

Role of Securities Law in the Development of Domestic Corporate Bond Markets

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Despite the various reforms instituted to foster local markets for fixed income securities, the experience of the emerging markets has been mixed. This study empirically investigates the features and enforcement of securities law that may facilitate or constraint broadening and deepening of the corporate bond markets. Bond market development in 49 countries is examined using corporate governance and securities law indices, and TOBIT estimation procedure for dealing with the econometric issues associated with truncated data. The study provides evidence that securities laws play an important role in the development of bond markets just as they do in the case of stock markets. The results provide further support that securities laws matter because they facilitate private contracting rather than provide for public regulatory enforcement. Contrary to earlier findings with respect to stock market development that several aspects of public enforcement do not matter, our results, however, indicate that the supervisor's power to impose criminal sanctions may have a bearing on bond market development.

1. Introduction

Since late 1990's there has been greater realization of the importance of developing local markets for fixed income securities in particular on the part of the developing countries. Besides expanding the local markets for government bonds, many developing countries have instituted reforms to foster local corporate bond markets as alternative sources of financing for domestic corporations. A small group of emerging markets (EMs) have been successful in developing sizable corporate bond markets. Many others have been seeking to develop their corporate bond markets, but so far access to bond markets have been limited.

Active bond markets facilitate corporations and financial institutions in balancing the currency and maturity structure of the assets and liabilities, thus promoting financial stability. Financial markets also facilitate capital restructuring to ease financial distress. The financing flexibility provided by deep, broad and active

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bond markets reduces vulnerabilities not only for the corporate sector but also for the economy through its internal and external linkages. On the demand side the institutional investors can tap into the local corporate bond markets for investing in fixed-income securities which provide longer maturities and improved yields over public agency and treasury securities. The bond markets provide opportunities for contractual financial institution, pension funds and life insurance companies in particular, for investments with longer maturities that match maturities of their liabilities, and thus help to strengthen balance sheets. A deep and liquid corporate bond market may also help to absorb growing demand for long-term securities from institutional investors which otherwise may be directed towards real estate or stock markets and result in asset inflation with consequent potential instability.

It is therefore instructive to investigate the features and enforcement of securities law that may facilitate or constraint broadening and deepening of the corporate bond markets. The case for effective public enforcement of securities laws is based on the following reasoning. In a less than perfect market environment, enforcement of contracts and containment of agency conflict is costly, and unregulated markets do not generate optimal and efficient outcomes. Faced with inefficient market mechanisms and expensive litigation processes, investors tend to under-price securities issues. It is well recognized that securities laws can reduce the costs of contracting and resolving disputes, thus facilitate equity financing of firms and lead to stock market development (Shleifer and Wolfenzon (2002), La Porta et al. (2002)). Appropriate civil legal environment and effective securities laws can help in reducing the risk that securities issuers sell over priced securities to the public. As La Porta et al. (2006) suggest, solving the *promoter's problem* is important not only for equity markets but for debt markets as well.

This study provides an empirical examination of the corporate governance factors and securities law features that may contribute to and promote effective corporate bond markets. Following a brief survey of the recent trends in the global corporate bond markets, the next section focuses on the corporate governance measures that have been identified in earlier research as determinants of financial market development. The third section describes the empirical methodology and data used in this study, which is followed by a section describing the results and a concluding section.

2. Recent Trends in Local Corporate Bond Markets

In the last decade domestic bond markets have expanded both in the mature markets (MM) as well as in the emerging markets. Though fixed income securities

issued by the government and financial institutions still remain the dominant feature of the market, the local currency bonds issued by corporate issuers are becoming important. According to the Global Financial Stability Report (GFSR), as of end-2004, in mature markets, outstanding securities issued by the government, financial institutions, and corporate entities accounted for 66, 57, and 16 percent of GDP, respectively. In EMs, these figures were 25, 8, and 5 percent of GDP respectively,” (IMF, 2005a)

