CEA

CENTRO DE ECONOMÍA APLICADA

INGENIERÍA INDUSTRIAL · UNIVERSIDAD DE CHILE

DOCUMENTOS DE TRABAJO
Serie Economía
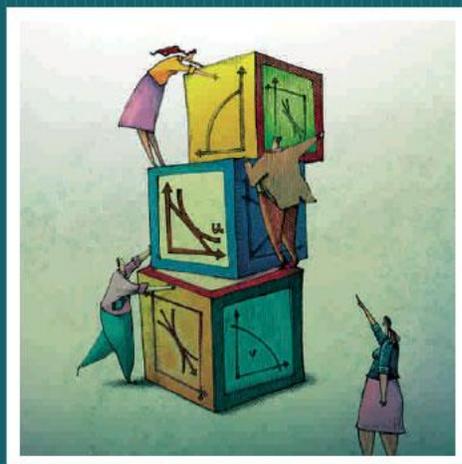
Nº 315   FINANCIAL OPENNESS, DOMESTIC FINANCIAL DEVELOPMENT AND
CREDIT RATINGS

EUGENIA ANDREASEN - PATRICIO VALENZUELA

fcfm FACULTAD DE CIENCIAS
FÍSICAS Y MATEMÁTICAS
UNIVERSIDAD DE CHILE

Financial Openness, Domestic Financial Development and Credit Ratings

Eugenia Andreasen[a], Patricio Valenzuela[b]

[a] Department of Economics, University of Santiago of Chile
[b] Department of Industrial Engineering, University of Chile

ABSTRACT

This paper shows that financial openness significantly affects corporate and sovereign credit ratings, and that the magnitude of this effect depends on the level of development of the domestic financial market. Issuers located in less financially developed economies stand to benefit the most from opening up their capital accounts, whereas the impact of this effect decreases as the level of development of the domestic capital market improves.

JEL classification: F34; G15; G38

Keywords: Credit risk; Financial development; Financial liberalization

1. Introduction

The last four decades have witnessed a process of global financial integration, which is believed to have fostered economic development due to easier and cheaper access to capital in international markets. However, the unconditional merits of this financial integration process have recently begun to come under scrutiny. A rich body of research emphasizes that financial openness is effective only under certain circumstances and that average effects associated with financial openness hide important heterogeneities (Chinn and Ito, 2006, Baltagi et al., 2009; Fischer and Valenzuela, 2013).

This study contributes to the financial openness literature by empirically investigating the effects of capital account liberalization on both corporate and sovereign credit ratings and by examining whether these effects depend on the degree of domestic financial development. Understanding the determinants of credit ratings is crucial because they signal an issuer's likelihood of default and thus the issuer's cost of debt capital. Moreover, some regulations concerning investments in bonds are directly tied to credit ratings and affect the pool of international and institutional investors that firms and governments can access (Kisgen and Strahan, 2010).[1]

Recent studies have documented that capital account restrictions affect foreign currency credit ratings. Capital controls tend to make access to capital in international markets more difficult and/or expensive, increasing default probabilities and lowering both firm and sovereign credit ratings (Prati et al., 2012; Ostry et al., 2009). In fact, credit rating agencies have publicly stated that they positively evaluate governments whose economies are financially integrated with the rest of the world in terms of the reasonableness of their economic policies

---

[1] Credit ratings can also impose additional costs on firms. For instance, Kisgen (2006) argues that "A firm's rating affects operations of the firms, access to other financial markets such as commercial paper, disclosure requirement for bonds…, and bond covenants."

and that restrictions on capital flows are likely to constrain the ability of firms to meet offshore debt obligations in a timely manner (Standard and Poor's, 2001, 2008).

We further investigate the link between financial openness and credit ratings and examine whether this nexus is shaped by domestic financial development. Our main finding provides empirical evidence that financial openness has a positive effect on credit ratings, and that this effect depends on the level of development of the local financial market. Issuers situated in economies with less developed financial markets stand to benefit most from opening up their capital accounts, although this effect weakens as the level of development of the local capital market improves.

