rate	14.429	0.000
		mortgage rate	4.527	0.033
		personal rate	9.104	0.003
		pledge rate	0.852	0.356
		credit card rate	0.000	0.984

VAR with one lag and dummy variables for outliers

Implicit spreads

Implicit lending rate, passive rate and spread (AR$, total financial system)
(1995-2013)



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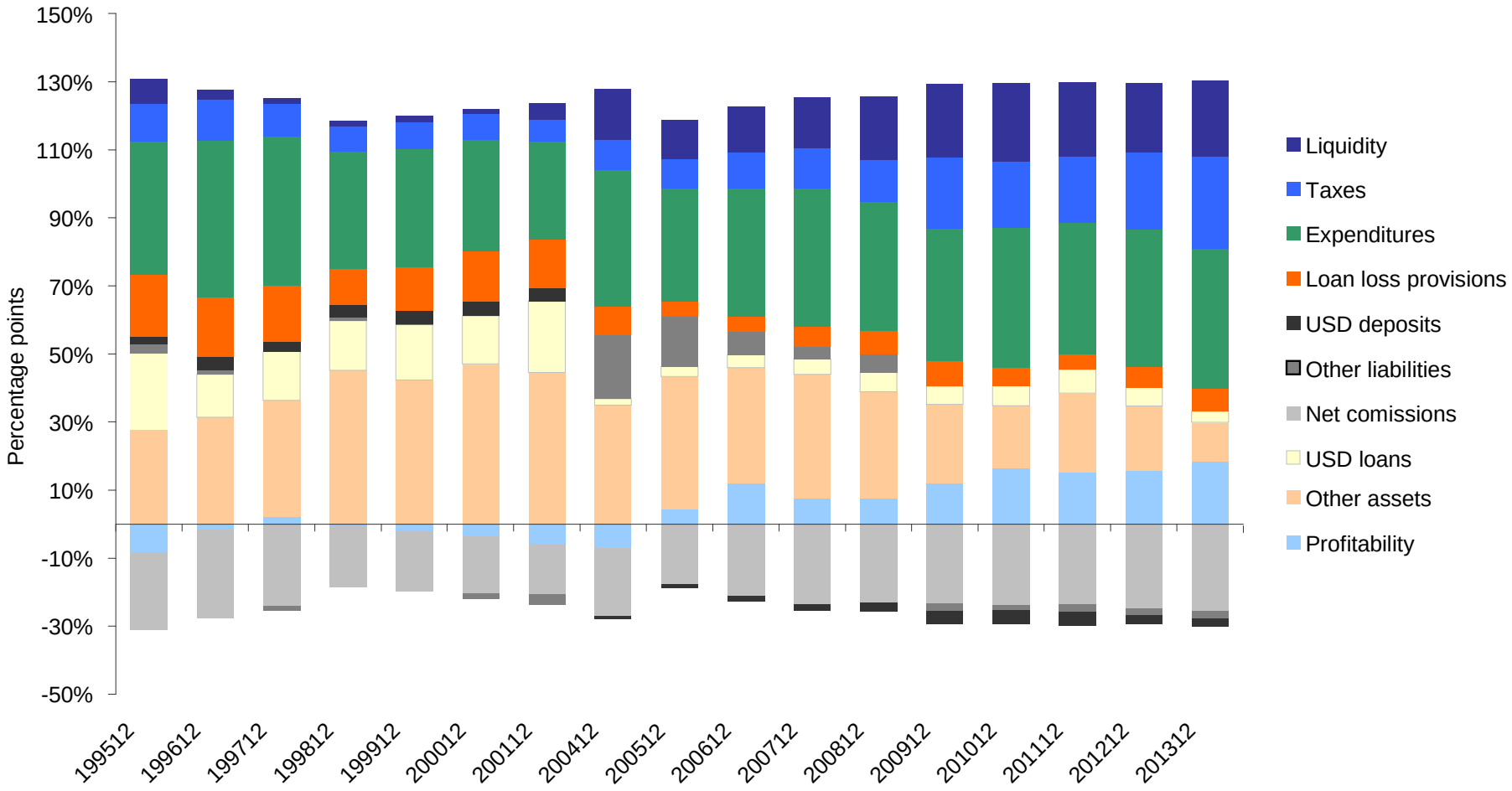
Spread decomposition: using balance sheet concepts and data, lending and deposit implicit rate are "solved" for their accounting determinants.

