

# How Long Do Corporates Borrow?

## Evidence from Capital Raising Activity

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March 2016

### Abstract

This paper documents to what extent firms from around the world have used the expansion of debt markets since the 1990s to borrow short and long term. We compile a large dataset of corporate bond and syndicated loan issuances in domestic and international markets during 1991-2014. Driven by a relatively lower financial sector activity in bond markets and by more loans for long-term investment projects, developing countries issue, on average, at longer maturities than developed ones. In developing countries, international issuances are of longer maturity than domestic ones, and firms lengthen the maturity of domestic bonds after accessing international markets. Corporate bond and syndicated loan markets are sometimes used as substitutes, as witnessed during the global financial crisis of 2008-09. Consequence of that substitution, countries and firms with access to bond markets maintained the average maturity of their debt issuances during the crisis period and lengthened it during the post-crisis.

**JEL Classification Codes:** F65, G00, G10, G32

**Keywords:** capital raising, corporate bonds, domestic and international debt markets, firm financing, global financial crisis, long-term finance, issuance maturity, syndicated loans

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\* We received very helpful comments from Stijn Claessens, Asli Demirgüç-Kunt, Catiana Garcia-Kilroy, Aart Kraay, Olivier Jeanne, Maria Soledad Martinez Peria, Andrea Polo, Alexander Popov, Heinz Rudolph, Thierry Tressel, and participants at presentations held at the Central Bank of Argentina (Buenos Aires), Central Bank of Chile (Santiago), Borsa Istanbul (Istanbul), Università Bocconi (Milan), and the World Bank (Washington, DC). This paper won the Best Paper Award at the 2<sup>nd</sup> International Borsa Istanbul Finance and Economics Conference. We are grateful to the Assonime/CEPR Research Programme on Restarting European Long-Term Investment Finance (RELTIF) for financial support of the research in this paper. The paper is part of the background work prepared for the World Bank 2015 Global Financial Development Report, which generously provided financial support along with the World Bank Knowledge for Change Program.

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## 1. Introduction

Corporate debt markets have expanded rapidly since the early 1990s. The issuance of corporate bonds and syndicated loans around the world has grown four times faster than gross domestic product (GDP) between 1991 and 2014. In developed countries, debt markets grew from 4 to 16 percent of GDP; in developing countries, from 1 to 4 percent of GDP.

This paper provides a first documentation of how firms have used the expansion in corporate bond and syndicated loan markets to obtain financing at different maturities. In particular, at which maturities do firms borrow and where do they obtain the longest maturities? Do firms from developed countries borrow longer term than firms from developing countries? If so, what explains those differences? How do domestic and international markets compare in the provision of long-term finance? Which firms access debt markets at the long-end of the maturity spectrum? How did firms use corporate bond and syndicated loan markets during the 2008-09 global financial crisis?

To address these questions, we assemble a new dataset on publicly and privately placed issuances of bonds and syndicated loans with an original maturity of more than one year in both domestic and international markets during 1991-2014. Issuers of bonds and syndicated loans encompass both listed and non-listed firms. The dataset includes 477,880 individual debt security issuances conducted by 83,370 firms from 80 countries (41 developed and 39 developing).

The main stylized facts from the analysis can be summarized as follows. First, although the overall issuance maturity is 6.3 years on average, there is significant heterogeneity along several dimensions. For example, corporate bonds tend to display longer maturity than syndicated loans. Even when issued by the same firm, bonds are, on average, around 5 (2) years longer than syndicated loans in developed (developing) countries. Financial firms go shorter term than non-financials in both corporate bond and syndicated loan markets.

Second, contrary to what many might expect, firms from developing countries borrow, on aggregate, at longer maturities than those from developed countries. Underlying this pattern is (i) a larger share of non-financial firms from developing countries issuing corporate bonds and (ii) a more intensive use of syndicated loans to fund infrastructure projects in developing countries than in developed ones. In the case of non-financial firms, those from developed countries borrow with longer-maturity bonds, 2.2 years longer on average, than those from developing countries, but still borrow in syndicated loan markets at relatively shorter maturities (2.7 years shorter).

Third, international bond markets play a key role in the provision of long-term finance for firms in developing countries. For non-financial firms, a large share of bonds issued at the long end of the maturity spectrum takes place abroad. Bonds issued by firms from developing countries have an average maturity of 10.1 years when issued abroad, compared to an average maturity of 6.8 years when issued domestically. Developing country firms also lengthen the maturity of domestic bond issuances after having raised capital in international bond markets.

Fourth, a few large firms capture most of the activity in corporate bond and syndicated loan markets. Moreover, the relation between firm size and debt maturity at issuance is upward sloping in corporate bond markets. Whereas firms in developed (developing) countries at the 10th decile of the firm size distribution raise 69 (60) percent of the bonds with an average maturity of 10.1 (6.8) years, firms at the 1st decile capture 0.2 (0.5) percent of the total with an average maturity of 3 (4) years. In contrast, the firms' size of syndicated loan issuers does not correlate with the maturity of their loans. Although the capital raising activity through syndicated loans is also concentrated among the largest firms, it is the use of the proceeds which mostly drives their maturity. In developing countries for instance, firms use to a large extent syndicated loans to fund long-term infrastructure projects.

Fifth, the paper provides evidence of a substitution from bank debt into market debt at the country level during and after the global financial crisis of 2008-09. This switch from loan to bond

financing reflects an increase in the propensity to borrow from bond markets for new entrant firms (that is, those issuing debt only from 2008 onwards) relative to exit firms (those that issued debt before 2008 only) as well as for firms issuing debt both before and after 2008. Despite these compositional changes in debt financing (at both the macro and micro levels), the overall average maturity of issued debt at the country level has remained fairly stable. The large, recurrent debt issuers were generally able to maintain the average maturity of their debt issuances during the crisis years, especially in developed countries, and lengthened it during the post-crisis period. Moreover, in developed countries, there was some similarity in the maturity of newly issued debt for both entrant and exit firms around the global financial crisis. In developing countries, however, entry and exit of firms underlie a lengthening of syndicated loan maturities but a decline in bond maturities during the crisis years.

The findings in this paper are relevant to several strands of the literature, grouped here in four broad categories. First, several studies have discussed the benefits and risks of debt financing, especially following the expansion of debt markets since the 1990s. A branch of the literature has studied whether debt is in domestic or foreign currency, and the risks associated with the latter (Burger and Warnock, 2006; Claessens et al., 2007; Burger et al., 2015). Part of the debate has focused on the maturity compositions of debt contracts (Custodio et al., 2012; Giovannini et al., 2015; World Bank, 2015). Although the maturity structure can be viewed as a risk sharing outcome between debtors and creditors, having access to long-term funds allows governments and firms to finance large investments as well as to reduce rollover and liquidity risks and the potential for runs that could lead to costly crises. The literature has indeed stressed that “short-termism” explains several well-known financial crises in both developing and developed economies (Eichengreen and Hausmann, 1999; Rodrik and Velasco, 2000; Tirole, 2003; Jeanne, 2009; Brunnermeier, 2009; Raddatz, 2010).

The present paper contributes to the literature mentioned above by documenting the extent to which companies borrow long term, using the most comprehensive cross-section of countries and firms around the world and the longest time period for which data are available for both corporate bonds and syndicated loans. Moreover, the paper shows to what extent the long-term financing comes from different instruments, markets, and firms. This would help set a benchmark for the maturity structure of corporate debt around the world. The findings in this paper also show some of the tradeoffs related to maturity when issuing different types of debt.

Second, several papers study the effect of country-specific factors on the debt maturity structure. Research finds that firms' financial structures differ systematically across countries (Demirgüç-Kunt and Maksimovic, 1999; Fan et al., 2012). Building on the assumption that financial decisions in developing countries are somehow different, this research also finds that firms in these countries do not rely on as much long-term debt financing as those from the developed world.<sup>1</sup>

The evidence in the present paper suggests that on the aggregate, firms from developing countries borrow at longer maturities than those in developed countries. This pattern is only reversed when the analysis is restricted to corporate bonds issued by non-financial firms. While most of the existing evidence is based on firm's balance sheet information, which uses self-reported data on the fraction of short- and long-term debt, this paper explores instead debt transaction data. The incremental approach allows us to estimate the entire maturity distribution of the issued debt and thus shedding additional light on aggregate patterns. Moreover, unlike most of the existing literature, this paper distinguishes between bank and market debt. This distinction is important, since we find significant differences in the maturity structure of each type of debt. The fact that there is substantial heterogeneity in maturity across instruments, markets, firms, and uses of proceeds suggests that some

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<sup>1</sup> A similar argument applies to sovereign bond markets (Broner et al., 2013).

of the factors reported in the literature influencing cross-country differences in the maturity structure might mask other sources of variation in the data.

Third, a separate and large literature studies the firm-level determinants of debt maturity. Myers (1977), Diamond (1991), and Rey and Stiglitz (1993) provide the theoretical foundations on why firm-specific factors can influence the maturity structure of liabilities. These theories are based on underlying hypotheses of agency costs, asymmetric information, and liquidation risks as well as differentiated tax treatments. A number of empirical papers have provided evidence consistent with these theories for individual (mostly developed) countries (e.g. Barclay and Smith, 1995; Custodio et al., 2012).

Using a broad cross-section of countries and transaction-level data, some of the findings in this paper are consistent with the literature. In particular, larger firms that are believed to be less opaque issue longer-term bonds. This relation between size and maturity exists only for the corporate bond market, which provides more arm's length financing. In the case of syndicated loans, the relation does not exist and might signal that banks are able to lend more on a relationship basis.

Fourth, different sets of papers discuss the substitution of financing over time and across markets and instruments. One group explores the dynamics of corporate debt maturity and argues that firms exploit variations on expected returns along the debt maturity spectrum or in the business cycle to decide on the actual maturity of debt issued (Baker et al., 2003; Greenwood et al., 2010; Erel et al., 2012). Other papers study the effects of internationalization on firms' capital structure, such as how internationally issued debt might complement or substitute that issued domestically (Schmukler and Vesperoni, 2006; Gozzi et al., 2015).<sup>2</sup> Finally, the expansion of corporate borrowing in bond markets (and away from banks) after the global financial crisis has attracted much attention recently

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<sup>2</sup> Issuance in foreign markets might allow firms to expand their access to a wider set of lenders or to trade in more liquid markets, as well as overcome the difficulties of the local contracting environment and better deal with information asymmetries (among other things).

(Adrian et al., 2012; Shin, 2013; Becker and Ivashina, 2014; Acharya et al., 2015; IMF, 2015; McCauley et al., 2015; Lo Duca et al., 2016; The Economist, 2016).

The evidence in this paper suggests that during the global financial crisis, when lending in the syndicated market collapsed, bond markets acted as substitutes for some “large” firms, providing to some degree the “spare tire” function advocated for capital markets (Greenspan, 1999). While recent research has already shown evidence of this substitution for some U.S. listed firms with access to bond markets (Adrian et al., 2012; Becker and Ivashina, 2014), there is no evidence of firm-level substitution at the global level and the consequences for the maturity at issuance of those firms. In addition, contrasting the use of domestic and international bond markets suggests that firms from developing countries might consider these markets as complements, using international markets for longer-term financing and domestic markets for shorter-term funds, at least on average. Because firms expand their domestic maturity structure after issuing abroad, the evidence also suggests that the internationalization process might help companies change the type of financing they obtain at home.

The remainder of the paper is organized as follows. Section 2 describes the data. Section 3 describes the evolution of primary bond and syndicated loan markets and how firms have used them to obtain finance at different maturities. Section 4 focuses on different markets and examines the provision of long-term finance by domestic and international markets. Section 5 analyzes the characteristics of firms that access debt markets and their variation across the maturity spectrum. Section 6 investigates whether and how the global financial crisis of 2008-2009 affected the documented patterns regarding the maturity structure of corporate debt. Section 7 concludes.

## **2. Data**

To assess the maturity structure of corporate bonds and syndicated loans issued in domestic and international markets by firms from all over the world, we assemble a comprehensive dataset on firms’

security issuances around the world from 1991 through 2014. Our data on firms' capital raising activity come from the Thomson Reuters Security Data Corporation (SDC) Platinum database, which provides transaction-level information on new issuances of common and preferred equity and publicly and privately placed bonds with an original maturity of one year or more.<sup>3</sup> Given that the SDC Platinum database does not collect data on debt issuances with maturities shorter than one year, the dataset does not cover commercial paper. Because our analysis focuses on corporate financing, we exclude all public sector issuances, comprising securities issued by national, local, and regional governments, government agencies, regional agencies, and multilateral organizations. We also exclude mortgage-backed securities and other asset-backed securities. The dataset includes 83,370 (listed and non-listed) firms and 477,880 security issuances: 282,751 bond issuances and 195,129 syndicated loan issuances.<sup>4</sup>

To classify corporate bonds as domestic or international, we compare the market location in which bonds are issued to the issuing firm's nationality. For offerings that take place simultaneously in more than one market, we consider tranches in each market as separate issues. The dataset includes 193,654 issuances in domestic markets and 89,097 issuances in international markets.<sup>5</sup>

For syndicated loans, the nationality of the banks that participate in the deal is used to distinguish between domestic or cross-border lending. Domestic loans are those in which only domestic banks participate in the syndication, whereas international loans entail the participation of at least one foreign bank.<sup>6</sup> The dataset includes 92,654 domestic syndicated loans and 102,475 international syndicated loans.<sup>7</sup>

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<sup>3</sup> The dataset includes both public and private placements.

<sup>4</sup> Around 45 and 36 percent of bonds and syndicated loans were issued by non-listed firms. We also collect data on equity issuance: the dataset contains 199,931 equity issuances by 65,713 firms.

<sup>5</sup> SDC provides information on the market where bonds are issued, including both formal exchanges and OTC markets.

<sup>6</sup> Alternatively, we also considered international syndicated lending when only foreign banks participated in the deal. The results are qualitatively similar to the reported ones.

<sup>7</sup> Some studies estimate that syndicated loans account for most of the loan financing to large corporations, and their relative importance has increased over time (Ivashina and Scharfstein, 2010; Cerutti et al., 2014).



We classify the issuers of bonds and syndicated loans into financial and non-financial corporations according to their Standard Industry Classification (SIC) code. Firms with a SIC code between 6000-6800 are classified as financial corporations. The dataset includes 177,502 bonds and 38,027 syndicated loan issuances by financial firms (or 63 and 19 percent of the total issuances of bonds and syndicated loans, respectively). Following standard practices in the literature and in order to study a more homogeneous set of firms, financial firms are excluded from the analysis conducted on Sections 4, 5, and 6 of the paper.

Countries in the sample are classified as either developed or developing economies following the World Bank classification of countries as of 2012. In particular, developed economies are those with a gross national income (GNI) per capita in 2011 above \$12,476. All other economies are classified as developing economies. The final dataset comprises 80 economies—41 of them are developed and 39 developing. All reported statistics are in U.S. dollars at 2011 constant prices. Appendix Table 1 reports the list of countries in each of these categories. Appendix Table 2 shows the number of issuances and Appendix Table 3 reports the number of issuers of corporate bonds and syndicated loans per country, splitting between developed and developing countries.

The SDC database also contains information on the total assets of issuers at the time of issuance, which allows us to explore how firm size relates to the use of debt markets for long-term funding. The data on firm size is available for 48 percent of the corporate bond issuances and 34 percent of the syndicated loan issuances.<sup>8</sup>

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<sup>8</sup> It is not clear in whether there is any bias in the firm size data towards a certain type of firm (e.g. larger firms are more likely to report data). For robustness, we conducted two additional exercises: we used the total amount raised as a proxy for firms' size; we focused on listed firms and examined the total assets reported in their reported annual balance sheets (data from Bureau Van Dijk's Orbis database). All the results are quantitatively and qualitatively similar to the ones reported in the paper.

### 3. Financial Markets and Long-term Finance

Primary markets for bonds and syndicated loans have expanded rapidly during the past decades (Figure 1). The total amount firms in developed countries raised through these instruments increased from around \$1.2 trillion in 1991 to \$7 trillion in 2014; debt issuances in developing countries increased from about \$51 billion to \$1 trillion over the same period. Syndicated loans grew particularly fast during the 2000s and gained in relative importance over time. Corporate bonds represented around 65 percent of the total debt issued annually during the 1990s, but during 2004-2008 syndicated loans accounted for 60 percent of the total. Despite the substantial growth observed in developing countries, a gap in the size of these debt markets between the two groups of economies persists. The total amount raised by developing countries in 2014 equaled about 3.5 percent of their GDP, whereas the total raised by developed countries in the same year was equivalent to about 15 percent of GDP.