2. Financial openness, domestic financial development and credit ratings

There are at least three reasons to expect that financial openness will have a non-linear effect on credit ratings based on the level of domestic financial development. First, when a country imposes capital controls, a well-developed domestic financial system can act as a substitute for both firm and sovereign financing needs. Therefore, the benefits from removing capital account restrictions should be greater in less financially developed countries. Second, the international finance literature suggests that capital account liberalization reduces risk premiums due to improved risk sharing and enhanced market liquidity (Errunza and Losq, 1985; Bekaert and Harvey, 2000; Chari and Henry, 2004). As its cost of capital decreases, the default probability of an issuer is lowered, and its credit rating improves. As issuers from well-developed local markets already benefit from considerable risk sharing and liquidity, the room for further improvement in this regard is less than that afforded to issuers from less developed financial markets. Finally, more sophisticated domestic capital markets potentially provide

firms with the opportunity to make financial innovations that allow capital controls to be circumvented (Klein and Olivei, 2008).

According to the three channels discussed above, the effects of financial openness on credit ratings should decrease as the level of local financial development rises, a hypothesis we test below.

3. Data

The dataset we study builds on that used in Borensztein et al. (2013), which covers the period 1995-2009 for non-financial publicly traded firms in 11 industrial and 15 emerging economies. The dependent variable consists of the Standard and Poor's foreign currency corporate and sovereign credit ratings. Standard and Poor's (2001) defines a foreign currency credit rating as a "*current opinion of an obligor's overall capacity to meet its foreign-currency-denominated financial obligations…(the credit rating) is based on the obligor's individual credit characteristics, including the influence of country or economic risk factors….a foreign currency credit rating includes transfer and other risks related to sovereign actions that may directly affect access to the foreign exchange needed for timely servicing of the rated obligation*".

Financial openness is measured by the KAOPEN index developed by Chinn and Ito (2008). The KAOPEN index is the first principal component of four restrictions on cross-border financial transactions reported in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER). These restrictions indicate the existence of multiple exchange rates, restrictions on current account transactions, restrictions on capital account transactions, and requirements involving the surrender of exports' proceeds. We rescaled the index to values between zero and one. A higher index value indicates greater financial openness.

We utilize two measures of domestic financial development. The first is private credit to GDP, and the second is private bond market capitalization to GDP. Both measures are from the Financial Development and Structure Dataset. Table 1 reports the descriptive statistics for all the variables used in this study. Our dataset also includes firm-level performance indicators and a comprehensive set of macroeconomic control variables.

4. Empirical strategy

The primary objective of this study is to explore whether financial openness affects credit ratings and whether this effect depends on the degree of domestic financial development. In order to reduce potential problems associated with endogeneity stemming from omitted time-invariant characteristics, we conduct panel data regressions. Thus, our corporate credit rating econometric model takes the following form:

$$Corp\_Rtg_{ict} = \beta_0\,FO_{ct-1} + \beta_1 FD_{ct-1} + \beta_2 FD_{ct-1} \times FO_{ct-1} + \varphi X_{ict} + \theta Z_{ct-1} + A_i + B_t + \varepsilon_{it} \quad (1)$$

where $Corp\_Rtg_{ict}$ is the corporate credit rating of firm i in country c, at time t. FO_{ct-1} is the lagged value of financial openness and FD_{ct-1} is the lagged value of the degree of domestic financial development. The interaction term $(FD_{ct-1} \times FO_{ct-1})$ aims to capture the heterogeneity of the impact of financial openness on credit ratings. X_{ict} is a vector of firm-level performance indicators, and Z_{ct-1} is a vector of macroeconomic control variables. A_i and B_t are vectors of firm and year dummy variables that control for average firm-level characteristics and global factors, respectively. ε_{it} is the error term.

Our sovereign credit rating model takes the following form:

$$Sov\_Rtg_{ict} = \gamma_0 \, FO_{ct-1} + \gamma_1 FD_{ct-1} + \gamma_2 FD_{ct-1} \, x \, FO_{ct-1} + \theta Z_{ct-1} + A_i + B_t + \varepsilon_{it} \quad (2)$$

where Sov_Rtg_{ct} is the credit rating of country c at time t. A_c is a vector of country dummy variables that control for average country-level characteristics.