The corporations in the mature as well as the emerging markets are now relying more on bond financing relative to bank loans to meet the financing need for growth and for optimizing capital structure. In the mature markets domestic corporate bond markets grew from about 5 percent of GDP in the early 1980s to an average of 16 percent of GDP during 2000–04. The main factors fanning the growth of bond markets in the developed countries have been a trend of diversification away from banks’ loans and the need for alternative sources of funding to reduce currency and maturity mismatches. This shift in the financing source has been helped by the economic cycle and lower interest rates. In the United States, where historically the local bond market has been an important source of funding for the corporate sector, the economic boom of the 1990s led to a strong increase in corporate debt issues. The corporate bond markets in most mature markets other than the U.S. had been historically relatively small. Since the mid-1990’s there has been a shift in the financing preference on part of European corporations in favor of the bond markets, away from the traditional bank lending. The corporate sector of the euro area bond market experienced the fastest growth after formation of the European Monetary Union, according to Pagano and von Thadden (2004). During 2000–04, euro area corporate bond markets increased from about 4 percent to 10 percent of GDP. In Japan, following financial liberalization and facilitating regulatory reforms in 1980’s and the “Big-Bang” reforms in the mid-1990s, securities markets experienced major growth.

Though the 1990’s have also seen a major expansion in the bond markets in the emerging markets, the size of the corporate bond markets remains relatively small except for a handful of countries. Malaysia and Korea’s bond markets experienced remarkable growth and expanded to 48 percent and 30 percent of GDP respectively by 2003, while Thailand’s market also doubled. In a number of Latin American countries, corporate bond markets also more than doubled in size. Currently, the Malaysian and Korean corporate bond markets (about 38 and 21 percent of GDP, respectively) are among the largest in the world. Corporate bond markets in Thailand and Chile have also achieved significantly size, being about 12 and 11 percent of GDP by end-2004. The growth of the corporate bond markets in Central and Eastern Europe has been relatively slower, except for the Czech

Republic, where the bank lending rates remained relatively high leading to disintermediation and favored market-based financing instruments.

In the East Asian countries and Mexico the need for local currency financing following foreign currency crisis has been a major factor in the development of the domestic corporate bond market. Large scale restructuring in the corporate sector in these countries, led to replacement of foreign currency debt with locally denominated bonds, which coincided with an increased demand by the local institutional investors such as pension and mutual funds and insurance companies. A decline in the domestic interest rates also facilitated the growth of the market.

The growth in the corporate bond market in the emerging markets has been facilitated by the regulatory reform and institutional development. These measures have included “establishing rating agencies and benchmark yield curves, permitting issuance of unsecured bonds, and liberalizing market eligibility standards. Reforms and policy initiatives to improve bond market infrastructure have strengthened trading platforms, clearing and settlement systems, and the regulatory environment.” (GFSR, IMF 2005b). It appears that the existence of a well-developed government bond market has helped in the subsequent development of the corporate bond markets.

The GFSR notes that, “gaps remain regarding the development of hedging products and derivatives markets, and strengthening the disclosure standards and the framework for creditor rights and investor protection,” and availability of structured products for enhancing credit quality and appeal to a wider investor base through securitization and asset based securities. The bond issuance in the last two years has slowed down following the period of rapid growth in local corporate bond markets, “raising concerns that the initial growth was a purely cyclical phenomenon.” The slowdown seen in the mid-2000’s is to some extent attributable to increase in the bank interest rate and improved credit accessibility following bank restructuring and reform. It appears that while there is a long term trend towards expansion of the corporate bond markets due to structural changes and regulatory reforms, cyclical movements in the interest rates have also played an important role in several emerging economies.

While the demand and supply factors driving corporate bond markets have varied across countries there seem to be a common pattern of interplay among markets forces, institutional innovational and regulatory reforms. In the next section we focus on the features of corporate governance and regulation which have been found to be associated with deeper and broader financial markets in earlier studies.