The growth in the primary corporate bond and syndicated loan markets was also substantial when contrasted with that of primary equity markets.<sup>9</sup> The total proceeds raised per year in debt markets grew about 6-fold in developed countries and more than 16-fold in developing countries. In contrast, the use of equity rose more slowly in both groups of countries. The total amount of new equity issued increased 3-fold in developed countries, from around \$243 billion in 1991 to \$690 billion in 2014. Over the same period, firms in developing countries saw a 6-fold increase, from around \$40 billion to \$256 billion. As a consequence, the ratio of the total amount raised through debt over equity grew from 5 to 10 in developed countries and from 1 to 3 in developing countries during 1991–2014. In 2014, the two debt markets accounted for about 91 percent of the total annual new financing raised

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<sup>9</sup>The value of debt issuances is not directly comparable to that of equity issuances to the extent that equity has no maturity. Part of the proceeds from debt issuances may be used to repay maturing debt and therefore only a fraction of debt issuances may be considered new financing. In our dataset, firms issuing in debt markets do not seem to wait until the securities mature to issue debt again. For instance, firms issuing 5-year bonds and loans usually tap to primary debt markets again after 1.7 and 2.2 years, respectively. Moreover, a positive correlation between the maturity at issuance and the number of months to the next issuance only seems to arise at the short end of the maturity spectrum—up to 10 years of maturity. Henderson et al. (2006) tried to adjust the debt issuance data for the rollover of debt and concluded debt issuance still constituted a much larger source of new capital than equity issuance at the aggregate level.

by firms in developed countries and for about 77 percent of the financing for developing country firms.

How have firms used these rapidly growing debt markets for long-term financing? An analysis of the weighted average maturity at issuance and the cumulative distribution functions of all the debt issuances during the 1991-2014 period shows that the maturity at which firms issue debt securities varies significantly in many dimensions.

First, corporate bonds display longer maturity than syndicated loans. The (weighted) average maturity of corporate bonds issued by developed countries is 7.6 years, while it is 4.7 years for syndicated loans (Table 1). In developing countries, the average maturity is 7.9 years and 7 years for corporate bonds and syndicated loans issuances, respectively. This difference is not only apparent when comparing average maturities, the cumulative distribution function (CDF) formed by all the bonds issued at different maturities is to the right—toward relatively longer maturities—of the syndicated loans' CDF (Figure 2, Panel A). That is, the share of bonds issued with a certain maturity or longer is greater than the share of total loans issued at the same maturity threshold, for every maturity considered. For instance, 52 percent of the bonds issued have a maturity of 5 years or more, in contrast to 32 percent of the syndicated loans. At the 10-year threshold, the differences are still sizeable, with 19 percent of all issued bonds and 4 percent of all issued syndicated loans.

Second, financial firms typically go shorter term than non-financial firms. Financial firms from developed (developing) countries issued bonds with an average maturity of 6.2 (7.9) years; the maturity of bonds issued by non-financial firms is on average longer at 10.2 (8.0) years (Table 1). Similar patterns are observed in syndicated loan markets. Financial firms from developed (developing) countries contracted loans with 3.8 (4.6) years of average maturity; the average maturity of all the loans issued by non-financial firms is 5.0 (7.7) years. These differences in maturities are also reflected in the CDFs formed by all the bonds and syndicated loans issued at different maturities. The CDFs for non-

financial firms lie to the right of the CDFs for financial firms, indicating that the share of the total debt issued with a certain maturity or longer is larger for the former set of firms (Figure 2, Panel B).

Third, the total amount of debt issued in corporate bond and syndicated loan markets by developing country firms has longer maturity, on average, than the total debt issued by developed countries. The total amount of debt issued has an average maturity of 6.2 years in developed countries and of 7.5 years in developing countries (Table 1). This pattern holds when distinguishing corporate bond from syndicated loan debt. In particular, while the average maturity of corporate bonds is 7.6 years in developed countries it is 7.9 years in developing countries. In syndicated loan markets, this difference is even larger. Firms from developing countries contracted loans with an average maturity of 7 years, while the maturity of developed countries' loans was 4.7 years on average. The CDFs support these patterns: the CDFs formed by all corporate bonds and syndicated loans issued at different maturities by developing country firms lie to the right of the CDFs formed by the developed country firms' issuances (Figure 2, Panel C).

Two factors underlie the previous pattern. First, a larger share of financial firms issue corporate bonds in the developed world. That is, financial firms, which typically borrow at shorter maturities, capture a larger share of the total bond issuance activity in developed countries (64 percent of the total) than financial firms from developing countries (49 percent of the total). Within the non-financial sector, however, firms located in developed countries issue bonds with longer maturity—2.2 years longer, on average—than those from developing economies. And second, syndicated loan borrowing for long-term investment (mostly infrastructure) projects is more intensive in developing countries (Figure 3).<sup>10</sup> Loans for project finance and other long-term investments, a category that

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<sup>10</sup> We make use of the reported purposes of syndicated loans and corporate bonds to create five broad categories: Acquisition financing and leveraged buyout (LBO), general corporate purposes and working capital, project finance and other long-term investments, refinancing or capital structure management, and others and missing. In unreported results we estimate the share of total capital raised and average maturity of corporate bonds for different uses.

consists primarily of infrastructure projects, have an average maturity of 12 years and account for about 29 percent of all syndicated loans contracted by developing countries, but only 5 percent for developed countries.<sup>11</sup>

To test whether the differences in the maturity at which firms issue debt securities along the three dimensions discussed above are statistically significant, we estimate OLS regressions at the transaction-level of analysis. In particular, the maturity of the issuances in years are regressed on dummy variables for the type of debt instrument used, firms' sector, and firms' country of origin. Consistent with the summary statistics and CDFs, the results in Table 2 show that: (i) corporate bonds tend to have longer maturity than syndicated loans; (ii) non-financial firms tend to issue longer-term debt than financial firms; (iii) corporate bonds issued by non-financial firms in developed countries have longer maturity than those issued by non-financial firms in developing countries; (iv) syndicated loans issued by non-financial firms in developed countries have shorter maturity than those issued by non-financial firms in developing countries. We repeated the regressions in Table 2 controlling for the different uses of the proceeds raised. The difference in maturity between developed and developing syndicated loans decreased from about 1.8 to 0.4 years.<sup>12</sup>

Moreover, the fact that several firms issue both types of debt to obtain finance allows us to analyze whether bonds and loans display different maturities when issued by the same firm. We run maturity regressions on a dummy that equals one when the debt issuance is a loan and zero otherwise (corporate bond) and add firm fixed effects to focus on within-firm variations (Table 3). We find that, even when issued by the same firm, corporate bonds are consistently longer term than syndicated loans across all the dimensions studied in this section: developed countries, developing countries,

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<sup>11</sup> Whereas the reported purposes seem to largely influence the maturity of the syndicated loans, this is not the case for corporate bonds. Moreover, only 1.1 percent of corporate bonds are for project finance in developing countries (0.3 percent in developed ones). The differences in the use of proceeds between developed and developing country firms are very small, with most of the bonds raised for general corporate purposes and working capital (67 percent and 83 percent of the total in developed and developing countries). The results are available upon request to the authors.

<sup>12</sup> The difference in coefficients for the other dimensions of the data analyzed remains similar.

financial firms, and non-financial firms. For instance, firms in developed (developing) countries issued bonds with maturity around 5 (2) years longer, on average, than loans.

#### **4. Domestic and International Debt Markets**

International markets play a key role in the provision of debt financing. Developed and developing countries raise a substantial amount of funds in foreign bond markets, 39 percent and 36 percent of the total amount raised with bonds, respectively.<sup>13</sup> International markets represent more than 50 percent of the total capital raising activity through bonds in 64 out of the 80 countries analyzed. In syndicated loan markets, most of the financing entails foreign bank participation: over 80 percent of the total amount raised by both developed and developing countries.

The distinction between domestic and international debt markets is important as these markets could provide different funding options for firms, especially varying terms, including different maturities and different currency denominations.<sup>14</sup> For firms from countries with relatively less developed financial markets, foreign financing may be available at terms not obtainable in domestic markets. In this section, we focus on the maturity dimension and examine whether firms use domestic and international markets to issue debt at different maturity terms and whether the maturity of domestic debt issuances varies after firms issue in foreign capital markets for the first time (that is, after they internationalize).

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<sup>13</sup> Most of the international debt issuances are conducted in a few developed countries. International bond issuances take place mostly in the Euro area (61 percent), the United States (16 percent), and the United Kingdom (8 percent). The largest volumes of syndicated lending are also originated within a few developed countries, mainly the United States (31 percent) and the economies of Western Europe (36 percent).

<sup>14</sup> The vast majority of the debt financing obtained by developing countries in foreign markets is denominated in foreign currency (95.5 percent of the amount raised through bonds in foreign markets and 87.5 percent of the amount raised through syndicated loans with foreign bank participation). In contrast, developed countries usually issue in local currency (56.5 percent of the total capital raised through bonds abroad and 82.9 percent of the syndicated loans with foreign bank participation).

One key feature emerges from the analysis of the maturity structure of bond issuances in domestic and international markets: firms in developing countries tap foreign markets at the long end of the maturity spectrum. Bond issuances by firms from developing countries have an average maturity of 10.1 years when issued abroad, contrasting with an average maturity of 6.8 years when issued domestically (Table 4). While developed country firms seem to go slightly shorter term in international markets—around 1.6 years shorter than in domestic markets—, they issue bonds with similar maturities as developing country firms do internationally. This pattern is clearly displayed in Figure 4. The CDF for international bonds issued by developing country firms lies to the right of the CDF for domestic bond issuances, indicating that shorter terms are obtained in local markets. Moreover, the distribution for foreign issuances by developing countries closely resembles the CDF for bond issuances by developed countries, suggesting that capital is raised at similar maturities.

To assess more formally whether there are differences in the maturity of debt issuances in domestic and international markets, we estimate issuance-level regressions of the debt maturity in years on dummy variables for each country-market group. For this analysis, we further split the sample according to the currency denomination of the issuances, which could explain, at least in part, the observed differences. For example, if bonds denominated in hard currencies such as the US dollar tend to have longer maturity, the finding that developing country firms issue abroad at relatively longer maturity might simply reflect the fact that issuances abroad are denominated in foreign currency.

The results in Table 5 are consistent with the summary statistics and CDFs discussed above and show that corporate bonds tend to have different maturity characteristics depending on the market location where the issuances take place. In particular, the regressions show that: (i) corporate bonds issued in international markets by developing country firms tend to have longer maturity than domestic issuances, (ii) bonds issued by developed country firms (domestically or internationally) have a similar average maturity than international bonds issued by developing country firms, and (iii)

domestic bonds issued by developed countries have longer maturity than domestic bonds issued by developing countries. These results are qualitatively robust to the currency denomination of the issuances, as shown in columns b and c of Table 5, where we consider domestic- and foreign-currency issuances in separate regressions.

We next study whether the differences in maturity between domestic and international bond issuances are observed within firms. Moreover, we assess what are the effects of internationalization—the firms’ access to international markets for the first time—on the maturity of post-internationalization bond issuances. In particular, we address three questions: (i) whether foreign bond issuances have different maturities than domestic bond issuances for the same firm; (ii) whether firms change the maturity structure of their issuances after they internationalize; and (iii) whether the maturity of domestic bond issuances changes after firms internationalize. To answer these questions, we regress the maturity of issuances in years on a dummy variable capturing whether the firm has issued bonds in foreign markets during our sample period or, alternatively, on an internationalization dummy (which equals one for the period after its first issuance abroad). Although we analyze the data at the issuance level, we include firm fixed effects to capture within-firm effects while accounting for cross-sectional differences among firms.

The regression results in Table 6 show that, in developing countries, international bonds are about 1.6 years longer on average than the domestic bonds issued by the same firm (column a of Panel B). This implies that the differences in maturity between domestic and international bond issuances reported before, are not solely driven by the composition of firms issuing in domestic and international markets, but also by within-firm variations. Moreover, after tapping foreign markets for the first time, developing country firms lengthen the maturity of their bond issuances. Firms increase the average maturity of their bonds issued after internationalization in 1.6 years (column b of Panel B). This result is not only consequence of firms increasing their propensity to issue internationally after their first



issuance abroad. Internationalization also affects positively the maturity of domestic bond issuances. Firms increase in 1.3 years the maturity of their domestic bond issuances after having raised capital in international bond markets for the first time (column c of Panel B). Despite this increase in the maturity of bonds issued locally, international issuances are still longer than domestic bond issuances by about 1.4 years (column d of Panel B). The results for developing country firms stand in stark contrast with those for developed ones. Their issuances abroad are slightly shorter than domestic ones and internationalization has no economically significant effect on the maturity of bond issuances.

We now turn to syndicated loan markets and analyze whether firms use domestic and international markets to borrow at different maturity terms. Although most of the funds raised in syndicated loan markets by firms from developing countries entail foreign bank participation, these tend to have shorter maturity terms than domestic syndicated loans. Loans to developing countries involving only domestic lenders have an average maturity of 12.6 years, while loans with foreign bank participation have 6.7 years of average maturity (Table 4). For developed countries, both domestic and foreign syndicated loans are obtained at somewhat similar maturities of about 5 years. The CDFs in Figure 4 show similar patterns: the distribution of domestic syndicated loans issued by developing countries lies to the right of the distribution of their international loans. Both distributions (domestic and international loans for developing countries) lie to the right of the distribution of syndicated loans for developed countries. The regressions in Table 5 confirm that these differences are statistically significant and independent of the currency denomination.

The differences in maturity between domestic and international syndicated loans are, in part, explained by the type of projects these loans finance. In developing countries, around 60 percent of the domestic loans are for project finance and other long-term projects, while only 27 percent of the international loans fund these projects (Figure 5). As argued above, the maturity of project finance loans is on average longer than the maturity of loans for all other purposes. Yet, domestic syndicated

loans to developing country firms have longer maturity than international loans along the different categories of primary use of proceeds. We repeated the regressions in Table 5 controlling for the different uses of the proceeds raised by the syndicated loans. The difference in maturity between domestic and international syndicated loans for developing countries decreased from about 2.8 to 1.4 years. Moreover, a regression analysis at the firm level does not yield statistically significant differences in the maturity of loans issued in domestic and foreign markets. There are, nevertheless, very few firms carrying out both domestic and international syndicated loan issuances.

Overall, our analysis shows that international markets play a key role in the provision of long-term finance for firms in developing countries. After accessing international markets, firms in developing countries lengthen the maturity of their bond issuances. They increase the maturity of bonds issued domestically and are able to raise capital at even longer maturities internationally. In the case of syndicated loan markets, domestic lending is relatively small with most of the funds raised entailing foreign bank participation in most developing countries. Although in developing countries domestic syndicated loans tend to have longer maturity than those with foreign bank participation, these differences in the average maturity at the aggregate level are, in part, explained by differences in the use of proceeds. Syndicated loans by domestic banks fund more intensively project finance and long-term investment activities, which are mostly related to infrastructure and require of more long-term financing.

## **5. Firm Size and Debt Maturity**

Past research has already shown that few firms use capital markets and those that do it tend to be large (Didier et al., 2015), but there is no evidence on how firm size relates to the maturity at issuance of

different types of debt.<sup>15</sup> The limited number of firms using capital markets is consistent with large size requirements and high fixed costs associated with the issuance process.<sup>16,17</sup> For instance, the median corporate bond issuance is \$93 million and the median syndicated loan, \$92 million. In this section, we analyze which firms use debt markets for long-term funding and how recurrent is the use of debt markets for firms of different sizes.

To assess whether firm size relates to debt maturity at issuance, we study the maturity of debt transactions along both the size distribution of debt issuances and the size distribution of firms based on their total assets. The analysis for bond markets shows that long-term bonds tend to be larger than short-term bonds and issued by the largest firms of the sample. The size distribution of corporate bonds issuances indicates that the average maturity at issuance increases with the size of the bonds (Figure 6, Panel A). For example, in developed (developing) countries, bonds issued at the 10<sup>th</sup> decile of the bond size distribution raise, on average, around \$1,000 (\$843) million and have an average maturity of 10.2 (8.8) years, whereas bonds issued at the 1<sup>st</sup> decile raise around \$3 (\$2) million and have an average maturity of 3.7 (3.7) years.

Across the size distribution of debt issuers, the larger a firm is the higher is its market activity and the longer its bond issuances are (Figure 6, Panel B). For instance, in developed (developing) countries, firms at the 10<sup>th</sup> decile of the firm size distribution (those with total assets of around \$7,788 (\$7,712) million or more) capture 69 (60) percent of the total activity in bond markets with an average maturity of 10.1 (6.8) years. In contrast, firms at the 1<sup>st</sup> decile (those with total assets of around \$37

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<sup>15</sup> Because we want to estimate size-maturity correlations, the figures in this section are calculated using simple averages instead of weighted average maturities.

<sup>16</sup> Issuances tend to be for large amounts because small issuances are not cost efficient. Fixed costs of issuance include disclosure (indirect costs), investment bank fees (the highest costs, typically), legal fees, taxes, rating agencies fees, and marketing and publishing costs (Zervos, 2004).

<sup>17</sup> The use of debt markets seems to be more widespread for some economies than for others. For example, the average number of debt issuers per year in the U.S. is about 3,045, whereas France and Germany usually have around 180 issuers per year. In developing countries, Brazil, China, and India stand at the top of the markets, with 121, 227, and 153 issuers per year in debt markets, respectively. In contrast, Peru and Turkey, for instance, had 23 and 19 debt issuers per year over the sample period.