According to the models presented in Equations (1) and (2), the effect of financial openness on corporate and sovereign credit ratings at different levels of domestic financial development can be calculated by examining the partial derivatives of credit ratings with respect to financial openness:

$$\frac{\partial Corp\_Rtg_{ict}}{\partial FO_{it-1}} = \beta_0 \, + \beta_2 \, FD_{it-1} \quad (3)$$

$$\frac{\partial Sov\_Rtg_{ict}}{\partial FO_{it-1}} = \gamma_0 \, + \gamma_2 FD_{it-1}. \quad (4)$$

We hypothesize that $\beta_0 > 0$ and $\beta_2 < 0$, and that $\gamma_0 > 0$ and $\gamma_2 < 0$. In other words, financial openness has a positive effect on credit ratings in economies with underdeveloped financial markets, but this effect weakens as the level of financial market development rises. If the relationship between financial openness and credit ratings were just a simple correlation caused by common macroeconomic factors rather than a causal effect, this non-linearity would not arise.

5. Results

Table 2 reports the results from estimating Equations (1) and (2) by ordinary least squares with clustering of errors by country-year and year, respectively. Columns 1 and 2 present the results for our corporate credit rating models using private credit to GDP and private bond

market capitalization to GDP as measures of domestic financial development, respectively. Analogously, columns 3 and 4 present the results for our sovereign credit rating models.

Table 2 shows that in all our regressions, financial openness and both measures of financial development have positive and highly statistically significant coefficients, whereas the interaction terms between financial openness and financial development have negative coefficients that are also highly statistically significant. Consistent with our hypothesis, the significant positive coefficient on financial openness and the negative coefficient on the interaction term indicate that issuers situated in economies with less developed financial markets stand to benefit most from opening up their capital accounts, while the impact of this effect declines as the level of the local capital market's development improves. Furthermore, it is notable that most of the coefficients associated with our firm- and country-level control variables have their expected signs and are highly statistically significant.

6. Conclusion

This article presents unique preliminary evidence that financial openness affects both corporate and sovereign credit ratings and that the magnitude of the effect is not homogenous. Issuers located in economies with less-developed financial markets stand to benefit most from opening up their capital accounts, whereas the openness effect diminishes as the level of development of the local capital market improves.

Acknowledgments

References

Baltagi, B., Demetriades, P., Hook Law, S., 2009. Financial development and openness: Evidence from panel data. Journal of Development Economics 89, 285-296.

Bekaert, G., Harvey, C. R., 2000. Foreign speculators and emerging equity markets. Journal of Finance, 55, 565–614.

Borensztein, E., Cowan, K., Valenzuela, P., 2013. Sovereign ceilings "lite"? The impact of sovereign ratings on corporate ratings. Journal of Banking and Finance 37, 4014-4024.

Chinn, M. D., Ito, H., 2006. What matters for financial development? Capital controls, institutions, and interactions. Journal of Development Economics 81, 163-192

Chinn, M. D., Ito, H., 2008. A new measure of financial openness. Journal of Comparative Policy Analysis 10, 309-322.

Errunza, V., Losq, E., 1985. International asset pricing under mild segmentation: Theory and test. Journal of Finance 40, 105-124.

Fischer, R., Valenzuela, P., 2013. Financial openness, market structure and private credit: An empirical investigation. Economic Letters 121, 478-481.

Chari, A., Henry, P. B., 2004. Risk sharing and asset prices: Evidence from a natural experiment, Journal of Finance 59, 1295-1324.

Kisgen, D., 2006. Credit ratings and capital structure. Journal of Finance 61, 1035–1072.

Kisgen, D., Strahan, P., 2010. Do regulations based on credit ratings affect a firm's cost of capital? Review of Financial Studies 23, 4324–4347.

Klein, M., Giovanni O., 2008. Capital account liberalization, financial depth, and economic growth. Journal of International Money and Finance 27, 861-875.

Ostry, J., Prati, A., Spilimbergo, A., 2009. Structural reforms and economic performance in advanced and developing countries. IMF Occasional Paper 268.