2.1. Role of Regulatory and Legal Environment in Financial Market Development

There are strong theoretical arguments and empirical evidence that link financial sector development to economic growth, though some researchers argue that the development of financial systems simply reflects economic development. The financial system contributes to economic development by reducing costs associated with acquiring information, enforcing contracts, and conducting transactions. Besides, financial systems mitigate problems of free rider, moral hazard, and adverse selection by producing information on investment returns, thus facilitate a more efficient allocation of resources. By providing diversification and risk-sharing opportunities the financial systems also help in mobilizing saving and efficient intermediation of financial resources. Evidence supporting a positive relationship between financial development and economic growth is provided by studies such as King and Levine (1993) and Levine and Zervos (1998). Rajan and Zingales (1998) find a positive relationship between financial development and growth at the industry level. Similarly, empirical evidence is provided at the firm level by Demirgüç-Kunt and Maksimovic (1998).

A growing body of research points out to a strong link between corporate governance measures and development of financial markets. Financial markets depth and breadth is associated with higher quality institutions in general, including better property rights and rule of law (North (1981) and La Porta et al. (1999)). La Porta et al. (1997, 1998) provide empirical evidence that measures of investor protection derived from corporate law are associated with stock market development. La Porta et al. (2006) examine the effect of securities laws on stock market development in 49 countries. They find “little evidence that public enforcement benefits stock markets, but strong evidence that laws mandating disclosure and facilitating private enforcement through liability rules benefit stock markets.”

A follow up question, therefore, is whether the development of corporate bond market is also affected by the legal environment particularly through the protection afforded to securities holders by the statutory corporate law. If so, what aspects of securities law are more important for bond market developments? A related question is whether there are systematic differences from the factors that seem to help stock markets.

3. Research Methodology and Data

We follow La Porta et al. (2006) study of “what works in securities laws” with respect to the stock market development. The authors collected data on the securities regulation based on answers to a questionnaire by attorneys in 49 countries with the largest stock market capitalization, including mature markets (MMs) as well as the emerging markets. Selected variables derived from the questionnaires are described in Table 1. We combine this data with data on bond market size as of December 2005, from Bank for International Settlements (BIS), sub-grouped by securities issuers, i.e., governments, financial institutions and corporations.

Out of the 49 countries for which La Porta et al. (2006) have constructed corporate governance indices, the BIS bond market data is available only for 40 countries, leaving nine countries without the bond market data. These nine countries seem to have no significant size bond markets. Thus the available data is *censored* from below for countries without sizeable bond markets. The econometric issues associated with the censored data are well recognized; when the data suffers from selectivity bias, the OLS estimators are biased and inconsistent (see Green, (2000) for details). Therefore, TOBIT estimation procedure is called for using maximum likelihood estimation methods.

3.1. The Variables of Interest

This study is focused on the effects of the various provisions in securities laws on corporate bond market development. Our main dependent variables are the ratio of stock of bonds issued by governments, financial institutions and corporations in a country to its gross domestic product. The independent variable set included the variables used by La Porta et al. (2006) in their study. The following is a brief description of the main independent variables.

Disclosure and Liability Standards

The variable proxies the extent to which private recovery of investor’s losses is made easy by the legal system, and the extent to which it provides for mandatory disclosure of information and fixes liability on the issuers, distributors and accountants. The index measuring the strength of specific disclosure requirements pertaining to the promoter’s problem is based on six proxies of disclosure requirement relating to (i) securities prospectus; (ii) insiders’ compensation; (iii) ownership by large shareholders; (iv) inside ownership; (v) contracts outside the normal course of business; and (vi) transactions with related parties.

