FINANCIAL OPENNESS, DOMESTIC FINANCIAL DEVELOPMENT AND CREDIT RATINGS

EUGENIA ANDREASEN - PATRICIO VALENZUELA
Financial Openness, Domestic Financial Development and Credit Ratings

Eugenia Andreasena, Patricio Valenzuelab

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:

$$Corp\_Rtg_{ict} = \beta_0 FO_{ct-1} + \beta_1 FD_{ct-1} + \beta_2 FD_{ct-1} \times FO_{ct-1} + \varphi X_{ict} + \theta Z_{ct-1} + A_i + B_t + \epsilon_{it}$$ (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. $\epsilon_{it}$ is the error term.

Our sovereign credit rating model takes the following form:
\[ S_{ov\_Rtg_{ct}} = \gamma_0 F_{0\_ct} + \gamma_1 F_{D_{ct}} + \gamma_2 F_{D_{ct}} x F_{O\_ct} + \theta Z_{ct-1} + A_i + B_t + \epsilon_{it} \] (2)

where \( S_{ov\_Rtg_{ct}} \) 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:

\[ \frac{\partial C_{orp\_Rtg_{ct}}}{\partial F_{O\_it-1}} = \beta_0 + \beta_2 F_{D\_it-1} \] (3)

\[ \frac{\partial S_{ov\_Rtg_{ct}}}{\partial F_{O\_it-1}} = \gamma_0 + \gamma_2 F_{D\_it-1}. \] (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

Patricio Valenzuela wishes to thank the Fondecyt Initiation Project # 11130390 and the Institute for Research in Market Imperfections and Public Policy, ICM I5130002, Ministerio de Economía, Fomento y Turismo for their financial support.
References


Table 1
Descriptive statistics

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

<table>
<thead>
<tr>
<th></th>
<th>Corporate credit ratings</th>
<th>Sovereign credit ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Financial openness</td>
<td>3.4895***</td>
<td>3.3329***</td>
</tr>
<tr>
<td></td>
<td>(1.2316)</td>
<td>(1.1030)</td>
</tr>
<tr>
<td>Private credit/GDP</td>
<td>2.5845**</td>
<td>6.0463***</td>
</tr>
<tr>
<td></td>
<td>(1.1373)</td>
<td>(1.5383)</td>
</tr>
<tr>
<td>Private credit/GDP x Financial openness</td>
<td>-3.0854***</td>
<td>-5.0786***</td>
</tr>
<tr>
<td></td>
<td>(1.1388)</td>
<td>(1.4074)</td>
</tr>
<tr>
<td>Private bond/GDP</td>
<td>5.4850**</td>
<td>16.1311***</td>
</tr>
<tr>
<td></td>
<td>(2.2916)</td>
<td>(4.0632)</td>
</tr>
<tr>
<td>Private bond/GDP x Financial openness</td>
<td>-8.7348***</td>
<td>-16.1833***</td>
</tr>
<tr>
<td></td>
<td>(2.5419)</td>
<td>(4.0670)</td>
</tr>
<tr>
<td>EBIT/assets</td>
<td>0.0379***</td>
<td>0.0356***</td>
</tr>
<tr>
<td></td>
<td>(0.0079)</td>
<td>(0.0081)</td>
</tr>
<tr>
<td>EBIT/interest expense</td>
<td>0.1847***</td>
<td>0.2006***</td>
</tr>
<tr>
<td></td>
<td>(0.0673)</td>
<td>(0.0663)</td>
</tr>
<tr>
<td>Retained earnings/assets</td>
<td>0.0178***</td>
<td>0.0197***</td>
</tr>
<tr>
<td></td>
<td>(0.0042)</td>
<td>(0.0043)</td>
</tr>
<tr>
<td>Working capital/assets</td>
<td>0.0166***</td>
<td>0.0191***</td>
</tr>
<tr>
<td></td>
<td>(0.0060)</td>
<td>(0.0062)</td>
</tr>
<tr>
<td>Equity/capital</td>
<td>0.0188***</td>
<td>0.0161***</td>
</tr>
<tr>
<td></td>
<td>(0.0040)</td>
<td>(0.0039)</td>
</tr>
<tr>
<td>Size</td>
<td>0.5309***</td>
<td>0.5178***</td>
</tr>
<tr>
<td></td>
<td>(0.1147)</td>
<td>(0.1131)</td>
</tr>
<tr>
<td>GDP per capita (logs)</td>
<td>-0.4167</td>
<td>0.4236</td>
</tr>
<tr>
<td></td>
<td>(0.5376)</td>
<td>(0.7239)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.0326*</td>
<td>-0.0256</td>
</tr>
<tr>
<td></td>
<td>(0.0186)</td>
<td>(0.0338)</td>
</tr>
<tr>
<td>Current account/GDP</td>
<td>0.0454**</td>
<td>-0.0241</td>
</tr>
<tr>
<td></td>
<td>(0.0218)</td>
<td>(0.0243)</td>
</tr>
<tr>
<td>GDP growth</td>
<td>0.0841**</td>
<td>0.1291*</td>
</tr>
<tr>
<td></td>
<td>(0.0423)</td>
<td>(0.0653)</td>
</tr>
<tr>
<td>GDP volatility</td>
<td>-3.3107***</td>
<td>-3.9118***</td>
</tr>
<tr>
<td></td>
<td>(0.9171)</td>
<td>(1.2307)</td>
</tr>
<tr>
<td>Observations</td>
<td>2949</td>
<td>2873</td>
</tr>
<tr>
<td></td>
<td>2949</td>
<td>2873</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.9264</td>
<td>0.9270</td>
</tr>
<tr>
<td></td>
<td>0.9583</td>
<td>0.9575</td>
</tr>
</tbody>
</table>