(\$106 million or less) capture 0.2 (0.5) percent of the total amount issued with an average maturity of 3 (4) years.<sup>18</sup>

International bond issuances and issuers tend to be larger than domestic ones.<sup>19</sup> The median corporate bond issuance in foreign markets is \$191 million, in contrast with \$65 million in domestic markets. Indeed, the share of bonds issued abroad increases along the bond size deciles (Figure 7, Panel A). In developed (developing) countries, 6 (4) percent of the bonds at the 1<sup>st</sup> decile of the bond size distribution (that is, issuances smaller than \$6 (\$5) million) are issued in international markets. For bond issuances at the 10<sup>th</sup> decile of the distribution (those raising \$557 (\$392) million or more), foreign markets represent 47 (44) percent of the total. On the firms' side, whereas the median international issuer has around \$1,605 million in assets the median domestic issuer has \$421 million. In fact, a large fraction of the issuing firms at the 10<sup>th</sup> decile are firms with access to international markets (Figure 7, Panel B).<sup>20</sup> Importantly, the upward sloping relation between size (of bonds and issuers) and bond maturity remains when distinguishing between issuances in domestic and international markets. That is, the average maturity of the issuances increases with the size of the bonds and firms.

These results indicate that, among the set of firms using bond markets to obtain finance, the largest ones not only are more likely to issue debt, but also issue larger and longer-term bonds than smaller firms. These findings are consistent with smaller firms being more prone to information asymmetries and agency problems between borrowers and investors than larger firms (Falkenstein, 1996; Coval and Moskowitz, 1999; Dahlquist and Robertsson, 2001). Hence, to deal with these

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<sup>18</sup> If we consider the number of bonds instead of the amount issued by firms of different sizes, corporate bond markets still appear to be concentrated, especially in developed countries. About 47 percent of the bonds are issued by the firms at the 10<sup>th</sup> decile of the size distribution in developed countries and about 26 percent in developing countries.

<sup>19</sup> These results are consistent with greater barriers associated with the use of international markets compared with domestic ones. For instance, Zervos (2004) argue that to meet the liquidity and size requirements of international buyers, the minimum deal size in foreign markets is typically much larger than in domestic markets. In addition, the international issuance of securities includes high legal costs to meet international regulations and international rating fees.

<sup>20</sup> Participation in both foreign and domestic bond markets increases with firm size.

informational frictions, smaller firms would tend to issue debt with relatively shorter maturity (Myers, 1977; Barnea et al., 1980; Barclay and Smith, 1995).

In syndicated loan markets, the largest firms also issue most of the loans, but not at the longest maturities. In fact, there is no clear size-maturity correlation across neither the loan size distribution nor the firm size distribution (Figure 8, Panel A and B). In developed (developing) countries, loans issued at the 10<sup>th</sup> decile of the loan size distribution raise, on average, around \$1,718 (\$1,178) million and have an average maturity of 4.6 (8.0) years. In contrast, loans issued at the 1<sup>st</sup> decile are of \$7(\$9) million with a maturity of 5.3 (6.1) years on average. While the largest firms capture most of the activity, they issue with similar average maturity than relatively smaller firms. For example, in developed (developing) countries, firms at the 10<sup>th</sup> decile of the firm size distribution capture 59 (59) percent of the total loans issued with an average maturity of 4.4 (5.1) years, while firms at the bottom three deciles raise 0.1 (0.3) percent of the total with an average maturity of 4 (5.7) years.

Even when considering loans with foreign bank participation separately from those contracted with domestic banks only, firm size does not consistently correlate with maturity.<sup>21</sup> Moreover, the share of loans with foreign bank participation increases across the loan size deciles, especially in developed countries (Figure 9, Panel A). Firms typically borrow loans with foreign bank participation along the size distribution of debt issuers (Figure 9, Panel B).

Overall, the largest firms in the sample capture most of the activity in debt markets. These firms are also more likely to participate in foreign markets than the other firms. The relatively smaller firms not only participate in bond and syndicated loan markets less frequently than the larger firms, but do so at the short end of the maturity spectrum when issuing bonds.

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<sup>21</sup> Just for the case of domestic loans for developing countries the maturity of such loans increases with the size if the issuance.

## 6. Global Financial Crisis

The composition of new debt financing changed significantly during and after the global financial crisis of 2008-09, with an impact on the maturity structure of debt at issuance. This section focuses on the different dimensions in which these changes occurred: from aggregate country-level changes in issuances of different instruments to disaggregate financing changes within firms.

For starters, the global financial crisis temporarily halted the fast expansion in debt issuance activity.<sup>22</sup> Whereas the total amount of debt issued grew at an average annual rate of about 6.2 percent in developed economies during 2000-07, it fell by 31.1 percent in 2008 with respect the previous year. Developing countries' debt, which grew at an impressive rate of 22.6 percent per year during 2000-07, experienced a modest growth of 4.7 percent during 2008.

This halt in debt issuance reflected mostly a collapse in the syndicated loan markets (Figure 10).<sup>23</sup> Total borrowing in these markets declined by around 60 and 28 percent in developed and developing countries between 2007 and 2009; the decline in cross-border lending was particularly acute for developing countries.<sup>24</sup> In contrast, the issuance of corporate bonds actually increased during the crisis years, partially compensating the syndicated loans collapse—it expanded by 64.9 and 127.4 percent during 2007-09 in developed and developing countries.<sup>25</sup> Bond financing has remained on the

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<sup>22</sup> Following Adrian et al. (2012), we focus the analysis of this section on the financing of corporate real activities. That is, we single out “real investment” bonds and loans by excluding new debt for “Acquisition Financing and LBO”, “Refinancing and Capital Structure Management”, and other issuances whose purposes cannot be categorized as real investment (such as those with unspecified purposes or with missing values). Moreover, to provide a clearer comparison of the pre-crisis vis-à-vis the crisis and post-crisis trends, we narrow the study to the 2000-2014 period. Overall, out of the 63,835 (133,869) corporate bonds (syndicated loans) issued during the 2000-2014 period, 50,210 (75,766) issuances were considered to be for real investment purposes.

<sup>23</sup> Some papers explored the reasons behind these trends in syndicated loan markets. For instance, some research points at a combination of demand and supply shocks: firms scaled back expansion plans during the recession, while banks dealt with deleveraging pressures and tightened regulations (Ivashina and Scharfstein, 2010; Chui et al., 2010). During 2011-2013, the supply shock may have intensified in light of the financial stress experienced by European banks as a result of the sovereign debt crisis affecting several European countries (Feyen and Gonzalez del Mazo, 2013; Laeven and Tresselt, 2014).

<sup>24</sup> A large fraction of cross-border syndicated loan funding to developing countries originated in Western European banks. Funding from this region to developing countries fell by 80 percent between 2007 and 2009 and has remained relatively weak since then.

<sup>25</sup> There was a large decline in corporate bond activity in the financial sector of developed countries, which experienced a sharp and sustained fall in issuance volumes after 2007. In 2008 the issuance of bonds by the financial sector fell by 25.1

rise during the post-crisis period, especially in developing countries.<sup>26</sup> As a consequence, at this aggregate level, the composition of corporate debt has shifted away from bank debt toward market debt since 2008.

Similar patterns emerge within countries. To formally assess this rising importance of bond debt, we run country-level regressions of the share of bonds as a percentage of the total debt issued on a quarterly basis on time dummies capturing the crisis and the post-crisis periods. Table 7 (Panel A) shows that the share of bond debt increased on average by 21 (17) percentage points (p.p.) during 2008-09 and by 7 (13) p.p during 2010-14 in developed (developing) countries vis-à-vis the pre-crisis period of 2000-2007.

Despite this within country compositional change in debt financing during the crisis, the overall average maturity of issued debt has remained fairly stable in both developed and developing countries. In developed countries, the switch away from loan credit to bond debt during 2008-09 occurred in parallel with a shortening of corporate bond and syndicated loan maturities (Figure 11, Panel A). Overall average debt maturity, however, did not change significantly because corporate bonds are typically longer-term instruments than loans. In developing countries, the average maturity of newly issued corporate bonds during the pre-crisis years was longer than that of syndicated loans, but this aggregate pattern has reversed since 2008 (Figure 11, Panel B). The decrease in corporate bond maturities was partially compensated by an aggregate increase in loan maturities, leading to a relatively stable average debt maturity at issuance. Country-level regressions reinforce the graphical evidence: despite a shortening in corporate bond maturities in both developed and developing

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percent with respect 2007. The amount of funds raised kept decreasing during 2009 (43.3 percent lower than in 2007). In 2014 financial sector corporate bond activity was still around 27 percent lower than in that in 2007.

<sup>26</sup> The expansion of international bond markets was widespread, whereas the increase in domestic bond financing was more limited, with few countries accounting for the bulk of the recovery—Chinese bonds accounted for 58 percent of the total increase in the volume of capital raised.

countries, on average, overall debt maturity remained stable (or even increased slightly in the case of developed countries) during the crisis and post-crisis periods (Table 8, Panel A).

These aggregate patterns at the country level, although informative, do not shed light on whether the main patterns uncovered reflect compositional changes in the type of firms using these markets or within-firm variations in debt issuance (or possibly a combination of both). To assess the main features of debt issuance and maturity structure of at the firm level around the global financial crisis, we split the sample into three types of firms: (i) firms with debt (bonds or loans) issuances before 2008 but not during 2008-14 (“exit firms”), (ii) firms with debt issuances during 2008-14 but not before 2008 (“entrant firms”), and (iii) firms with debt issuances before and after 2008 (“continuing firms”). This sample split allows us to study the compositional effects associated with entrant and exit of firms as well as possible changes within a set of more homogenous firms that recurrently used debt markets before and after the global financial crisis.

The number of entrant firms in the sample is 12,866 (4,367), the number of exit firms is 11,220 (1,683), and the number of continuing firms is 5,899 (832) in developed (developing) countries. Although the number of continuing firms is smaller than those of entrant and exit firms, they absorb most of the issuance activity within each period—they captured around 68 (58) percent and 69 (42) percent of the total proceeds raised during 2000-2007 and 2008-2014, respectively, in developed (developing) countries. Moreover, consistent with the results in the previous section, these continuing users of debt markets are typically larger in size than entrant and exit firms. The median continuing firm has total assets of \$2,025 millions, whereas exit and entrant firms have assets of \$427 and \$411 millions, respectively.<sup>27</sup>

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<sup>27</sup> This difference in size between continuing versus entrant and exit firms is very similar when dividing the sample between developed and developing countries. Note that the dataset only has data on assets for about 30 percent of the firms.



Entrant firms tapped bond markets relative to loan markets more intensively than exit firms in the aftermath of the global financial crisis (Figure 12, Panel A). For example, in developing (developed) countries, the share of bonds in total new debt issued for entrant firms averaged 48 (35) percent versus 32 (28) percent for exit firms. Hence, part of the aggregate switch from loan to bond financing reflects a compositional change associated with the entry and exit of firms.

Moreover, such a substitution from bank debt into market debt also took place for continuing firms as bonded debt increased as a share of the total new debt issued since 2008 for these firms (Figure 12, Panel B). The share of bonds in total new debt issued averaged 70 (51) percent in the post-crisis period of 2008-2014, up from 49 (38) percent in the pre-crisis period of 2000-2007 for continuing firms in developing (developed) countries.

To formally assess whether there was indeed within-firm substitution from loans toward bonds in the aftermath of the global financial crisis, we adopt a methodology similar to those in Adrian et al. (2012) and Becker and Ivashina (2014).<sup>28</sup> In particular, we estimate a discrete choice logit model to study the firms' choice between bond and loan financing. The dependent variable is a debt choice indicator equal to one if a firm issued a bond in a given quarter and equal to zero if it issued a loan. For quarters in which a firm issued both bonds and loans, we set the debt choice indicator equal to one if the amount raised through bonds exceeds that of the loans. The estimated regressions include firm fixed effects to account for cross-sectional differences in firm characteristics, allowing us to focus on within-firm variations in their propensity to issue bonds.

The estimates in Panel B of Table 7 imply that, conditional on issuing debt, firms increased the probability of bond issuance (relative to loan issuance) during the crisis by 13 p.p. in developed

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<sup>28</sup> The literature has typically focused on a sample of US listed firms with access to bond markets. In contrast, our analysis focuses on a sample of firms from all over the world issuing any type of debt before and after the global crisis. The debt issuance level data is aggregated at the firm-quarter level for the sample of continuing firms (that is, those with debt issuances before and after 2008).

countries and by 14 p.p in developing countries. This shift from loans to bonds also holds when comparing the pre-crisis and post-crisis period, especially in developing countries. The probability of issuing bonds during the post-crisis years increased by 3.8 p.p. and 17 p.p. with respect the pre-crisis period in developed and developing countries, respectively.<sup>30</sup> This substitution within firms between syndicated loans and corporate bonds during the crisis years can be interpreted as evidence of a bank credit supply shock (consistent with the findings of Adrian et al., 2012 and Becker and Ivashina, 2014). However, other factors, such as non-conventional monetary policies, may have also prompted the increased issuance of corporate bonds worldwide during post-crisis years (e.g. Shin, 2013; Lo Duca et al., 2016).

As documented above, the overall average maturity of issued debt at the country-level has remained fairly stable, despite the compositional change in debt financing at the firm level. In developed countries, the stability of the average maturity at the country level reflects not only the similarity in the maturity of newly issued debt for both entrant and exit firms, but also the stability of overall debt maturity for continuing firms (Figure 13). Moreover, within-firm regressions for the sample of continuing firms show that in spite of a shortening in corporate bond maturities during the crisis years (by about 13 months), the higher propensity to use this longer-term instrument supported a relatively stable average debt maturity during 2008-09 vis-à-vis to the pre-crisis period (Table 8, Panel B).

In developing countries, the relative stability of the average debt maturity around the global financial crisis at the country level reflects several different features of debt structure across different type of firms (Figure 13 and Table 8, Panel B). While loan maturity has remained stable for continuing firms during 2000-2014, entrant firms have issued longer-term loans relative to exit firms, thus leading

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<sup>30</sup> These reported marginal effects are calculated under the assumption that the fixed effects are zero since individual fixed effects are conditioned out of the likelihood function.

to the reported aggregate lengthening of syndicated loan maturities after the global crisis. Bond maturities at the country level however declined during 2008-2009, but returned to pre-crisis levels during 2010-2014. Underlying these patterns are the shortening of bond maturity for both entrant firms (*vis-à-vis* exit firms) and continuing firms during the 2008-2009 crisis years. During 2010-2014, the maturity of bonds issued by continuing firms lengthened beyond their pre-crisis levels, pushing up aggregate bond maturity. The maturity of bonds issues by entrant firms did not increase considerably and remained shorter than the maturity of bonds issued by exit firms during the pre-crisis years.

## **7. Conclusions**

A large body of literature has examined the different roles played by short- and long-term debt in firms' financial decisions, but little evidence exists on the actual maturity at which firms borrow in primary debt markets and how it varies across markets, instruments, firms, and time. By exploring a large dataset of transaction-level capital raising activity, this paper documents a rich set of new stylized facts on how long corporates borrow and how they do so.

First, firms debt with maturity of 6.3 years, which varies across many dimensions— instruments, market location, firm characteristics, and use of proceeds. Corporate bonds tend to be of longer maturity than syndicated loans; financial firms go shorter than non-financials; and firms from developing countries issue on average longer-term debt than developed countries ones.

Second, international markets are particularly important in the provision of long-term financing to developing countries. Firms not only issue bonds abroad with longer maturity than those issued at home, but they also lengthen the maturity of domestic bond issuances after accessing international markets. The vast majority of syndicated loans to developing country firms entails foreign bank participation.

Third, not all firms borrow at the long end of the maturity spectrum. The largest firms issue most of the bonds and syndicated loans and have better access to international markets and foreign banks. Moreover, the relation between size and maturity is upward sloping in corporate bond markets—the larger the bond/firm the longer the average maturity. In syndicated loan markets, the use of the proceeds is what explains their maturity structure.

Fourth, while syndicated loan markets collapsed in the aftermath of the global financial crisis of 2008-09, corporate bond issuances expanded. These effects were observed not only at an aggregate level, but also at the firm level. There was an increase in the propensity to borrow from bond markets relative to syndicated loan markets of both: (i) new entrant firms (those issuing debt only from 2008 onwards) relative to exit firms (those that issued debt before 2008 only) and (ii) continuing firms (those issuing debt both before and after 2008). Despite these compositional changes in debt financing, the overall average maturity of issued debt at the country-level has remained fairly stable.