Table 1. Description of Securities Law Indices

Variable	Description
Disclosure requirement	The index of disclosure requirement is based on mandatory requirements regarding (1) distribution of securities prospectus, and disclosure of (2) compensation of directors and key officers (3) issuer's equity ownership structure (4) the equity ownership of the Issuer's shares by its directors and key officers (5) the Issuer's contracts outside the ordinary course of business (6) transactions between the Issuer and its directors, officers, and/or large shareholders (i.e., "related parties").
Liability standard	The index of liability standard (burden of proof) is based on indices of the procedural difficulty in recovering losses in a civil liability case (1) from the Issuer's directors for losses due to misleading statements in the prospectus (2) from the securities distributor for losses due to misleading statements in the prospectus, and (3) from the certifying accountants due to misleading statements in the audited financial information accompanying the prospectus.
Public enforcement	The index of public enforcement is based on indices of: (1) Supervisor characteristics index reflecting condition of supervisor's appointment; tenure, focus of responsibility and rules making authority; (2) Investigative powers reflecting powers to subpoena document and witnesses; (3) The index of power to issue orders equals to the issuer, distributor accountants; (4) The index of powers to impose criminal sanctions on directors, distributors and accountants.
Private enforcement	The index of private enforcement equals the arithmetic mean of: (1) Disclosure Index; and (2) Liability Standard.
Anti-director rights	The index of Anti-director rights is formed by adding one when: (1) the country allows shareholders to mail their proxy vote (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting (3) cumulative voting or proportional representation of minorities on the board of directors is allowed (4) an oppressed minorities mechanism is in place (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to ten percent (the sample median) or (6) when shareholders have preemptive rights that can only be waved by a shareholders meeting. The range for the index is from zero to six.
Effectiveness of judiciary	The index reflects assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country risk rating agency International Country Risk (ICR). It may be "taken to represent investors' assessment of conditions in the country in question." Average between 1980 and 1983. Scale from 0 to 10, with lower scores representing lower efficiency levels. Source: International Country Risk Guide.

Source: La Port et al. (2006)

Liability Standards

Securities prospects must include all material information necessary to assess the value of the securities being offered, over and above the specific disclosure requirements. The issuer, promoters and accounts can be held liable for any omitted information, but countries apply different standard by which to determine the liability for such omissions. The liability standard followed in a country is central to private enforcement of securities laws, (Black (2001) and Coffee (2002)).

La Porta et al. (2006) construct index for liability standard to capture the “burden of proof” the plaintiff must show in different countries to hold issuers, promoters and accountants liable for loss. The burden of proof could be heavy as when some countries require the plaintiffs to show that the defendants either knew about the omission or acted with intent or gross negligence such omission. The burden on proof could be light, on the other hand, as when the plaintiffs only need to show that the information in the prospectus was misleading (but not prove reliance or causality). The lighter the burden of proof on the part of the plaintiffs the lower is the cost of establishing liability.

Public Enforcement

The public enforcement index covers five broad aspects of public enforcement: (i) basic attributes of the Supervisor, reflecting the independence of the Supervisor from interference by the Executive, protection of the key members of the supervisory body from arbitrary dismissals, and the extent of its focus on securities markets, rather than on both markets and banking; (ii) extent to which the power to regulate securities markets is delegated to the Supervisor, rather than retained with the legislature or the Ministry of Finance; (iii) the investigative powers of the Supervisor such as the power to subpoena documents and witnesses; (iv) powers to impose non-criminal sanctions for violations of securities laws; (v) powers to impose criminal sanctions for violations of securities laws.

Following La Porta et al. (2006) we also control for the level of economic development which is associated with capital market deepening. Developed countries are characterized by higher quality institutions, better protection of property rights and rule of law. Therefore, we include (logarithm of) per capita GDP on the right hand side to isolate the effect of securities laws from the effect of the level of economic development. La Porta et al. also include a measure of the efficiency of the judiciary from the International Country Risk Guide (Political Risk Services), and an index of anti-director rights as additional controls. We did