$$s_{\$} = \left(ROE - i_{\$}^{D}\right)\phi_{PN} + \alpha_{E}\left(i_{\$}^{P} - i^{E}\right) + \alpha_{OA}\left(i_{\$}^{P} - i^{OA}\right) - cn + \alpha_{USD}^{P}\left(i_{\$}^{P} - i_{USD}^{P}\right) + \left(i_{USD}^{D} - i_{\$}^{D}\right)\phi_{USD}^{D} +$$
$$+ \left(i^{OP} - i_{\$}^{D}\right)\phi_{OP} + c + g + t$$

Spread in AR$, total financial system: direct (accounting) determinants
(% contribution, excluding 2002-2003)



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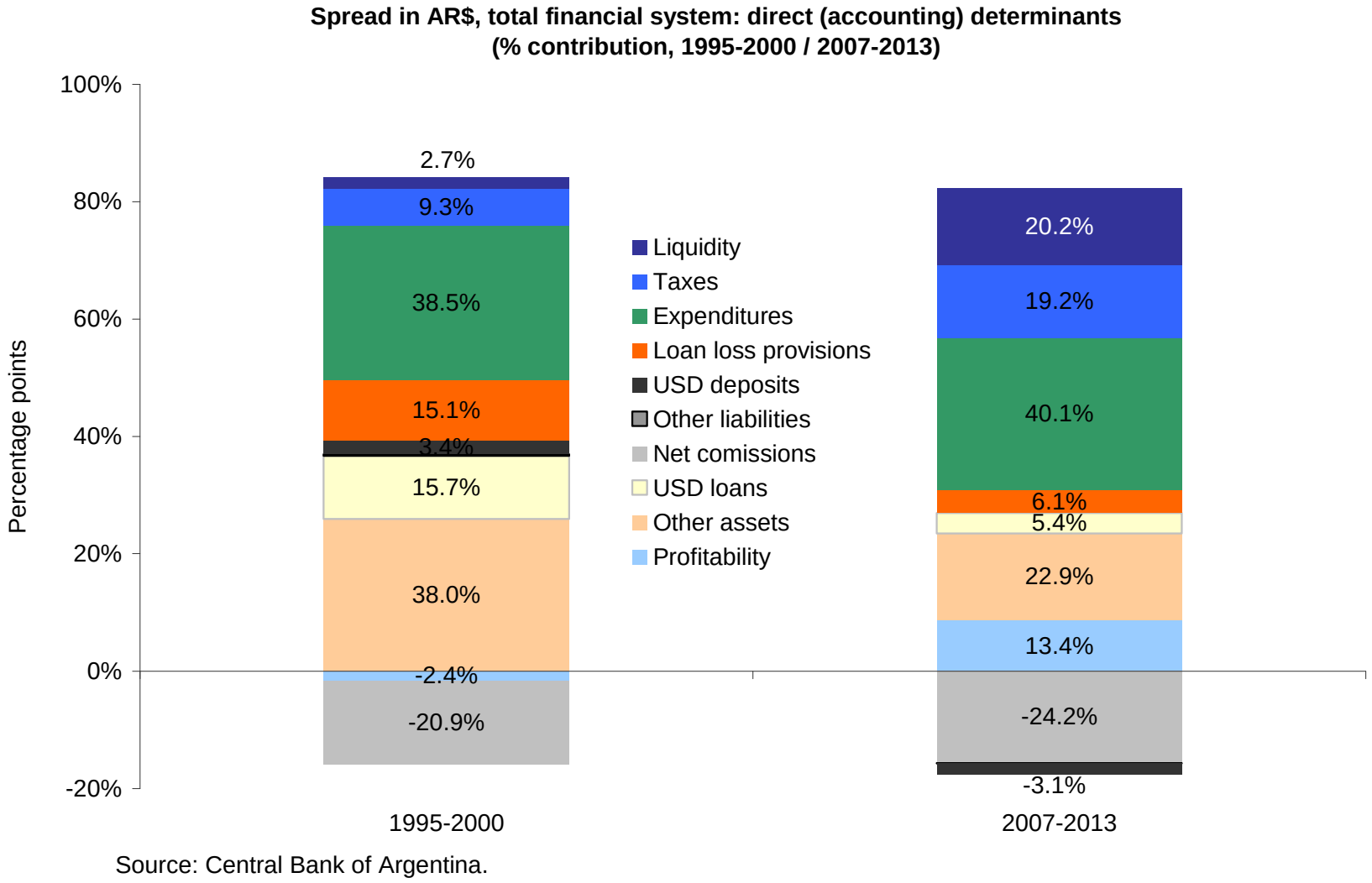
$$+ \left(i^{OP} - i_{\$}^{D}\right)\phi_{OP} + c + g + t$$



Source: Central Bank of Argentina.