The entry of a wide range of new bond issuers since 2008 has occurred amid an unprecedented monetary expansion in developed countries. Moreover, these entrant firms borrowed typically at the short end of the maturity spectrum, especially in developing countries, which is consistent with a relaxation in the bond market constraints allowing small, shorter-term firms to tap these markets. To the extent that this global supply shock influenced the entry of these firms into debt markets, a reversal of the favorable global financial conditions could lead to difficulties in debt service and rollover for these firms. Hence, broadening access to (long-term) capital markets beyond the select group of large firms is a major challenge. Reducing the transaction costs associated with the issuance process could enlarge the number of firms able to access capital markets, with positive spillover effects on the secondary markets and the overall economic growth of countries. To the extent that these markets are already competitive in some countries, reducing the costs through government interventions would be difficult. Another way to allow smaller, lower-rated firms to issue securities in capital markets

would be to develop innovative instruments (such as minibonds) and securitization (Borensztein et al., 2008; Giovannini et al., 2015).

While fostering the use of international capital markets could help in broadening access to long-term financing with important benefits—international markets complement domestic markets by allowing firms to access a wider and more diverse set of investors—, a reliance on one type of market to finance long-term projects is risky. The already high dependence of developing countries' firms on international capital markets to access long-term funds makes them vulnerable to currency mismatches and external shocks. Hence, firms, especially those from developing countries, would benefit from further development of their domestic debt markets, which could not only reduce the reliance on international markets but also lead to a more inclusive, more widespread use of long-term finance.

However, the development of domestic corporate debt markets, local currency in particular, has been a persistent challenge, even as many developing countries' governments have been successful in issuing bonds in the local currency at relatively long maturities (overcoming the “original sin”). The slower pace of growth in corporate bond markets in these economies suggests that private credit markets are more complex to develop and may require stronger institutional and regulatory frameworks.

Most of the analysis in this paper studies aggregate data on two different types of countries (developed and developing). Although we acknowledge that some of the patterns presented here might mask heterogeneity across different countries/regions, the purpose of this paper is to establish a comprehensive overall benchmark. Further work could explore more granular information on different countries, regions, or other dimensions of the data.

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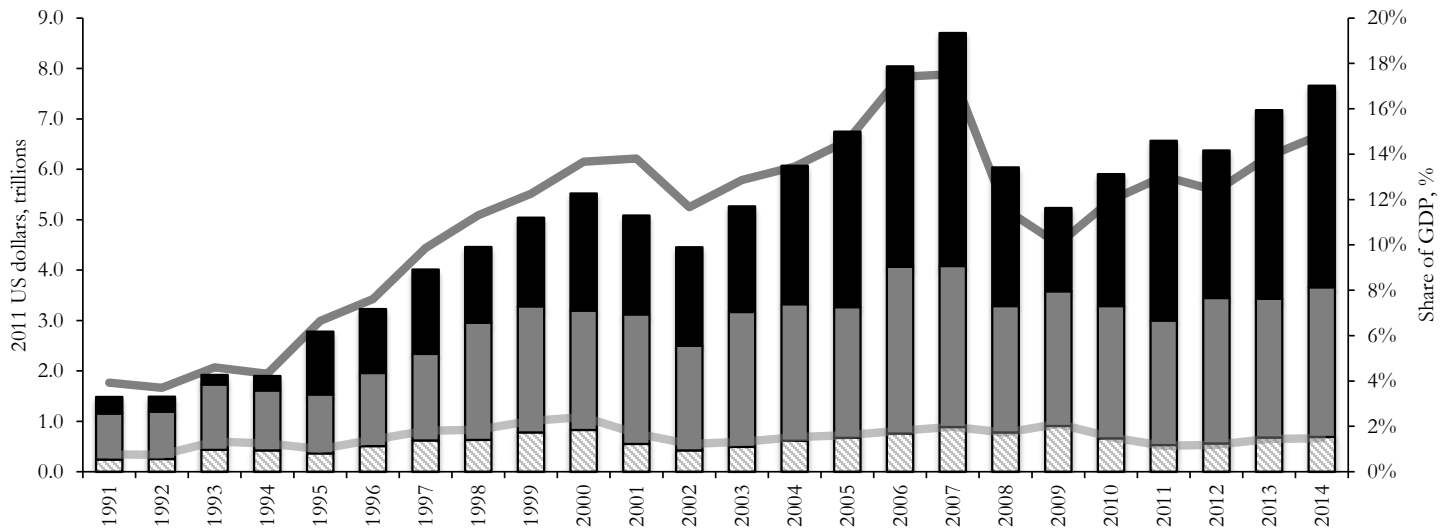
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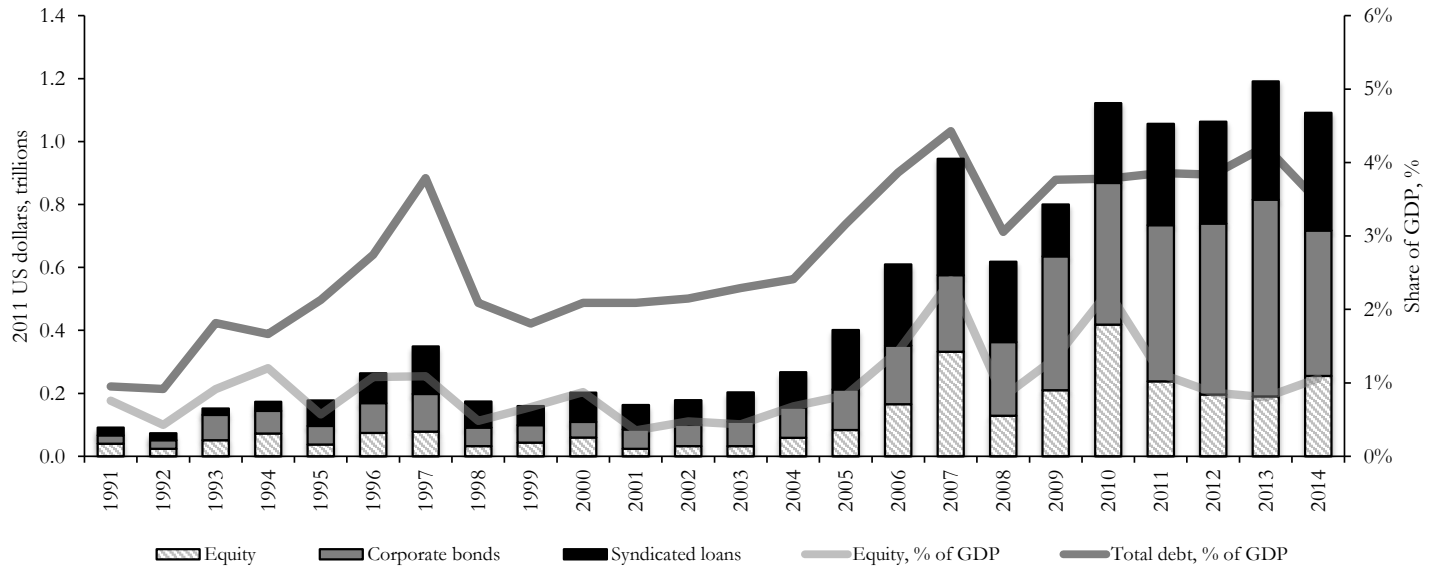


**Figure 1**  
**Total Amount Raised in Equity, Corporate Bond, and Syndicated Loan Markets**

**A. Developed Countries**

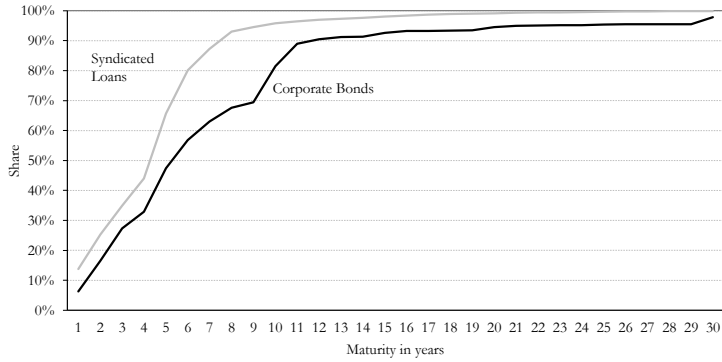


**B. Developing Countries**

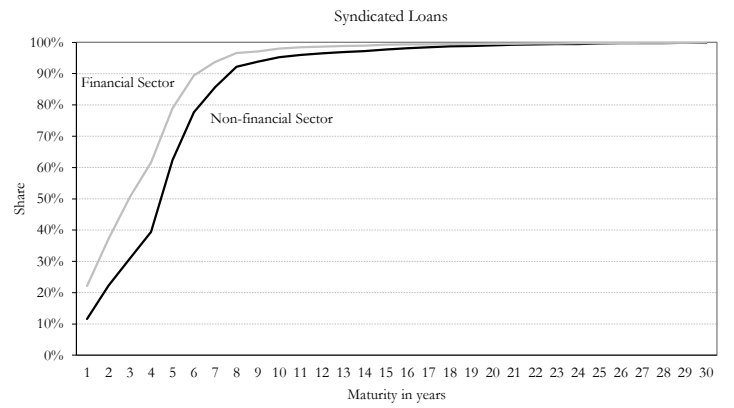
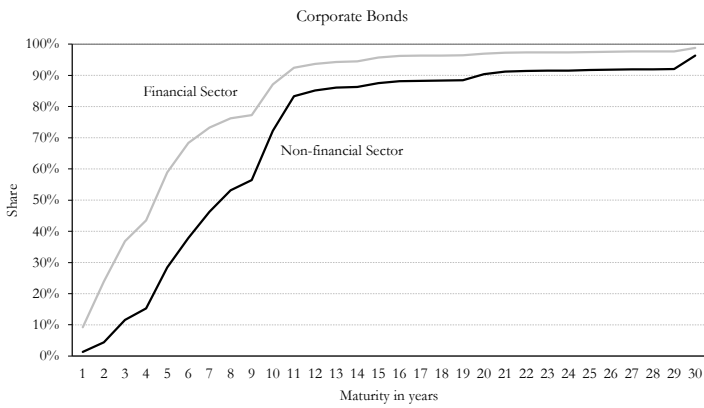


This figure presents the aggregate amount raised per year in equity, corporate bond, and syndicate loan markets by developed (Panel A) and developing countries (Panel B). Figures are reported in trillions of 2011 US dollars.

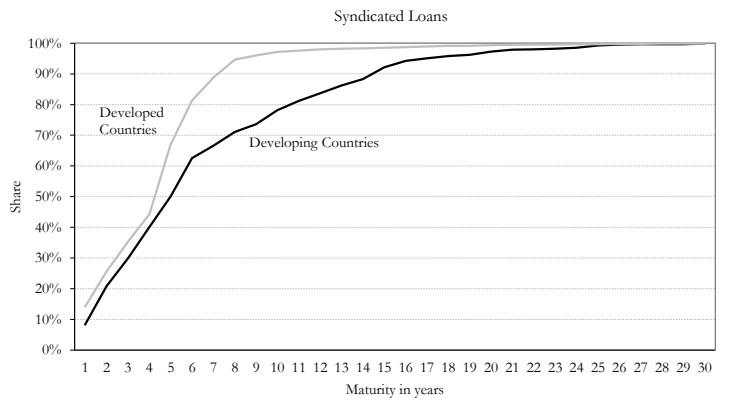
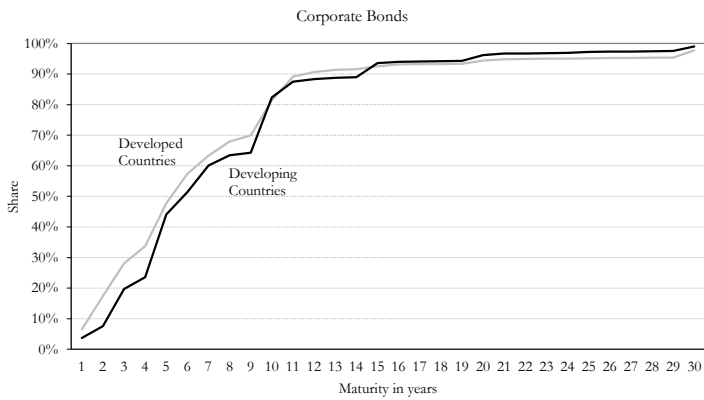
**Figure 2**  
**The Maturity of Debt Issuances, Cumulative Distribution Functions**  
**A. Corporate Bonds versus Syndicated Loans**



**B. Financial versus Non-financial Sector**

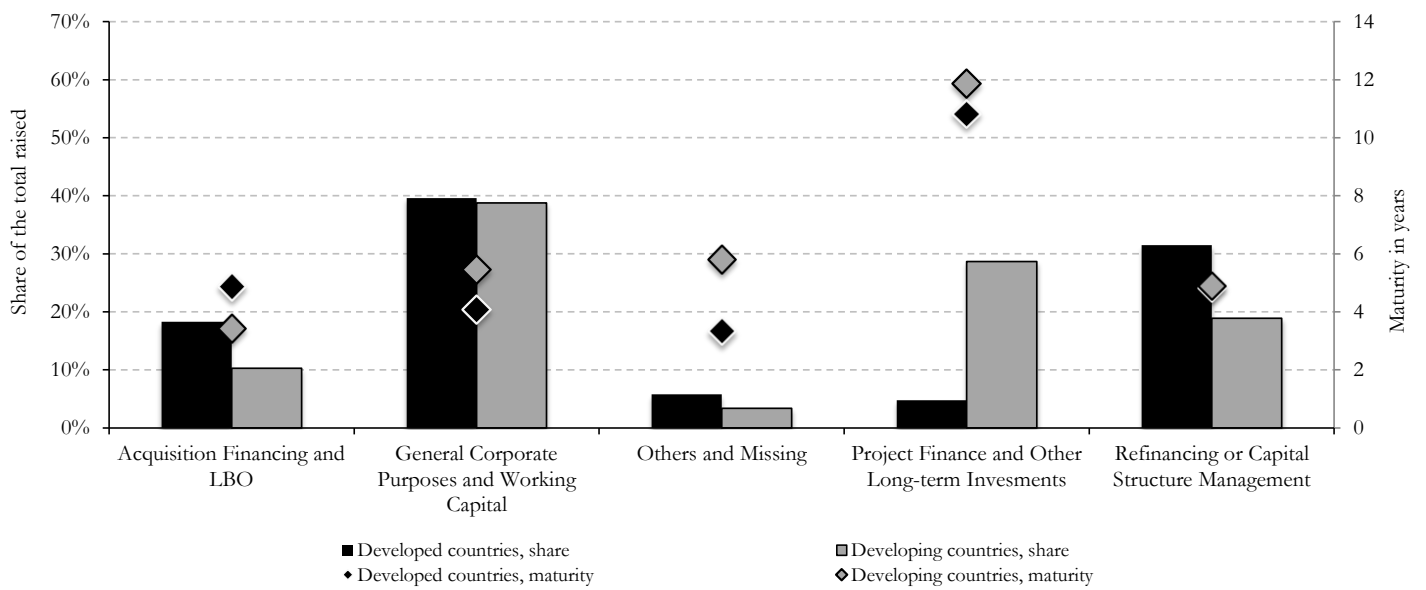


**C. Developed versus Developing Countries**



This figure presents cumulative distribution functions representing the maturity structure of newly issued debt during the 1991-2014 period. Each panel compares a different dimension of the data: all debt issued through corporate bonds versus syndicated loans (Panel A), all the debt issued by the financial versus the non-financial sector (Panel B), and all debt issued by developed versus developing countries (Panel C).