Table 2. Securities Laws and Development of Bond Markets

Maximum Likelihood Ratio Estimation of TOBIT models

Dependent Variable	Corporate Bonds	Financial Institution Bonds	Government Bonds	All Bonds	Corporate Bonds/All Bonds	Bonds \$ per Firm
PANEL A:						
Constant	-0.3726 (0.1006)	-1.3649 (0.3097)	-0.6715 (0.3015)	-1.7408 (0.4218)	-0.4038 (0.152)	-0.3754 (0.0799)
Disclosure Requirements	0.1598 (0.063)	0.2648 (0.1839)	0.0565 (0.1962)	0.3288 (0.2718)	0.1747 (0.0961)	0.0742 (0.047)
Log GDP per capita	0.0380 (0.0106)	0.1475 (0.032)	0.1085 (0.0324)	0.2379 (0.0451)	0.0432 (0.0161)	0.0413 (0.0085)
PANEL B:						
Constant	-0.3369 (0.1001)	-1.3501 (0.2863)	-0.6732 (0.2921)	-1.7020 (0.3953)	-0.3625 (0.1502)	-0.3582 (0.0776)
Liability Standards	0.1172 (0.0569)	0.4289 (0.1523)	0.1124 (0.1778)	0.5041 (0.2369)	0.1174 (0.087)	0.0668 (0.0419)
Log GDP per capita	0.0383 (0.0109)	0.1400 (0.0304)	0.1063 (0.0325)	0.2281 (0.0438)	0.0439 (0.0165)	0.0407 (0.0085)
PANEL C:						
Constant	-0.3633 (0.1151)	-1.3243 (0.3343)	-0.5241 (0.3183)	-1.5301 (0.4557)	-0.4166 (0.1677)	-0.3273 (0.0868)
Public Enforcement	0.0668 (0.067)	0.0976 (0.1826)	-0.1680 (0.2005)	-0.1076 (0.2825)	0.1118 (0.0994)	-0.0284 (0.0483)
Log GDP per capita	0.0440 (0.0115)	0.1555 (0.0331)	0.1052 (0.032)	0.2425 (0.0458)	0.0502 (0.0167)	0.0424 (0.0087)

Standard errors are shown in parenthesis

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

not find these to be relevant in the case of bond market development and, therefore, report only results with the log of GDP per capital included as a control variable in our econometric models.

4. Results

The results of TOBIT regression employing maximum likelihood method are presented in Table 2. The primary dependent variables are corporate, financial institutions' and government bonds and the total stock of bonds for each country.

In addition two more models with (i) corporate bonds as a percentage of total outstanding bonds, and (ii) amount of corporate bonds per listed firm, as explanatory variables, are also examined. The bond market development indicators are regressed on indices of disclosure requirements (Panel A), liability standards (Panel B), and public enforcement (Panel C), along with the control variable, the logarithm of GDP per capita.

Similar to the findings of La Porta et al. (2006) with respect to the stock market development, Table 2 shows that higher per capita GDP has significant coefficients in case of bonds issued by corporations and financial institutions. The Panel A and B of the table show that both disclosure requirements and liability standards are positively correlated with larger corporate and financial bonds issues but not with the government bonds markets. The coefficients for the public enforcement variable (Panel C) are not significant for any of the dependent variable. In La Porta et al., (206) public enforcement appears to matter for some of the stock market development indicators, i.e., external-market-capitalization-to-GDP ratio and IPO's.

These results tend to support the view that public enforcement plays an even lesser role in the development of bond markets as compared to the development of stock markets. On the contrary we find that the development of bond markets, just as the stock markets, is strongly associated with extensive disclosure requirements and a lighter burden of proof on the part of investors for claiming damages from omissions of material information.

We further examine the apparent weakness of public enforcement in explaining corporate bond market development by regressing bond market size on the components of the public enforcement index, and present the results in Table 3. The power to impose criminal sanctions is the only element of public enforcement

Table 3. Bond Markets Development and Public Enforcement Characteristics

	Supervisor Characteristics	Rules-Making Powers	Investigative Powers	Orders	Criminal Sanctions
Constant	-0.3185 (0.1204)	-0.3396 (0.1117)	-0.3503 (0.116)	-0.3209 (0.1042)	-0.3546 (0.104)
Regulatory Variable	0.0045 (0.0659)	0.0208 (0.0345)	0.0305 (0.0417)	0.0156 (0.0373)	0.0964 (0.0563)
Log GDP per capita	0.0424 (0.0118)	0.0435 (0.0115)	0.0441 (0.0118)	0.0423 (0.0113)	0.0413 (0.011)

Maximum Likelihood Ratio Estimation of TOBIT models
Standard errors are shown in parenthesis

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

that is statistically significant. None of the other components of public enforcement appears to influence corporate bond market development. It is interesting to note that in La Porta et al. (2006) criminal sanctions only matter for IPO's. The authors concluded that "no dimension of public enforcement consistently matters for the development of stock markets." They offer the explanation that criminal deterrence may be ineffective because proving criminal intent of directors, distributors, or accountants in omitting information from the prospectus is difficult. It may, however, be different in the case of bonds, as the bond indentures and covenants define officers' liabilities more precisely.