Determinants of banking spreads

How to account for spread dynamics?

- Macroeconomic variables
- Financial sector variables

What other studies have found (especially in Latin America –see references)

- Variables with a positive and significant impact on spread:
  - Administrative costs
  - Non performing loans
  - Liquidity requirements
  - Liquidity / excess reserves
  - Taxes
  - Profits
  - Devaluation risk
  - Macroeconomic volatility

- Variables with a negative and significant impact on spread
  - Regulation
  - Asset quality

What other studies have found (especially in Latin America) (II)

- Variables that have impacts of different sign depending on country / period
  - Inflation
  - Economic activity
  - Monetization of the economy
  - Banking concentration
  - Level of financial intermediation

Determinants of banking spreads

Our approach: estimate relationship between average explicit spread of the financial system in pesos, and macroeconomic, monetary and financial variables, 1994-2012, using monthly data.

Macroeconomic variables

- Economic activity (y-o-y change of monthly estimator of economic activity)
- Inflation (y-o-y change in retail prices)
- Monetization (monetary aggregate M3, AR$, to GDP)

Financial market variables

- Country risk (as measured by Emerging Market Bond Index spread)
- Banking industry concentration (Hirschman-Herfindahl index, credit)

Banking system variables

- Administration costs (expenses) in terms of assets
- Liquidity, in two alternative definitions
  - Required liquidity / deposits
  - Total liquidity / assets
- Taxes over assets
- Cost of use of own resources:
  - Equity /assets
  - Return on equity
- Delinquency
  - Non performing loans (% of loans)
  - Delinquency charges / assets

Banking system data correspond to weighted averages of all financial institutions

Estimation methods

- OLS
- GMM: to address potential endogenity. Instruments are lagged values of dependent variables, as well as lagged value of spread (specification tests called for its inclusion)

Samples

- 1996-2013 (complete period); dummy variables are included for impact of 2001-2002 crisis
- 1996-2001: currency board
- 2004-2013: managed floating regime

Data

Dependent variable is current spread of each period; regressors are y-o-y changes, current ratios or, for banking system variables, values averaged over last 12 months. Limitation: *ex ante* spread should depend on expected value of variables (current specification implies assumption: fully adaptive expectations).

Our model of choice: including non performing loans and regulatory requirements

Dependent variable: average explicit (ex-ante) spread of the financial system, AR$
Method: Generalized Method of Moments

	Sample estimation		
Regresors	1996.3-2013.12	1996.3-2001.2	2004.1-2013.12
Economic activity (y.o y.)	-0.222 ***	-0.256 ***	-0.201 ***
	(0.039)	(0.050)	(0.035)
Inflation (y.o y.)	-	-	0.091 **
			(0.041)
M3 / GDP	-0.636 ***	-1.711 ***	-0.706 ***
	(0.064)	(0.211)	(0.118)
EMBI Argentina	0.066 ***	0.462 ***	-
	(0.015)	(0.084)	
HHI Loans	1.308 ***	-	-
	(0.373)		
Required Liquidity / Deposits	-0.492 ***	0.521 ***	-0.432 ***
	(0.094)	(0.169)	(0.092)
Taxes / Asstes	3.222 ***	2.237 **	4.034
	(0.792)	(1.101)	(0.719)
Equity / Assets	0.764 ***	-	0.608 **
	(0.265)		(0.177)
ROE	-0.226 ***	-	-
	(0.035)		
Non Perfoming Loans (% of Loan	-0.246 ***	-0.147 **	0.355 ***
	(0.054)	(0.042)	(0.025)
Constant	0.268 ***	0.337 ***	0.303 ***
	(0.043)	(0.061)	(0.059)
Dummy 2001M3_2002M3	0.070 ***	-	-
	(0.014)		
Dummy 2002M4_2002M9	-0.111 ***	-	-
	(0.020)		
Dummy 2002M10_2003M12	0.095 ***	-	-
	(0.024)		
Included observations	214	61	120
Mean dependent variable	0.214	0.217	0.177
S.D. dependent variable	0.069	0.020	0.018
S.E. of regression	0.020	0.009	0.009
Instrument rank	32	21	21
J-statistic	18.199	10.657	13.915
Prob(J-statistic)	0.509	0.713	0.380