Prati, A., Schindler, M., Valenzuela, P., 2012. Who benefits from capital account liberalization? Evidence from firm-level credit ratings data. Journal of International Money and Finance 31, 1649-1673.

Standard, Poor's, 2001, Rating methodology: Evaluating the issuer. Ratings criteria, September 7.

Standard and Poor's, 2008, Sovereign credit ratings: A primer. New York: Standard and Poor's, May.

Table 1
Descriptive statistics

	Obs.	Mean	Std. Dev.	Min.	Max.
Firm level					
Corporate credit rating	2,949	13.42	3.43	1	21
EBIT/assets	2,949	8.20	6.05	-13.12	44.86
EBIT/interest expense	2,949	7.52	0.71	6.21	12.98
Retained earnings/assets	2,949	19.16	17.50	-88.78	76.53
Working capital/assets	2,949	6.57	15.36	-88.96	75.91
Equity/capital	2,949	54.27	20.36	-57.22	100.00
Size	2,949	4.12	1.37	0.33	8.09
Country level					
Sovereign credit rating	301	15.69	4.90	1	21
GDP per capita (logs)	301	8.94	1.50	5.51	11.02
Inflation	301	4.12	5.34	-1.41	58.02
Current account/GDP	301	-0.10	5.17	-12.04	17.44
GDP growth	301	3.82	3.30	-13.13	13.01
GDP volatility	301	0.07	0.15	0.00	0.89
Financial openness	301	0.73	0.31	0.16	1.00
Private credit/GDP	301	0.76	0.47	0.10	2.20
Private bond/GDP	283	0.24	0.29	0.00	1.64

Table 2
Financial openness, domestic financial development and credit ratings

	Corporate credit ratings		Sovereign credit ratings	
	(1)	(2)	(3)	(4)
Financial openness	3.4895***	3.3329***	3.9717**	3.0997**
	(1.2316)	(1.1030)	(1.5176)	(1.3010)
Private credit/GDP	2.5845**		6.0463***	
	(1.1373)		(1.5383)	
Private credit/GDP x Financial openness	-3.0854***		-5.0786***	
	(1.1388)		(1.4074)	
Private bond/GDP		5.4850**		16.1311***
		(2.2916)		(4.0632)
Private bond/GDP x Financial openness		-8.7348***		-16.1833***
		(2.5419)		(4.0670)
EBIT/assets	0.0379***	0.0356***		
	(0.0079)	(0.0081)		
EBIT/interest expense	0.1847***	0.2006***		
	(0.0673)	(0.0663)		
Retained earnings/assets	0.0178***	0.0197***		
	(0.0042)	(0.0043)		
Working capital/assets	0.0166***	0.0191***		
	(0.0060)	(0.0062)		
Equity/capital	0.0188***	0.0161***		
	(0.0040)	(0.0039)		
Size	0.5330***	0.5178***		
	(0.1147)	(0.1131)		
GDP per capita (logs)	-0.4167	-0.3807	0.4236	0.3092
	(0.5376)	(0.5469)	(0.7239)	(0.6951)
Inflation	-0.0326*	-0.0313*	-0.0256	-0.0323
	(0.0186)	(0.0184)	(0.0330)	(0.0257)
Ccurrent account/GDP	0.0454**	0.0201	-0.0241	-0.1082***
	(0.0218)	(0.0224)	(0.0243)	(0.0263)
GDP growth	0.0841**	0.0694*	0.1291*	0.0505
	(0.0423)	(0.0408)	(0.0653)	(0.0659)
GDP volatility	-3.3107***	-3.0016***	-3.9118***	-2.3494**
	(0.9171)	(0.8488)	(1.2307)	(0.9687)
Observations	2949	2873	301	283
R-squared	0.9264	0.9270	0.9583	0.9575
Firm fixed effects	YES	YES	NO	NO
Country fixed effects	NO	NO	YES	YES
Time fixed effects	YES	YES	YES	YES

Note: Numbers in parentheses are standard errors. Standard errors of models 1 and 2 are clustered at the country-year level. Standard errors of models 3 and 4 are clustered at the year level.

  * Significance level at 10%.