In order to directly examine the influence of public enforcement v. disclosure and liability standard, the bond market measures were regressed on these two variables along with the control variable. The results are presented in Table 4 (Panel A), which shows that the public enforcement variable is not significant in all cases. On the other hand, disclosure is significant for corporate, financial and total debt

Table 4. Bond Markets Development and Public Enforcement Characteristics

Maximum Likelihood Ratio Estimation of TOBIT models

	Corporate Bonds	Financial Institution Bonds	Government Bonds	All Bonds
PANEL A:				
Constant	-0.3561 (0.1064)	-1.2707 (0.3099)	-0.5143 (0.3157)	-1.4578 (0.4221)
Disclosure Requirements	0.1359 (0.0776)	0.0668 (0.2138)	0.0797 (0.2379)	0.1943 (0.3162)
Liability Standards	0.0627 (0.0653)	0.4492 (0.1781)	0.1676 (0.2086)	0.5631 (0.2751)
Public Enforcement	-0.0278 (0.0716)	-0.1433 (0.196)	-0.2798 (0.2264)	-0.4547 (0.2991)
Log GDP per capita	0.0358 (0.0108)	0.1335 (0.0311)	0.0957 (0.0326)	0.2098 (0.0435)
PANEL B:				
Constant	-0.3506 (0.1066)	-1.3101 (0.3137)	-0.5222 (0.3143)	-1.4957 (0.4229)
Private Enforcement	0.1901 (0.0772)	0.5727 (0.2229)	0.2554 (0.2382)	0.7947 (0.3187)
Public Enforcement	-0.0227 (0.0716)	-0.1745 (0.198)	-0.2847 (0.2256)	-0.4760 (0.3)
Log GDP per capita	0.0359 (0.0109)	0.1337 (0.0315)	0.0958 (0.0327)	0.2106 (0.0438)

Standard errors are shown in parenthesis

^a significant at 1%; ^b significant at 5%; ^c significant at 10%.

market measures. Liability standard variable is also significant for the private debt regressions.

There is a possibility that multicollinearity between disclosure and liability standards may distort the significance of the coefficients. The debt market to GDP ratios were, therefore, regressed on public enforcement index and “private enforcement,” a variable composed of the disclosure and liability standard measures. The results of the TOBIT regression are presented in Panel B of Table 4. The private enforcement is strongly significant in all cases; whereas, the public enforcement variable is not.

We also note that stronger anti-director rights or efficiency of the judiciary does not appear to be associated with bond market development for all dependent variables. La Porta et al., (2006) on the other hand, regarding stock market development, find that anti-director rights are significant when they control for disclosure (ownership concentration) and for liability standards (ownership concentration and block premium). Their results for anti-director rights are more consistent in the regressions that control for public enforcement. The authors infer from their results that disclosure and liability standards are stronger than the anti-director rights index, and offer the explanation that, “it is correlated with the development of stock markets because it is a proxy for the effectiveness of private contracting as supported by securities laws. Note in this regard that legal origin typically loses its strong predictive power for the development of stock markets when we include anti-directors rights, disclosure, or liability standards in the regression.” Our results, on the other hand, indicate that the anti-director rights index are not significant determinant of the bond market development which implies that the influence of the legal origin may be weaker in the case of bond markets relative to its influence on the stock markets.

5. Conclusion

The study provides evidence that securities laws play an important role in the development of bond markets just as they do in the case of stock markets, as reported by earlier researchers. The results also support La Porta et al. (2006) conclusions that securities laws matter because they facilitate private contracting rather than provide for public regulatory enforcement. Specifically, extensive disclosure requirements and standards of liability are also associated with larger bond markets, just as these are associated with larger stock markets. In contrast to La Porta et al. (2006) findings that several aspects of public enforcement, such as supervisory independence and/or focused regulator or criminal sanctions, do not matter, our results indicate, however, that the supervisor’s power to impose

criminal sanctions may have a bearing on bond market development. These results underscore the importance of regulatory reform and strengthening the civil law environment for the protection of securities holders, for the development of corporate bond markets in particular.

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