Main results

- Higher growth and monetization always act in the direction of decreasing spread.
- Period specific macroeconomic variables: inflation becomes significant (and positive) only in 2004-12; country risk is significant (and positive) only in 1996-2001. The latter is consistent with changes in international financial integration.
- Banking system variables show, in general higher individual coefficients (although these are not elasticities, by construction):
  - taxes, equity and non performing loans have expected (positive) impact on spread (2004-12).
  - We find administration expenses to be highly collinear with taxes; its coefficient is comparable in size to that of taxes when the latter variable is omitted.
  - Required liquidity is negatively related to spread (2004-12), but this could reflect higher requirements on more liquid deposits (so requirements increase, but the effect of “cheaper” funding prevails).
- Models look adequate in terms of instruments, lags, omitted variables (tests for redundant variables were implemented throughout estimation).
- Main findings are robust to changes in delinquency and liquidity definitions (see annex)

Dependent variable: explicit (ex-ante) sperad by bank groups
Method: Generalized Method of Moments

Estimation by group of banks

	Public banks		Private national banks		Foreign-owned banks	
	1996.02-2001.02	2004.01-2013.12	1996.02-2001.02	2004.01-2013.12	1996.02-2001.02	2004.01-2013.12
Economic activity (y.o y.)	-0.164 ***	-0.081	0.156 **	-0.204 ***	-0.161	-0.204 ***
	(0.030)	(0.063)	(0.066)	(0.054)	(0.182)	(0.070)
Inflation (y.o y.)	0.634 ***	0.025	0.149	0.106	-0.905 *	0.055
	(0.214)	(0.040)	(0.391)	(0.117)	(0.531)	(0.086)
Deposits AR$ / GDP	-0.674	-1.014 ***	-3.825 **	-0.922	-5.944 **	-2.100 ***
	(0.528)	(0.329)	(1.785)	(0.687)	(2.435)	(0.655)
EMBI Argentina	-0.141 **	0.008	0.045	0.044 ***	0.263	0.002
	(0.055)	(0.011)	(0.206)	(0.015)	(0.418)	(0.019)
Market Share of Loans	-0.025	0.194	0.103	0.537 *	0.707 ***	-0.615 ***
	(0.157)	(0.177)	(0.161)	(0.300)	(0.206)	(0.195)
Administration Expenses / Assets	-2.101	3.594 **	5.573 ***	-1.337	1.689	2.468
	(1.613)	(1.451)	(1.511)	(1.318)	(2.644)	(1.728)
Total Liquidity / Assets	-0.723	0.425 ***	2.418 ***	-0.457	-1.232	-1.057 ***
	(1.035)	(0.125)	(0.849)	(0.570)	(2.068)	(1.728)
Taxes / Assets	10.969 ***	-2.105 **	-13.207 ***	4.381 ***	11.887 **	2.007 ***
	(3.440)	(0.834)	(2.596)	(0.814)	(4.415)	(0.434)
Equity / Assets	-0.014	2.938 ***	-0.051	-1.417 ***	-2.342	-1.574 **
	(0.138)	(0.666)	(0.232)	(0.427)	(1.896)	(0.623)
ROE	-0.118	0.164 **	-0.156 **	-0.406 ***	0.221	-0.066
	(0.079)	(0.077)	(0.065)	(0.136)	(0.199)	(0.051)
Non Performing Loans (% of Loans)	0.355 ***	0.531 ***	1.052 ***	-0.451 *	-0.642	0.305 ***
	(0.123)	(0.152)	(0.255)	(0.243)	(0.759)	(0.071)
Constant	0.283 ***	-0.289 ***	0.008	0.363	0.171	0.618 ***
	(0.045)	(0.093)	(0.080)	(0.132)	(0.191)	(0.103)
Included observations	61	120	61	120	61	120
Mean dependent variable	0.302	0.178	0.244	0.172	0.168	0.160
S. D. dependent variable	0.014	0.022	0.020	0.020	0.021	0.022
S.E. of regression	0.007	0.009	0.010	0.010	0.015	0.011
Instrument rank	21	21	21	21	21	21
J-statistic	11.206	9.025	11.230	10.029	7.051	10.229
Prob(J-statistic)	0.262	0.435	0.260	0.348	0.632	0.332

Concluding remarks

- Banking spread is an important variable to monitor, both in terms of financial stability and credit market conditions.
- This is all the more important in an economy where financial development remains a challenge
- Banking spreads show differences under macroeconomic regime change – nowadays, they appear lower than under the currency board + open capital account of the 1990s. In an international comparison, they remain below other Latin American economies of comparable size, but above more developed systems of the region.
- Spreads also change depending on: type of bank (public), type of borrower (households, SMEs).
- They are more correlated with lending rates than cost of funding.