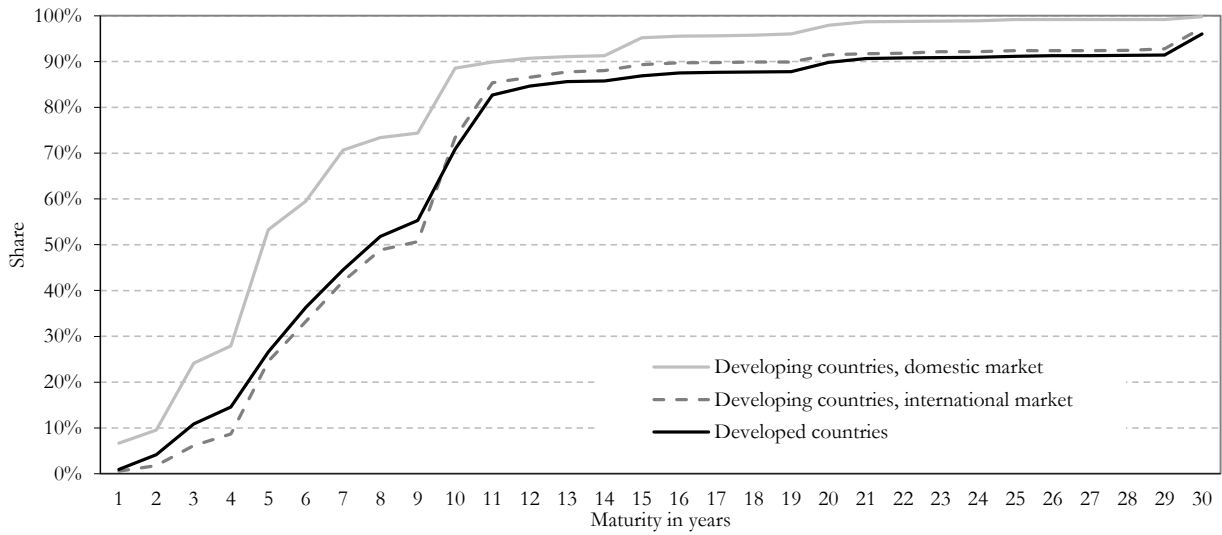
**Figure 3**  
**Syndicated Loans and Primary Use of Proceeds**



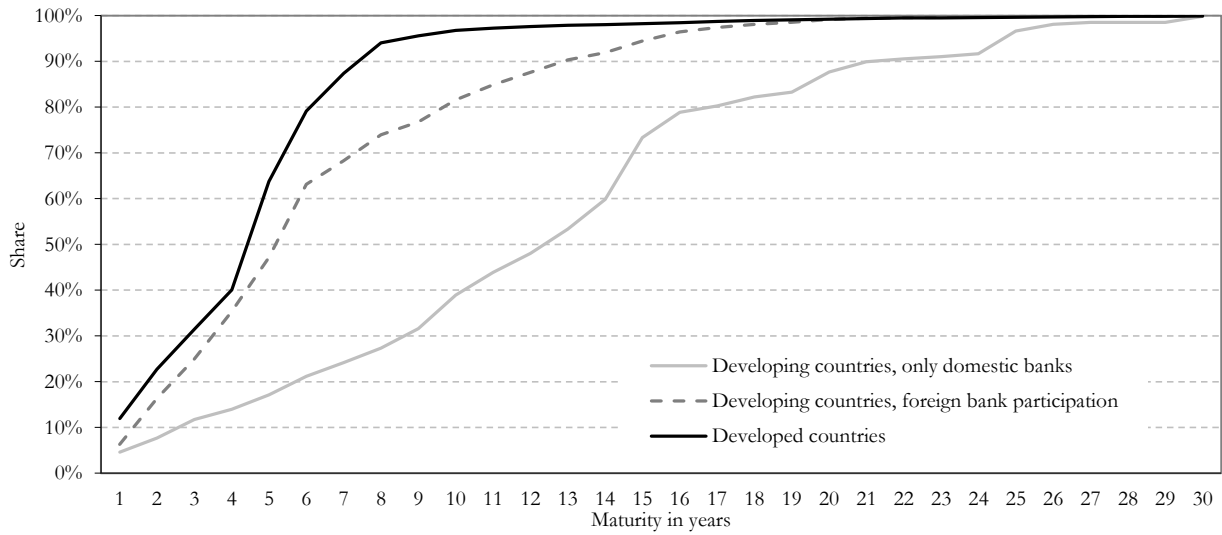
This figure presents the share of the total capital raised (left y-axis) and the weighted average maturity in years (right y-axis) of syndicated loans for different primary uses. The figure differentiates developed from developing countries. The sample period is 1991-2014.

**Figure 4**  
**Domestic and International Markets, Cumulative Distribution Functions**

**A. Corporate Bonds**



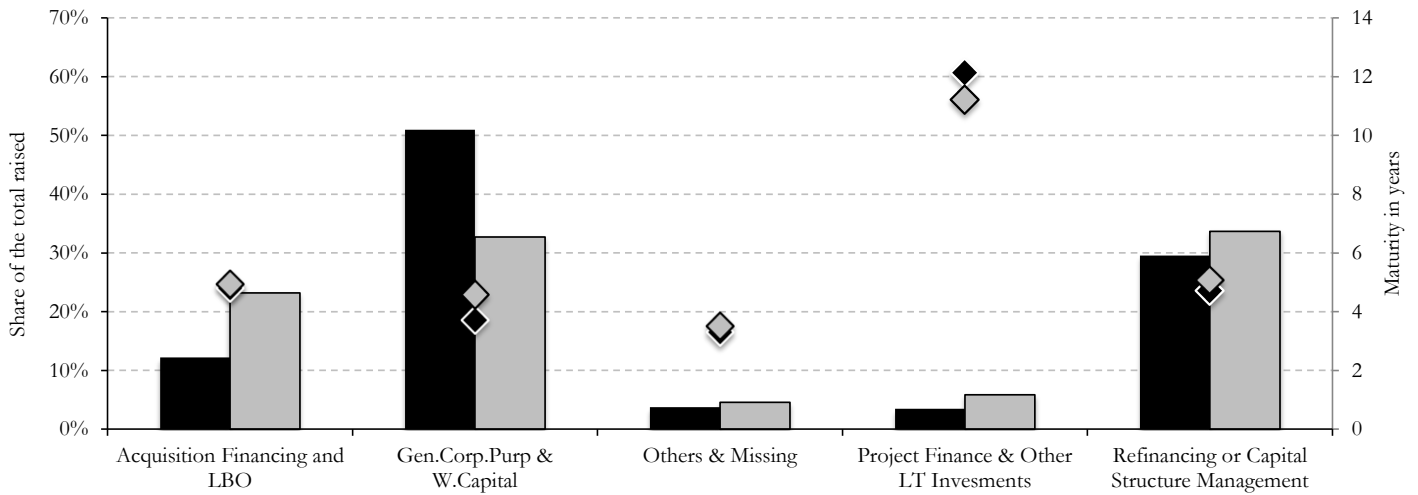
**B. Syndicated Loans**



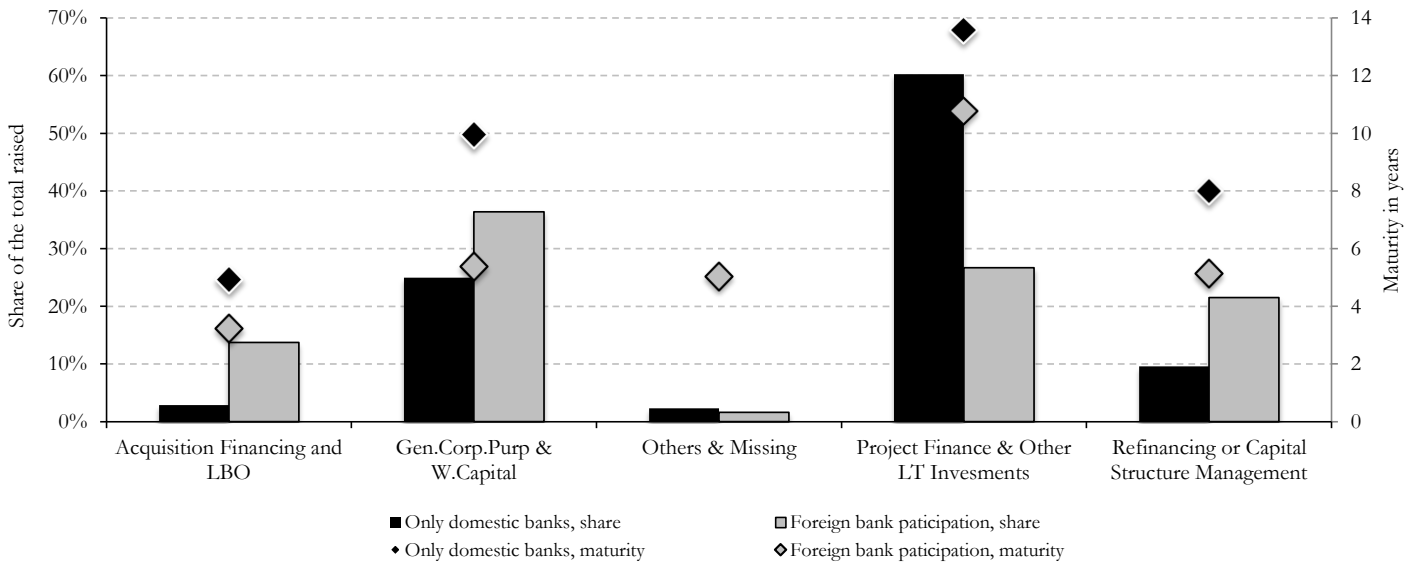
This figure presents cumulative distribution functions representing the maturity structure of newly issued non-financial sector debt during the 1991-2014 period. For developing countries the figure differentiates between domestic and international issuances.

**Figure 5**  
**Domestic and International Syndicated Loans, Primary Use of Proceeds**

**A. Developed Countries**



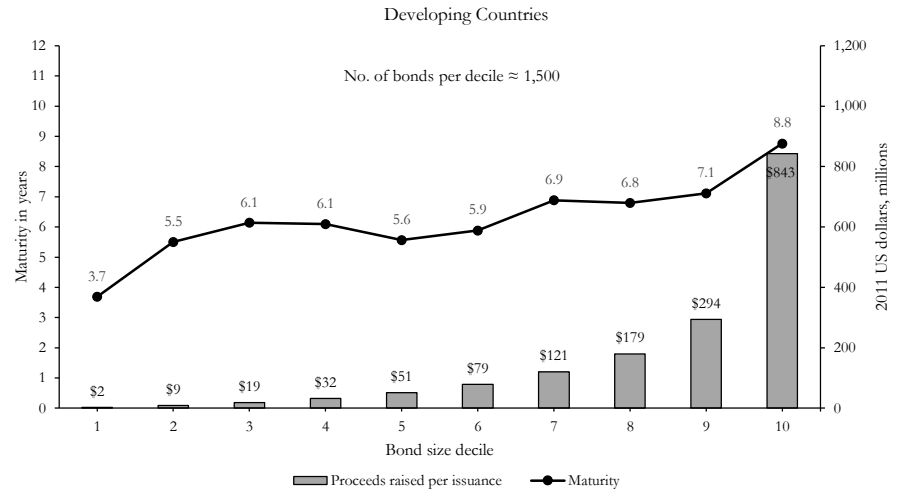
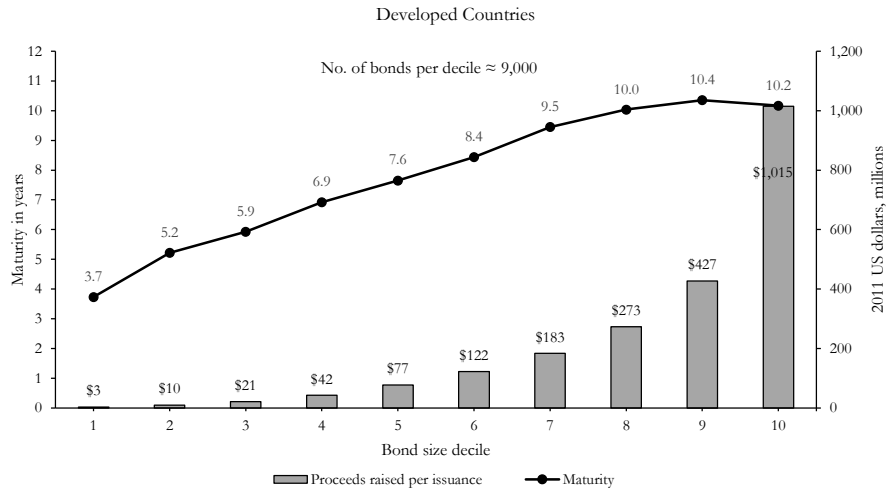
**B. Developing Countries**



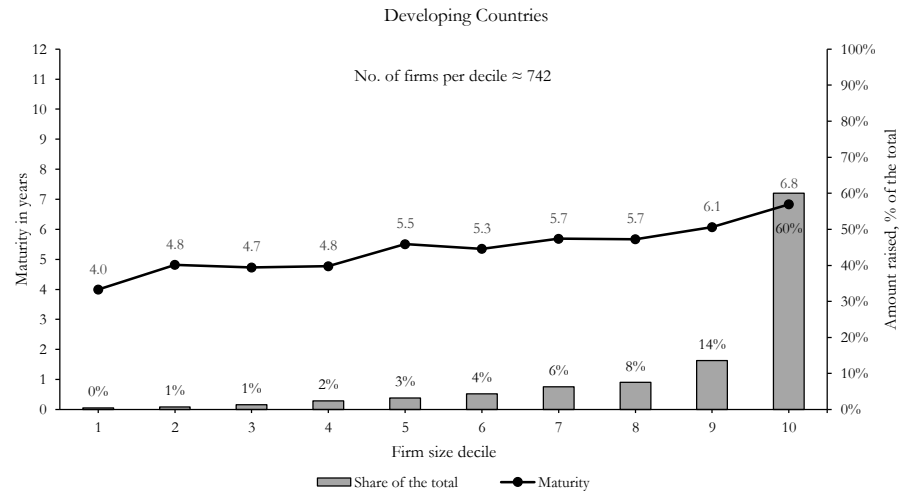
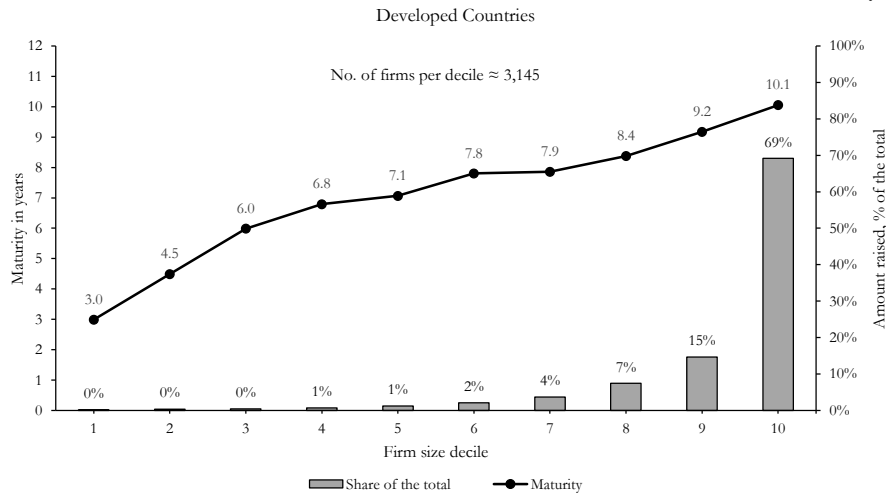
This figure presents the share of the total capital raised (left y-axis) and the weighted average maturity in years (right y-axis) of domestic and international syndicated loans for different primary uses. Panel A shows the results for developed countries and Panel B for developing countries. The sample period is 1991-2014. Financial sector issuances are excluded.

**Figure 6**  
**Size-Maturity Distributions, Corporate Bond Markets**

**A. Size-Maturity Distribution, Bond Issuances**



**B. Size-Maturity Distribution, Bond Issuers**

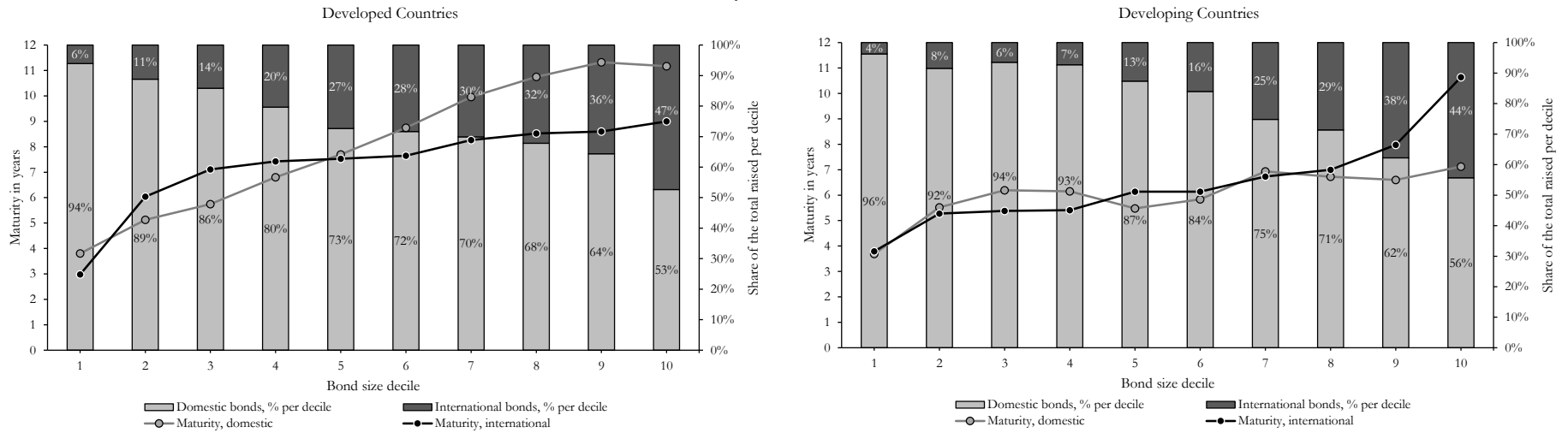


This figure reports, in Panel A, the average maturity and the average size of bonds for each decile across the bond size distribution. Panel B shows, for each decile of the firm size distribution, the average maturity and the share of the total amount raised with bonds. Figures on the amount raised are reported in millions of 2011 US dollars. Financial sector issuances are excluded.