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%.
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 Ilanes

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

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
303. Structural Estimation of Price Adjustment Costs in the European Car Market
   Carlos Noton

302. Remedies for Sick Insurance
   Daniel McFadden, Carlos Noton y Pau Olivella

301. Minimum Coverage Regulation in Insurance Markets
   Daniel McFadden, Carlos Noton y Pau Olivella

300. Rollover risk and corporate bond spreads
   Patricio Valenzuela

299. Sovereign Ceilings “Lite”? The Impact of Sovereign Ratings on Corporate Ratings
   Eduardo Borensztein, Kevin Cowan y Patricio Valenzuela

298. Improving Access to Banking: Evidence from Kenya
   F. Allen, E. Carletti, R. Cull, J. “Qi” Qian, L. Senbet y P. Valenzuela

   Ronald Fischer y Patricio Valenzuela

296. Banking Competition and Economic Stability
   Ronald Fischer, Nicolás Inostroza y Felipe J. Ramírez

295. Trust in Cohesive Communities
   Felipe Balmaceda y Juan F. Escobar

   Matteo Triossi, Patricio Valdivieso y Benjamín Villena-Roldán

2012

293. Participation in Organizations, Trust, and Social Capital Formation: Evidence from Chile
   Patricio Valdivieso - Benjamín Villena-Roldán

292. Neutral Mergers Between Bilateral Markets
   Antonio Romero-Medina y Matteo Triossi

291. On the Optimality of One-size-fits-all Contracts: The Limited Liability Case
   Felipe Balmaceda

290. Self Governance in Social Networks of Information Transmission
   Felipe Balmaceda y Juan F. Escobar

289. Efficiency in Games with Markovian Private Information
   Juan F. Escobar y Juuso Toikka

288. EPL and Capital-Labor Ratios
   Alexandre Janiak y Etienne Wasmer

   Sofia Bauducco y Alexandre Janiak
2011

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

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
Eduardo Engel, Ronald Fischer y Alexander Galetovic

2010

276. The economics of infrastructure finance: Public-private partnerships versus public provision
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
271. Aggregate Implications of Employer Search and Recruiting Selection
Benjamín Villena Roldán

270. Wage dispersion and Recruiting Selection
Benjamín Villena Roldán

269. Parental decisions in a choice based school system: Analyzing the transition between primary and secondary school
Mattia Makovec, Alejandra Mizala y Andrés Barrera

(Por aparecer en Labour Economics, (doi:10.1016/j.labeco.2011.08.004))
Alejandra Mizala, Pilar Romaguera y Sebastián Gallegos

267. costly information acquisition. Better to toss a coin?
Matteo Triossi

266. Firm-Provided Training and Labor Market Institutions
Felipe Balmaceda

2009

265. Soft budgets and Renegotiations in Public-Private Partnerships
Eduardo Engel, Ronald Fischer y Alexander Galetovic

264. Information Asymmetries and an Endogenous Productivity Reversion Mechanism
Nicolás Figueroa y Oksana Leukhina

263. The Effectiveness of Private Voucher Education: Evidence from Structural School Switches
Bernardo Lara, Alejandra Mizala y Andrea Repetto

262. Renegociación de concesiones en Chile
Eduardo Engel, Ronald Fischer, Alexander Galetovic y Manuel Hermosilla

261. Inflation and welfare in long-run equilibrium with firm dynamics
Alexandre Janiak y Paulo Santos Monteiro

260. Conflict Resolution in the Electricity Sector - The Experts Panel of Chile
R. Fischer, R. Palma-Behnke y J. Guevara-Cedeño

259. Economic Performance, creditor protection and labor inflexibility
Felipe Balmaceda y Ronald Fischer

258. Effective Schools for Low Income Children: a Study of Chile’s Sociedad de Instrucción Primaria
Francisco Henríquez, Alejandra Mizala y Andrea Repetto

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