Concluding remarks

- Implicit spread analysis allows us to discriminate changes in “accounting” or direct determinants. It suggests the importance of taxes, expenses and liquidity, as well as changes in the banking market over time.
- Econometric evidence indicates the importance of both macroeconomic and microeconomic factors for explicit spreads.
  - Growth and monetization have direct (positive) impacts.
  - Country risk and inflation reveal changes of determinants over macroeconomic regimes.
  - Banking system variables appear to have more important direct quantitative impacts (these has to be further checked). Taxes and expenses are very significant, in line with implicit spread findings.
- Further work: regression by line, by borrower; banking micro data

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Annex

Different specifications depending on variables definitions: gJanral results (GMM, sign of estimated coefficients)

1996.3- 2012.11

	Regression 1	Regression 2	Regression 3	Regression 4
Δ_economic activity (y-o-y)	**neg**	**neg**	**neg**	**neg**
Δ_prices (y-o-y)	**pos**	**pos**	**-**	**pos**
M3 / GDP	**neg**	**neg**	**neg**	**neg**
EMBI (Arg)	**pos**	**pos**	**pos**	**pos**
HHI (credit)	**pos**	**pos**	**pos**	**pos**
Administration expenses / assets	**-**	**pos**	**pos**	**-**
Liquidity / assets	**neg**			**neg**
Liquidity requirements / deposits		**neg**	**neg**	
Taxes / assets	**-**	**neg**	**-**	**-**
Equity / assets	**pos**	**pos**	**pos**	**pos**
Return on equity	**neg**	**-**	**neg**	**neg**
Delinquency charges / assets	**-**	**-**		
Non performing loans / credit			**neg**	**-**
D2001M3_2002M3	**pos**	**pos**	**pos**	**pos**
D2002M4_2002M9	**neg**	**neg**	**neg**	**neg**
D2002M10_2003M12	**pos**	**pos**	**pos**	**pos**

Findings for 1996-2012

- Certain variables show expected impact across specifications: economic activity and monetization decrease explicit spread, while country risk, concentration and equity increase it.
- Other variables have expected sign, but are not always significant: inflation and administration expenses are positively associated to spread.
- Some other variables are not always significant, but when they are show a sign opposite to expectations: liquidity (linked to lower spread), taxes and non performing loans (inversely associated to spread)
- Dummy variables (crises) are always significant

	1996.3- 2001.3			
	Regression 1	Regression 2	Regression 3	Regression 4
Δ_economic activity (y-o-y)	**neg**	**-**	**neg**	**neg**
Δ_prices (y-o-y)	**-**	**-**	**-**	**-**
M3 / GDP	**neg**	**neg**	**neg**	**neg**
EMBI (Arg)	**pos**	**pos**	**pos**	**pos**
HHI (credit)	**-**	**-**	**-**	**-**
Administration expenses / assets	**neg**	**neg**	**neg**	**neg**
Liquidity / assets	**-**			**-**
Liquidity requirements / deposits		**pos**	**pos**	
Taxes / assets	**pos**	**pos**	**pos**	**pos**
Equity / assets	**neg**	**-**	**-**	**neg**
Return on equity	**-**	**-**	**-**	**-**
Delinquency charges / assets	**neg**	**neg**		
Non performing loans / credit			**neg**	**neg**

Findings for 1996-2001 (GMM, signs of estimated coefficients)

- Expected signs across specifications: monetization, country risk and taxes
- Economic activity reduces spread in most of the models, while liquidity increases it in two of them.
- Non performing loans has an inverse relation to spread, while inflation is not significant in any model.

	2004.1-2012.11			
	Regression 1	Regression 2	Regression 3	Regression 4
Δ_economic activity (y-o-y)	**neg**	**neg**	**neg**	**neg**
Δ_prices (y-o-y)	**-**	**-**	**pos**	**pos**
M3 / GDP	**neg**	**neg**	**neg**	**neg**
EMBI (Arg)	**pos**	**pos**	**-**	**-**
HHI (credit)	**pos**	**pos**	**-**	**-**
Administration expenses / assets	**pos**	**pos**	**-**	**-**
Liquidity / assets	**neg**			**neg**
Liquidity requirements / deposits		**neg**	**neg**	
Taxes / assets	**neg**	**neg**	**pos**	**pos**
Equity / assets	**neg**	**-**	**pos**	**-**
Return on equity	**-**	**-**	**-**	**-**
Delinquency charges / assets	**pos**	**pos**		
Non performing loans / credit			**pos**	**pos**

Findings for 2004-2012

- Coincidences accross models: economic activity and monetization have negative impact on spread, while delinquency increases it
- Expected signs under varios specifications: inflation, country risk, concentration and administration costs directly associated to spread
- Unexpected or different signs across specifications: liquidity, equity, taxes