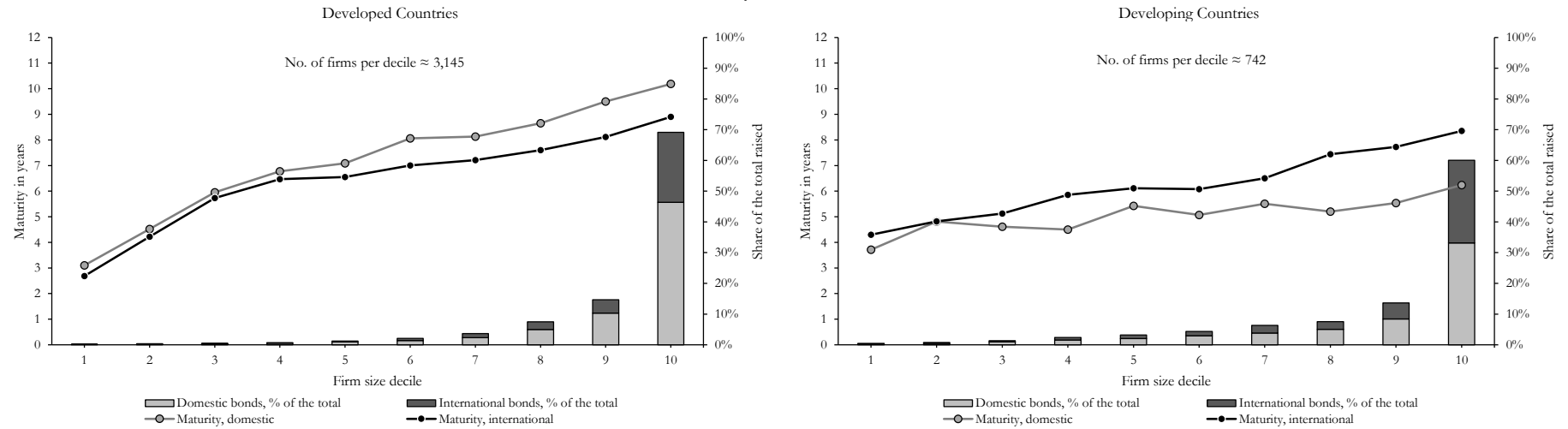
Figure 7

Size-Maturity Distributions, Domestic and International Corporate Bond Markets

A. Size-Maturity Distribution, Bond Issuances



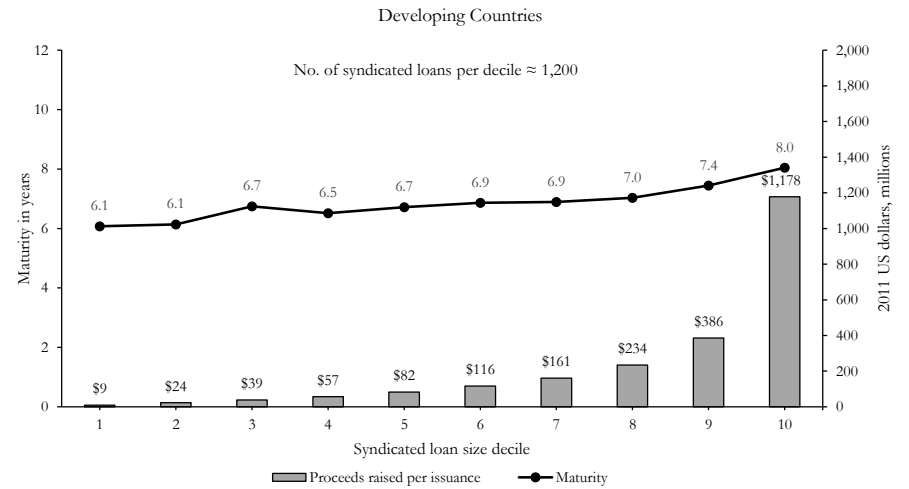
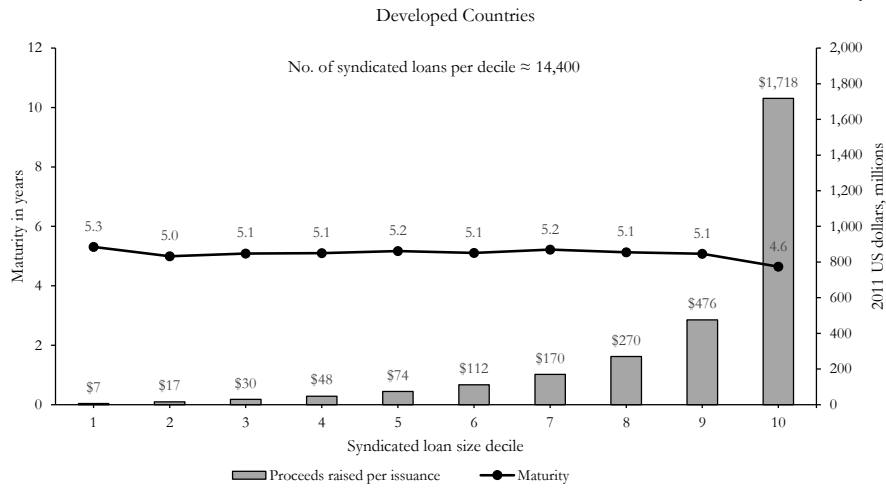
B. Size-Maturity Distribution, Bond Issuers



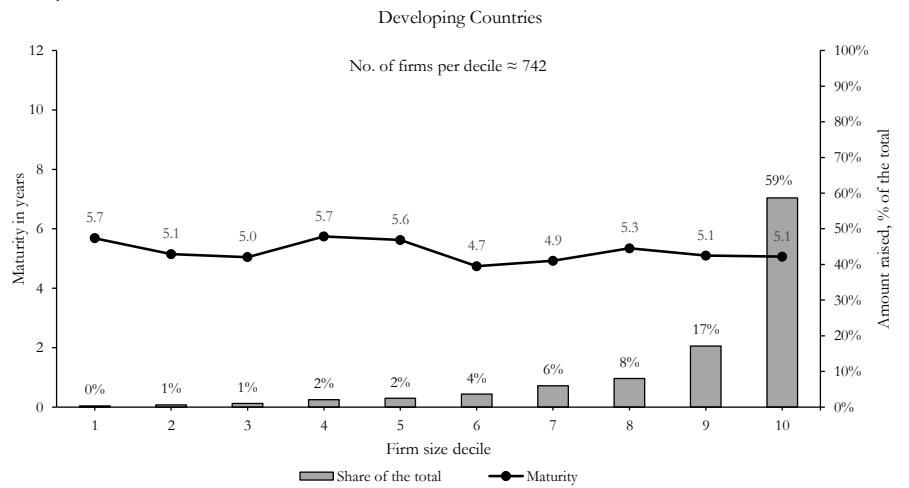
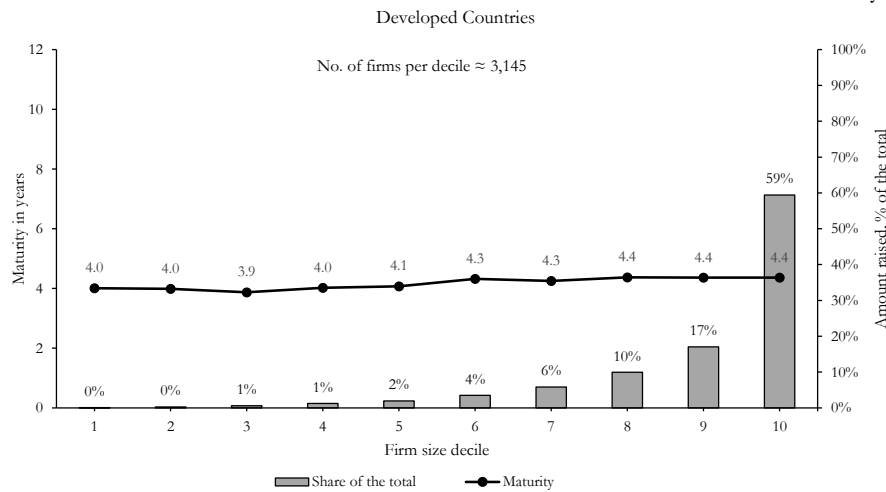
This figure reports, in Panel A, the average maturity and the share of proceeds raised with domestic and international bonds issued within each decile across the bond size distribution. Panel B shows, for each decile of the firm size distribution, the average maturity and the share of the total amount raised with domestic and international bonds. Financial sector issuances are excluded.

**Figure 8**  
**Size-Maturity Distributions, Syndicated Loan Markets**

**A. Size-Maturity Distribution, Loan Issuances**



**B. Size-Maturity Distribution, Loan Issuers**

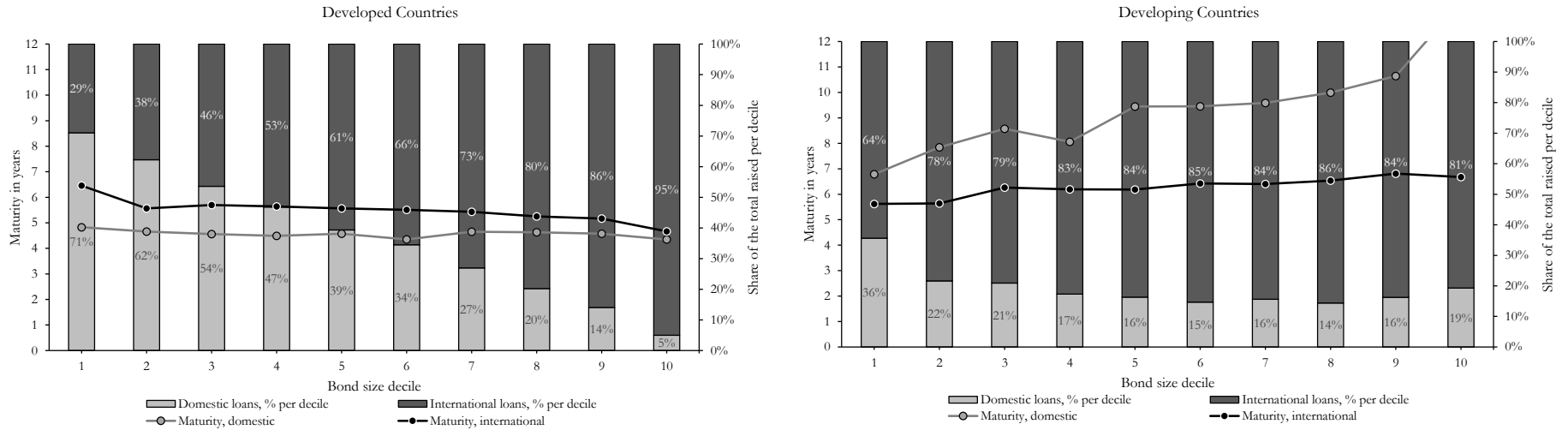


This figure reports, in Panel A, the average maturity and the average size of loans for each decile across the loan size distribution. Panel B shows, for each decile of the firm size distribution, the average maturity and the share of the total amount raised with loans. Figures on the amount raised are reported in millions of 2011 US dollars. Financial sector issuances are excluded.

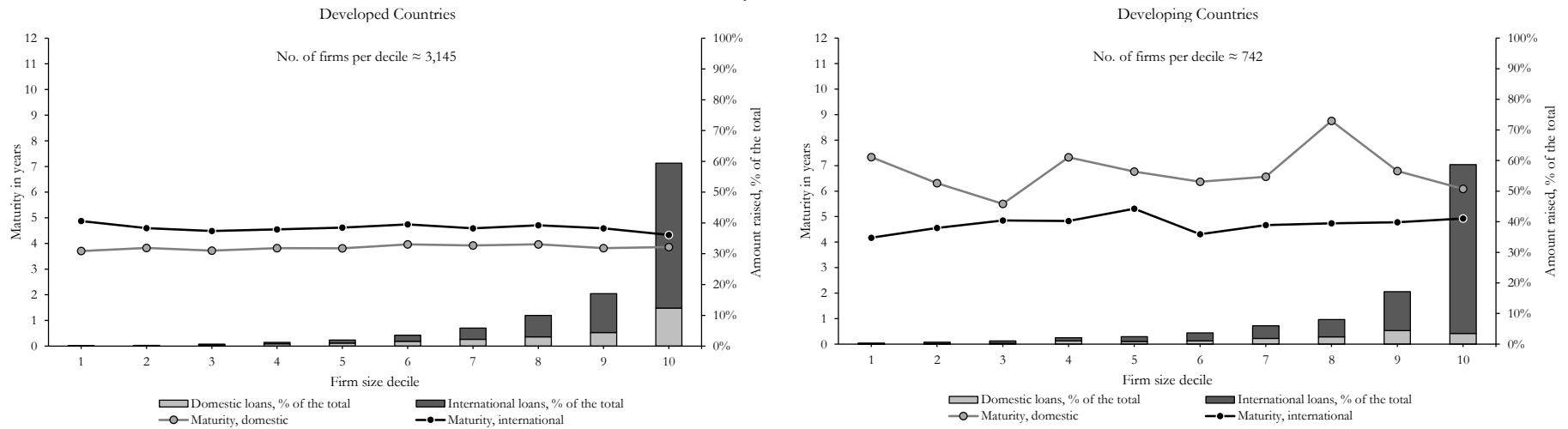


**Figure 9**  
**Size-Maturity Distributions, Domestic and International Syndicated Loan Markets**

**A. Size-Maturity Distribution, Loan Issuances**

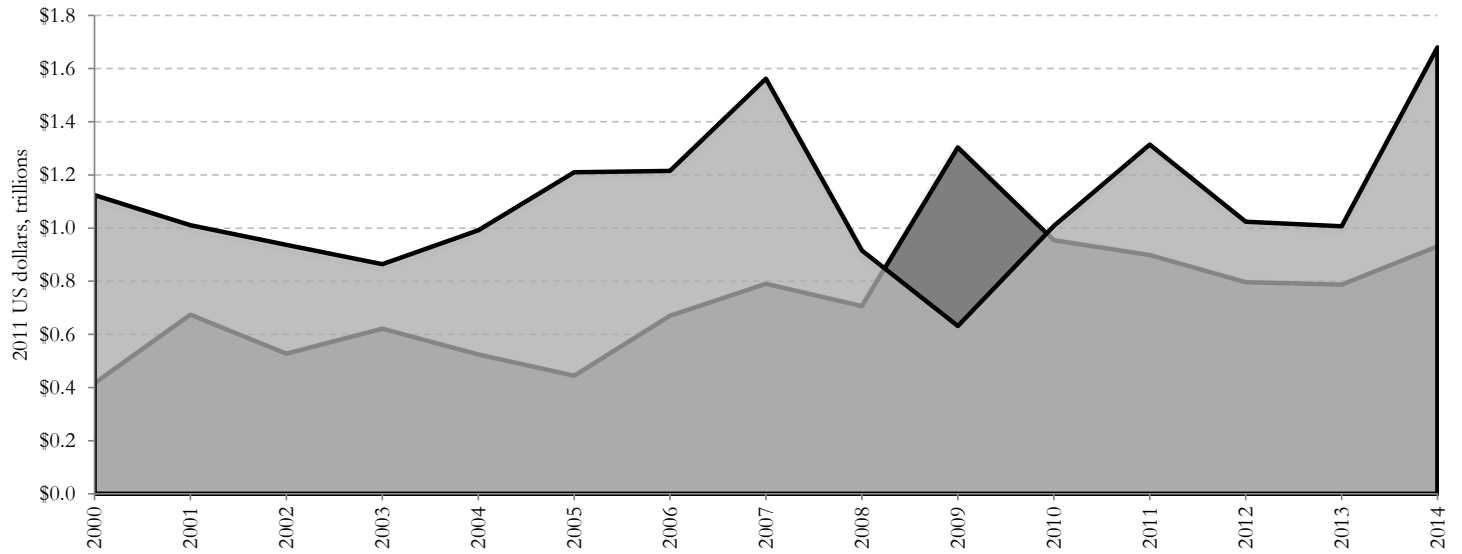


**B. Size-Maturity Distribution, Loan Issuers**

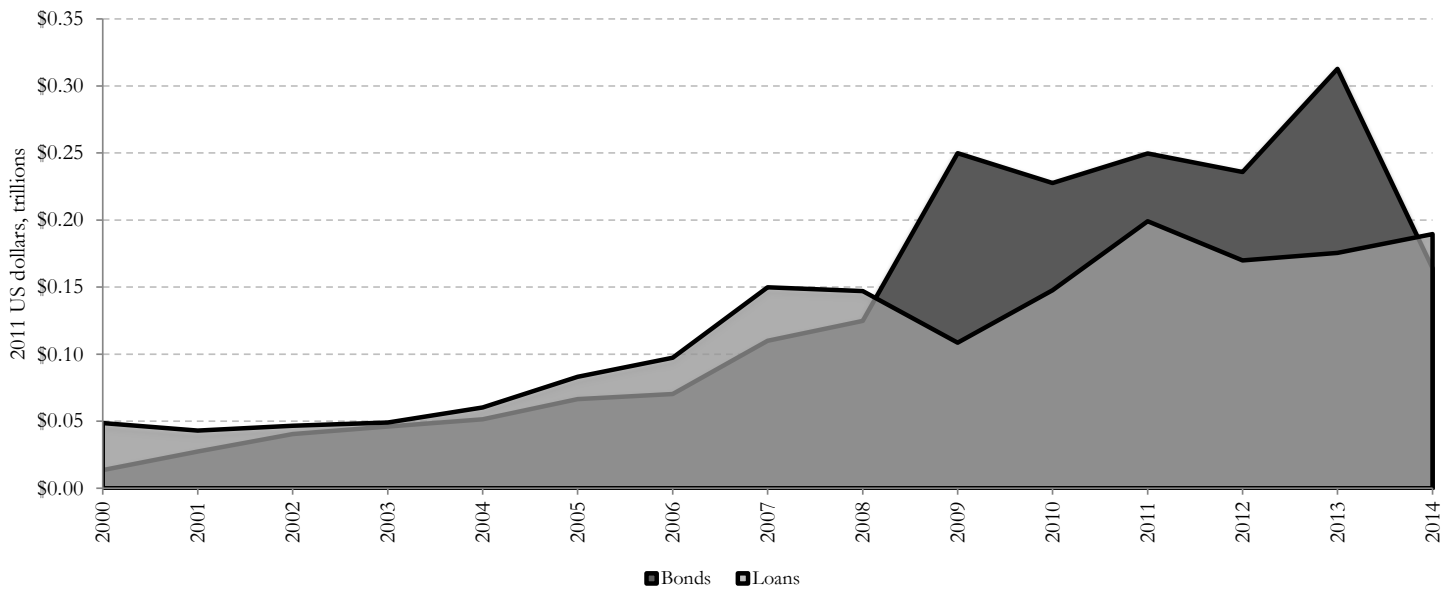


This figure reports, in Panel A, the average maturity and the share of proceeds raised with domestic and international loans issued within each decile across the loan size distribution. Panel B shows, for each decile of the firm size distribution, the average maturity and the share of the total amount raised with domestic and international loans. Financial sector issuances are excluded.