 ** Significance level at 5%.

*** Significance level at 1%.

Centro de Economía Aplicada
Departamento de Ingeniería Industrial
Universidad de Chile

2015

315. Financial Openness, Domestic Financial Development and Credit Ratings
Eugenia Andreasen y Patricio Valenzuela

314. The Whole is Greater than the Sum of Its Parts: Complementary Reforms to Address Microeconomic Distortions
(Por aparecer en The World Bank Economic Review)
Raphael Bergoeing, Norman V. Loayza y Facundo Piguillem

313. Economic Performance, Wealth Distribution and Credit Restrictions under variable investment: The open economy
Ronald Fischer y Diego Huerta

312. Destructive Creation: School Turnover and Educational Attainment
Nicolás Grau, Daniel Hojman y Alejandra Mizala

311. Cooperation Dynamic in Repeated Games of Adverse Selection
Juan F. Escobar y Gastón Llanes

310. Pre-service Elementary School Teachers' Expectations about Student Performance: How their Beliefs are affected by Mathematics Anxiety and Student Gender
Francisco Martínez, Salomé Martínez y Alejandra Mizala

309. The impact of the minimum wage on capital accumulation and employment in a large-firm framework
Sofía Bauducco y Alexandre Janiak

308. Can a non-binding minimum wage reduce wages and employment?
Sofía Bauducco y Alexandre Janiak

307. Capital Controls and the Cost of Debt
Eugenia Andreasen, Martin Schindler y Patricio Valenzuela

2014

306. Assessing the extent of democratic failures. A 99%-Condorcet's Jury Theorem.
Matteo Triossi

2013

305. The African Financial Development and Financial Inclusion Gaps
Franklin Allen, Elena Carletti, Robert Cull, Jun "Qj" Qian, Lemma Senbet y Patricio Valenzuela

304. Revealing Bargaining Power through Actual Wholesale Prices
Carlos Noton y Andrés Elberg

2012

2011

286. Comments on Donahue and Zeckhauser: Collaborative Governance
Ronald Fischer

285. Casual Effects of Maternal Time-Investment on children's Cognitive Outcomes
Benjamín Villena-Rodán y Cecilia Ríos-Aguilar

284. Towards a Quantitative Theory of Automatic Stabilizers: The Role of Demographics
Alexandre Janiak y Paulo Santos Monteiro

283. Investment and Environmental Regulation: Evidence on the Role of Cash Flow
Evangelina Dardati y Julio Riutort

282. Teachers' Salaries in Latin America. How Much are They (under or over) Paid?
Alejandra Mizala y Hugo Ñopo

281. Acyclicity and Singleton Cores in Matching Markets
Antonio Romero-Medina y Matteo Triossi

280. Games with Capacity Manipulation: Incentives and Nash Equilibria
Antonio Romero-Medina y Matteo Triossi

279. Job Design and Incentives
Felipe Balmaceda

278. Unemployment, Participation and Worker Flows Over the Life Cycle
Sekyu Choi - Alexandre Janiak -Benjamín Villena-Roldán

277. Public-Private Partnerships and Infrastructure Provision in the United States
(Publicado como "Public-Private-Partnerships to Revamp U.S. Infrastructure". Hamilton Policy
Brief, Brookings Institution 2011)
Eduardo Engel, Ronald Fischer y Alexander Galetovic

2010

276. The economics of infrastructure finance: Public-private partnerships versus public provision
(Publicado en European Investment Bank Papers, 15(1), pp 40-69.2010)
Eduardo Engel, Ronald Fischer y Alexander Galetovic

275. The Cost of Moral Hazard and Limited Liability in the Principal-Agent Problem
F. Balmaceda, S.R. Balseiro, J.R. Correa y N.E. Stier-Moses

274. Structural Unemployment and the Regulation of Product Market
Alexandre Janiak

273. Non-revelation Mechanisms in Many-to-One Markets
Antonio Romero-Medina y Matteo Triossi

272. Labor force heterogeneity: implications for the relation between aggregate volatility and
government size
Alexandre Janiak y Paulo Santos Monteiro

2009

* Para ver listado de números anteriores ir a http://www.cea-uchile.cl/.