**Figure 10**  
**The Global Financial Crisis and the Evolution of Debt Issuance, Aggregate Patterns**  
**A. Developed Countries**



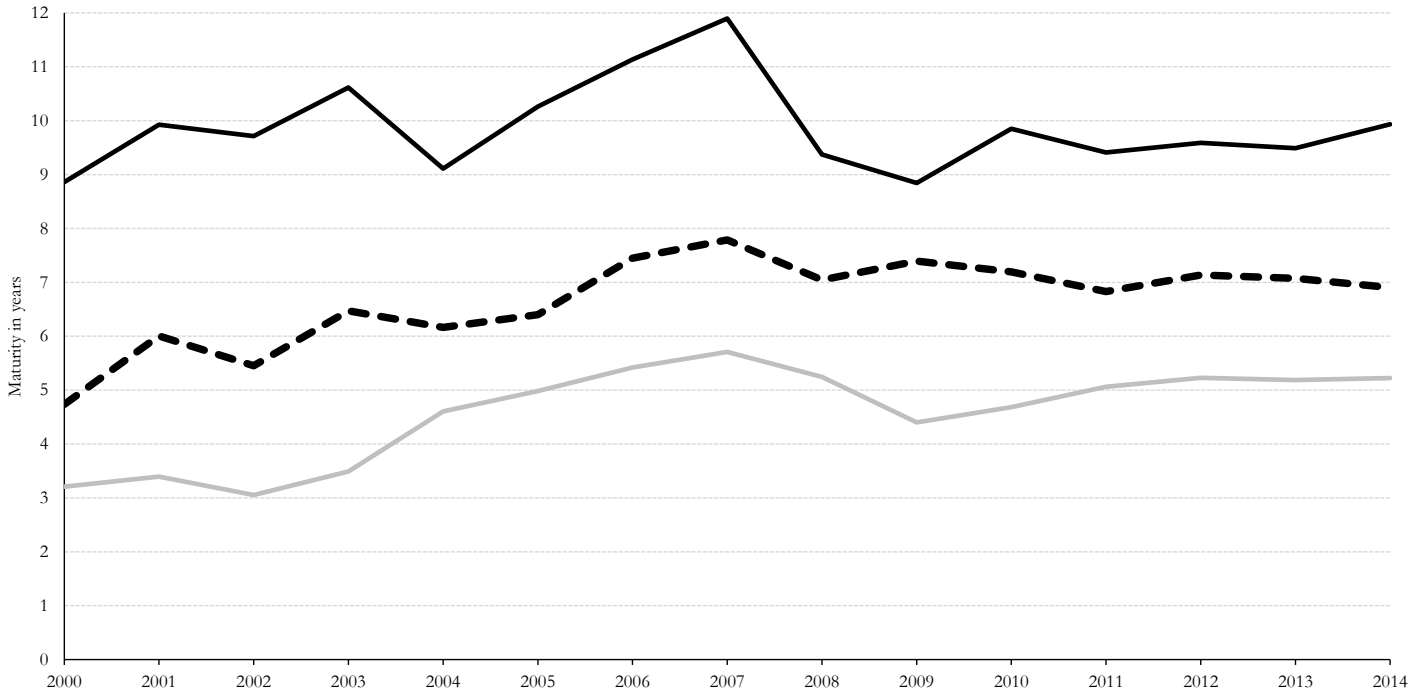
**B. Developing Countries**



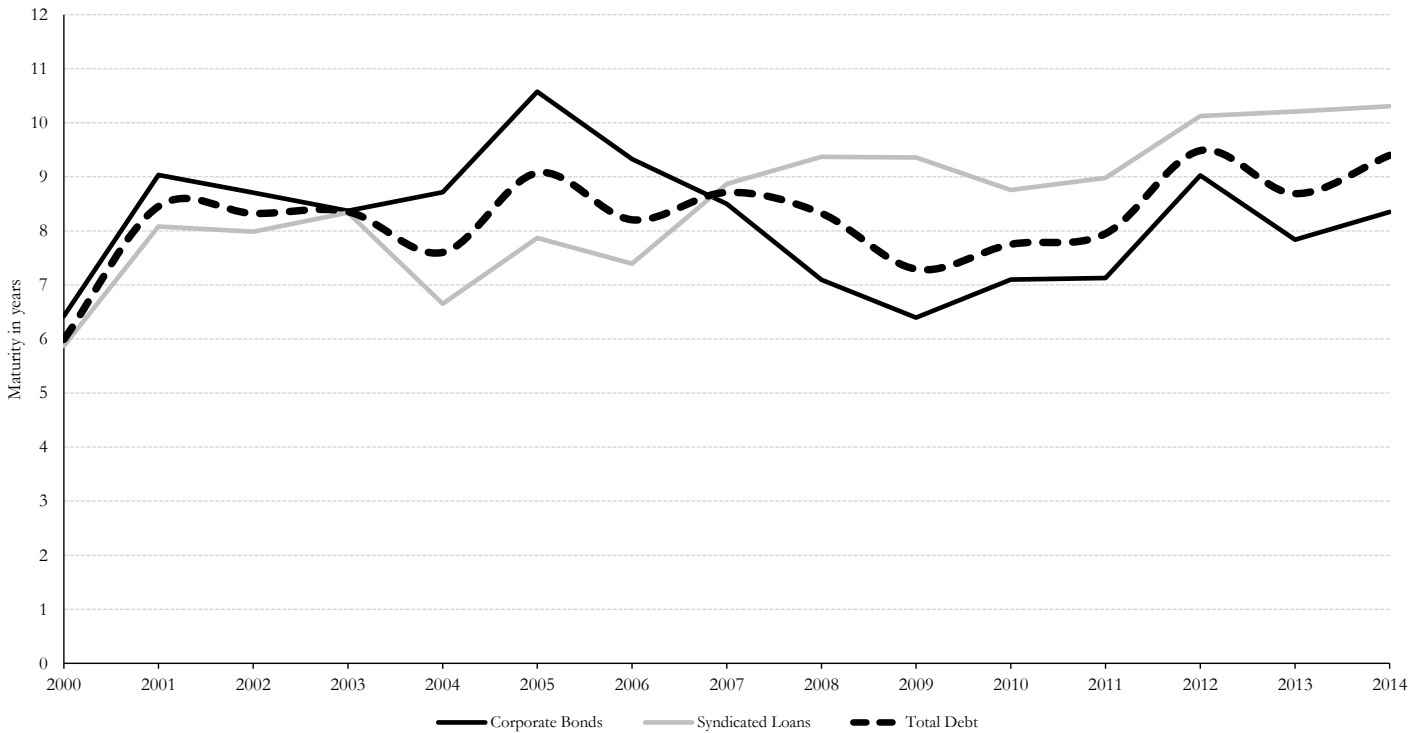
This figure presents the aggregate amount raised per year in corporate bond and syndicated loan markets by non-financial sector firms in developed (Panel A) and developing countries (Panel B). Figures are reported in trillions of 2011 U.S. dollars. Only real investment issuances are included.

**Figure 11**  
**The Global Financial Crisis and Debt Maturity, Aggregate Patterns**

**A. Developed Countries**



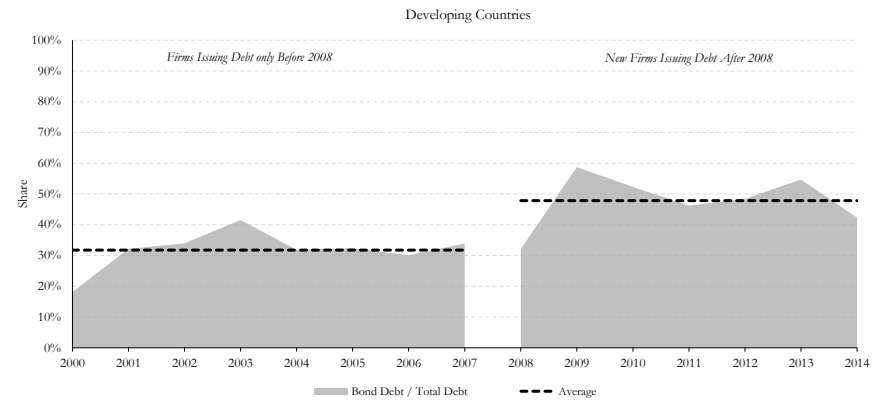
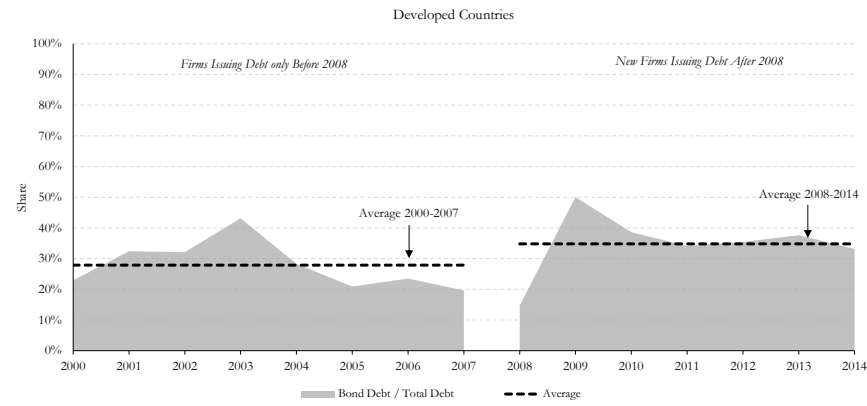
**B. Developing Countries**



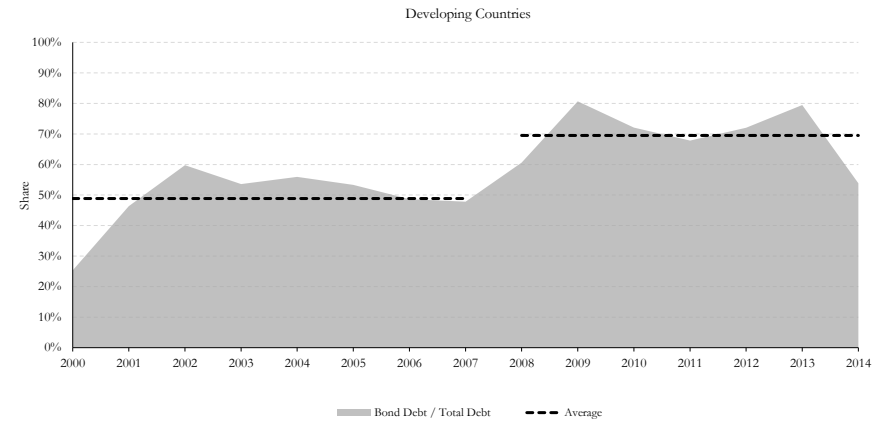
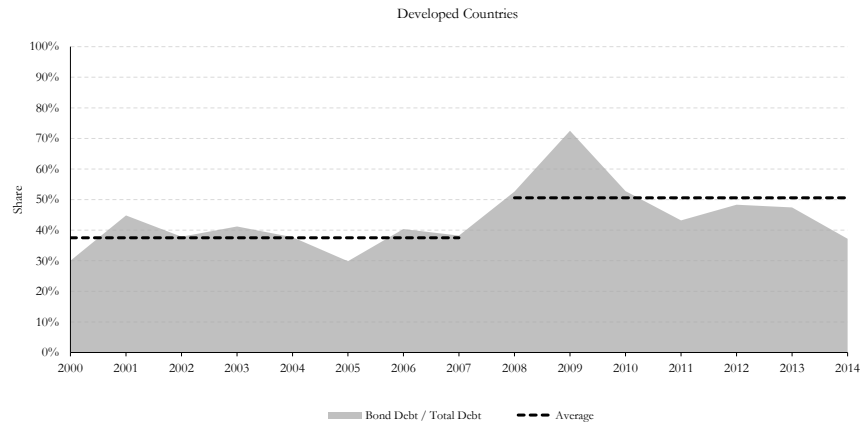
— Corporate Bonds    — Syndicated Loans    - - - Total Debt

This figure presents the weighted average maturity per year of corporate bonds, syndicated loans, and total debt issued by developed (Panel A) and developing countries (Panel B). Financial sector issuances are excluded.

**Figure 12**  
**New Bonds as a Share of Total Debt Financing, Firm Groupings**  
**A. Firms Issuing Debt Before 2008 vs New Firms Issuing Debt After 2008**

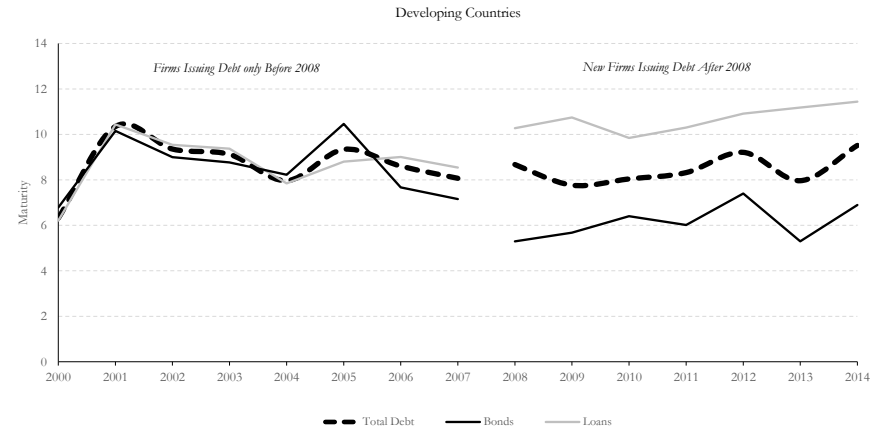
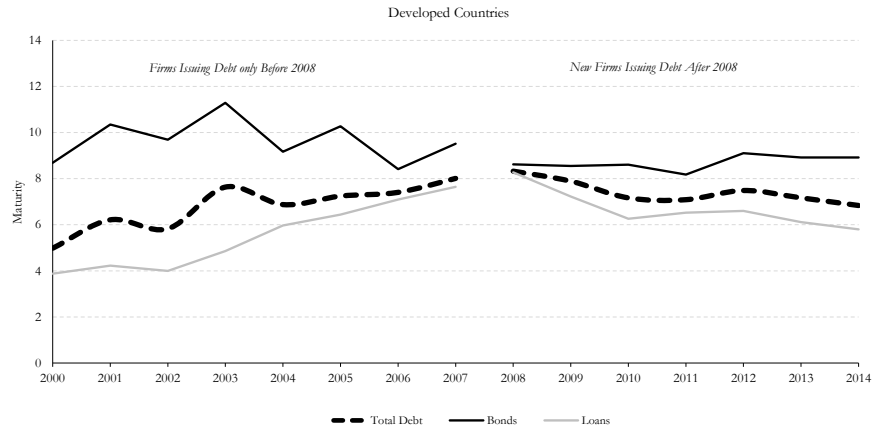


**B. Firms Issuing Debt Before and After 2008**

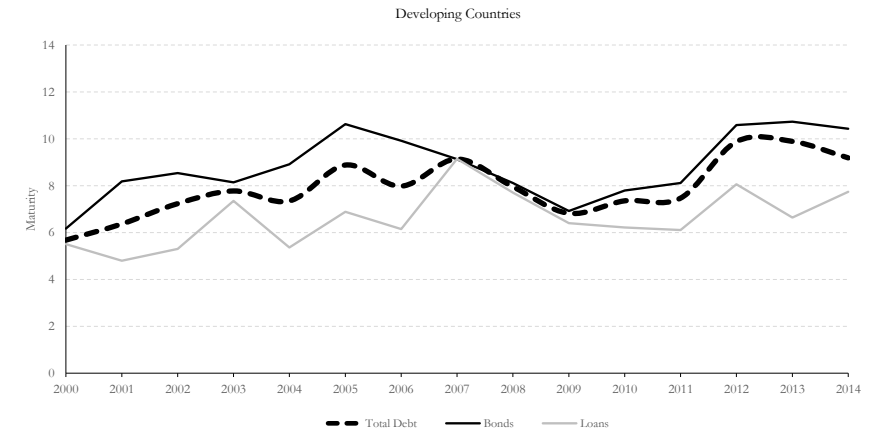
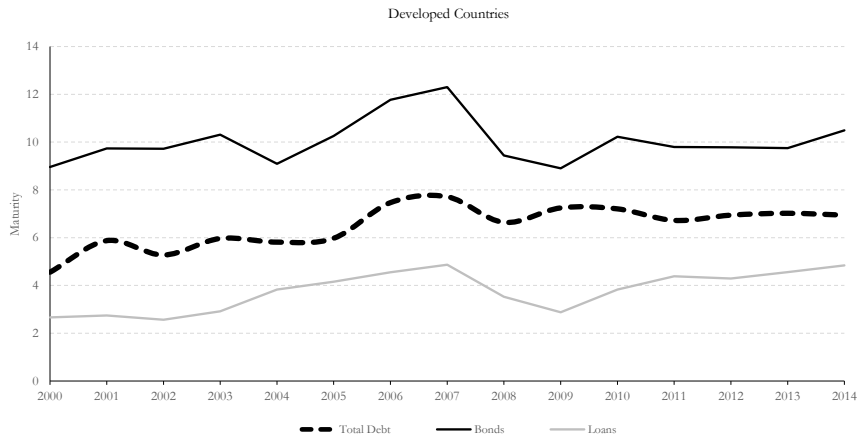


This figure presents in Panel A the total amount raised with corporate bonds as a share of the total amount raised per year by non-financial firms that only issued debt before 2008 versus new firms that tapped debt markets from 2008 onwards. Panel B shows for the firms that issued debt before and after 2008, the share of the total amount raised with corporate bonds.

**Figure 13**  
**The Global Financial Crisis and Debt Maturity, Firm Groupings**  
**A. Firms Issuing Debt Before 2008 vs New Firms Issuing Debt After 2008**



**B. Firms Issuing Debt Before and After 2008**



This figure presents in Panel A the weighted average maturity per year of the new debt issued by non-financial firms that only issued debt before 2008 versus new firms that tapped debt markets from 2008 onwards. Panel B shows for the firms that issued debt before and after 2008, the weighted average maturity per year of the new debt issued.

**Table 1**  
**The Maturity of Debt Issuances, Summary Statistics**

Issuing Region	Type of Firm	Maturity			Number of Firms Issuing and Amount Raised			
		Total Debt	Corporate Bonds	Syndicated Loans	Corporate Bonds		Syndicated Loans	
		Years	Years	Years	No. of Firms	Amount	No. of Firms	Amount
					<i>Total</i>			
Developed Countries	All Firms	6.2	7.6	4.7	30,395	53,881,229	48,298	52,997,002
Developing Countries	All Firms	7.5	7.9	7.0	8,392	4,740,184	7,687	3,905,913
					<i>Share of the Total, Developed Countries</i>			
Developed Countries	Non-financials	6.6	10.2	5.0	64%	36%	75%	80%
	Financials	5.6	6.2	3.8	36%	64%	25%	20%
					<i>Share of the Total, Developing Countries</i>			
Developing Countries	Non-financials	7.9	8.0	7.7	56%	51%	72%	76%
	Financials	6.9	7.9	4.6	44%	49%	28%	24%

This table reports the aggregate amount of capital raised and weighted average maturity of all the debt issued by firms from developed and developing countries during the 1991-2014 period. Data on the amount raised are in millions of US dollars at 2011 prices.

**Table 2**  
**The Maturity of Debt Issuances, Different Groupings**

<b>A. Dependent Variable: Maturity of All Debt Issued, in Years</b>					
	Only Non-financial Firms	Only Financial Firms		Only Corporate Bonds	Only Syndicated Loans
	(a)	(b)		(c)	(d)
(i) Developed Countries Syndicated Loans	5.299 *** [0.0543]	4.426 *** [0.0911]	(i) Developed Countries Financial Firms	5.673 *** [0.108]	4.283 *** [0.0454]
(ii) Developing Countries Syndicated Loans	7.146 *** [0.0910]	3.981 *** [0.123]	(ii) Developed Countries Non-financial Firms	8.308 *** [0.117]	5.293 *** [0.0389]
(iii) Developed Countries Corporate Bonds	8.228 *** [0.0988]	5.669 *** [0.107]	(iii) Developing Countries Financial Firms	5.878 *** [0.159]	3.867 *** [0.102]
(iv) Developing Countries Corporate Bonds	6.524 *** [0.117]	5.844 *** [0.160]	(iv) Developing Countries Non-financial Firms	6.564 *** [0.130]	7.063 *** [0.0839]
Year Dummies	Yes	Yes	Year Dummies	Yes	Yes
No. of Observations	262,351	215,529	No. of Observations	282,751	195,129
R-squared	0.60	0.51	R-squared	0.53	0.65
No. of Clusters	57,025	26,554	No. of Clusters	38,787	55,985
<b>B. Tests: Difference in Coefficients</b>					
Difference in Coefficients	(a)	(b)	Difference in Coefficients	(c)	(d)
(i)-(ii)	-1.847 ***	0.445 ***	(i)-(ii)	-2.635 ***	-1.010 ***
(i)-(iii)	-2.929 ***	-1.243 ***	(i)-(iii)	-0.205	0.416 ***
(i)-(iv)	-1.225 ***	-1.418 ***	(i)-(iv)	-0.891 ***	-2.780 ***
(ii)-(iii)	-1.082 ***	-1.688 ***	(ii)-(iii)	2.430 ***	1.426 ***
(ii)-(iv)	0.622 ***	-1.863 ***	(ii)-(iv)	1.744 ***	-1.770 ***
(iii)-(iv)	1.704 ***	-0.175	(iii)-(iv)	-0.686 ***	-3.196 ***

This table reports in Panel A the regression results of the maturity of debt issuances (in years) as dependent variable regressed on a dummy variable that equals one for each type of country, firm, or instrument. All the regressions are estimated using ordinary least squares, adjusting standard errors for clustering at the firm level. The constant term is omitted. Panel B presents Wald tests of the differences between coefficients. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

**Table 3**  
**The Maturity of Debt Issuances, Corporate Bonds vs Syndicated Loans**

<b>A. Developed Countries</b>			
	All Firms	Non-financials	Financials
	( a )	( b )	( c )
Syndicated Loans	-4.770 *** [0.0826]	-4.944 *** [0.0945]	-3.972 *** [0.154]
Constant	8.051 *** [0.0849]	9.589 *** [0.0908]	6.200 *** [0.165]
Year Dummies	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
No. of Observations	424,787	234,487	190,300
R-squared	0.50	0.53	0.43
No. of Clusters	68,785	47,767	21,199
<b>B. Developing Countries</b>			
	All Firms	Non-financials	Financials
	( a )	( b )	( c )
Syndicated Loans	-2.137 *** [0.166]	-1.649 *** [0.235]	-2.853 *** [0.237]
Constant	6.838 *** [0.146]	7.708 *** [0.252]	5.816 *** [0.170]
Year Dummies	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
No. of Observations	53,093	27,864	25,229
R-squared	0.62	0.64	0.59
No. of Clusters	14,604	9,274	5,358

This table reports the regression results of the maturity of debt issuances (in years) as dependent variable regressed on a dummy variable that equals one when the type of issuance is a syndicated loan and zero otherwise (bond issuances). All the regressions are estimated using ordinary least squares, firm and year fixed effects, adjusting standard errors for clustering at the firm level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.



**Table 4**  
**Domestic and International Markets, Summary Statistics**

Issuing Region	Corporate Bonds			Syndicated Loans		
	Average Maturity		<i>Amount Raised Abroad, Share of the Total</i>	Average Maturity		<i>Amount Raised With Foreign Bank Participation, Share of the Total</i>
	Domestic Market (a)	International Market (b)		Only Domestic Banks (c)	Foreign Bank Participation (d)	
Developed Countries	10.8	9.2	38.8%	4.7	5.0	87.2%
Developing Countries	6.8	10.1	36.2%	12.6	6.7	82.2%
Africa	6.5	8.5	89.2%	9.7	6.9	97.6%
Asia and the Pacific	6.8	7.8	23.8%	6.2	5.5	59.8%
Canada and United States	12.2	10.4	26.6%	4.4	4.6	87.7%
Eastern Europe	8.4	8.4	60.9%	10.8	6.4	97.8%
Latin America and the Caribbean	7.6	11.0	54.4%	12.7	6.2	98.6%
Middle East	10.5	11.2	90.5%	9.7	9.3	98.2%
Western Europe	9.7	8.6	70.8%	7.3	5.6	96.1%

This table reports the weighted average maturity (in years) of domestic and international non-financial corporate bonds and syndicated loans issued by developed and developing countries. It also reports the share of the total amount raised through the use of domestic and international markets.

**Table 5**  
**Domestic and International Markets, Different Groupings**

A. Dependent Variable: Maturity of All Debt Issued, in Years							
	Corporate Bonds				Syndicated Loans		
	All Currencies	Only Domestic Currency	Only Foreign Currency		All Currencies	Only Domestic Currency	Only Foreign Currency
	(a)	(b)	(c)		(d)	(e)	(f)
(i) Developed Countries Domestic Market	8.456 *** [0.155]	8.658 *** [0.170]	6.158 *** [0.335]	(i) Developed Countries Only Domestic Banks	4.556 *** [0.0500]	4.551 *** [0.0516]	4.956 *** [0.166]
(ii) Developed Countries International Market	8.351 *** [0.155]	8.546 *** [0.194]	7.480 *** [0.224]	(ii) Developing Countries Foreign Bank Participation	5.657 *** [0.0469]	5.646 *** [0.0488]	5.676 *** [0.127]
(iii) Developing Countries Domestic Market	6.329 *** [0.153]	6.545 *** [0.166]	4.218 *** [0.312]	(iii) Developing Countries Only Domestic Banks	9.046 *** [0.145]	9.161 *** [0.165]	8.522 *** [0.248]
(iv) Developing Countries International Market	8.064 *** [0.259]	8.263 *** [1.173]	7.250 *** [0.296]	(iv) Developing Countries Foreign Bank Participation	6.237 *** [0.0963]	6.516 *** [0.226]	6.080 *** [0.154]
Year Dummies	Yes	Yes	Yes	Year Dummies	Yes	Yes	Yes
No. of Observations	105,249	88,700	16,549	No. of Observations	157,102	132,620	24,481
R-squared	0.57	0.56	0.64	R-squared	0.67	0.67	0.69
No. of Clusters	24,289	20,879	5,544	No. of Clusters	41,705	34,698	9,367

B. Tests: Difference in Coefficients							
Difference in Coefficients	(a)	(b)	(c)	Difference in Coefficients	(d)	(e)	(f)
(i)-(ii)	0.105	0.112	-1.322 ***	(i)-(ii)	-1.101 ***	-1.095 ***	-0.720 ***
(i)-(iii)	2.127 ***	2.113 ***	1.940 ***	(i)-(iii)	-4.490 ***	-4.610 ***	-3.566 ***
(i)-(iv)	0.392	0.395	-1.092 ***	(i)-(iv)	-1.681 ***	-1.965 ***	-1.124 ***
(ii)-(iii)	2.022 ***	2.001 ***	3.262 ***	(ii)-(iii)	-3.389 ***	-3.515 ***	-2.846 ***
(ii)-(iv)	0.287	0.283	0.230	(ii)-(iv)	-0.580 ***	-0.870 ***	-0.404 ***
(iii)-(iv)	-1.735 ***	-1.718	-3.032 ***	(iii)-(iv)	2.809 ***	2.645 ***	2.442 ***

This table reports in Panel A the regression results of the maturity of non-financial corporate bond issuances (in years) as dependent variable regressed on a dummy variable that equals one for each type of country, market location, or instrument. All the regressions are estimated using ordinary least squares, adjusting standard errors for clustering at the firm level. The constant term is omitted. Panel B presents Wald tests of differences between coefficients. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

**Table 6**  
**The Internationalization of Firms and the Maturity of Debt Issuances**

<b>A. Developed Countries</b>				
<i>Dependent Variable: Maturity in Years</i>				
	Domestic vs International Issuances	Before vs After Internationalization: All Issuances	Before vs After Internationalization: Only Domestic Issuances	Domestic vs International Issuances: After Firms Internationalized
	(a)	(b)	(c)	(d)
After Internationalization Issuance		-0.001 [0.172]	0.156 [0.220]	
International Issuance	-0.375 *** [0.145]			-0.423 *** [0.164]
Constant	7.884 *** [0.0366]	7.868 *** [0.139]	7.720 *** [0.142]	7.826 *** [0.0534]
Firm Fixed Effects	Yes	Yes	Yes	Yes
Number of Observations	90,353	50,095	27,358	26,189
R-squared	0.49	0.40	0.41	0.34
Number of Clusters	19,562	7,117	2,525	1,642
<b>B. Developing Countries</b>				
<i>Dependent Variable: Maturity in Years</i>				
	Domestic vs International Issuances	Before vs After Internationalization: All Issuances	Before vs After Internationalization: Only Domestic Issuances	Domestic vs International Issuances: After Firms Internationalized
	(a)	(b)	(c)	(d)
After Internationalization Issuance		1.605 *** [0.502]	1.335 *** [0.545]	
International Issuance	1.555 *** [0.414]			1.441 *** [0.354]
Constant	5.948 *** [0.0792]	5.851 *** [0.427]	5.811 *** [0.373]	6.808 *** [0.139]
Firm Fixed Effects	Yes	Yes	Yes	Yes
Number of Observations	14,896	5,370	2,524	2,848
R-squared	0.58	0.42	0.50	0.33
Number of Clusters	4,735	1,357	423	326

This table reports the regression results of the maturity of corporate bond issuances (in years) as dependent variable regressed on a dummy variable that equals one for the issuances abroad (columns (a) and (d)) and for the period after the firms internationalized—issued bonds for the first time abroad—(columns (b) and (c)). All the regressions are estimated using ordinary least squares, firm fixed effects, adjusting standard errors for clustering at the firm level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively. Financial sector issuances are excluded.

**Table 7**  
**The Global Financial Crisis and Corporate Debt Substitution**

<b>A. Country Evidence</b>		
<i>Dependent Variable: Share of Bonds as Percentage of the Total Debt Issued</i>		
	Developed Countries	Developing Countries
	( a )	( b )
Crisis (2008-2009)	0.207 *** [0.0382]	0.166 ** [0.0814]
Post-crisis (2010-2014)	0.068 *** [0.0145]	0.128 *** [0.0467]
Country Fixed Effects	Yes	Yes
Number of Observations	1,996	1,405
R-squared	0.42	0.51
Number of Clusters	41	38
<b>B. Firm Evidence, Logit Regressions</b>		
<i>Dependent Variable: Dummy=1 if the firm issued a bond in quarter t and 0 for loans</i>		
	Developed Countries	Developing Countries
	( a )	( b )
Crisis (2008-2009)	0.530 *** [0.0479]	0.620 *** [0.143]
Post Crisis (2008-2009)	0.154 *** [0.0351]	0.715 *** [0.108]
Firm Fixed Effects	Yes	Yes
Number of Observations	20,326	2,273
Number of Clusters	2,644	338

This table presents in Panel A the regression results of the total proceeds raised with corporate bonds as a percentage of total debt issued regressed on a dummy variable that equals one for the crisis period and another dummy variable that equals one for post-crisis period. Panel B reports logit regressions of a dummy variable that equals one if a firm issues a bond in a given quarter and zero if it issues a loan. In Panel B only firms that issued any type of debt before and after 2008 are included. Regressions in Panel A are estimated using ordinary least squares, country fixed effect, adjusting standard errors for clustering at the country level. Regressions in Panel B are estimated using a logit model, firm fixed effects, adjusting standard errors for clustering at the firm level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively. Financial sector issuances are excluded.

**Table 8**  
**The Global Financial Crisis and Debt Maturity**

<b>A. Country Evidence</b>						
	<b>Developed Countries</b>			<b>Developing Countries</b>		
	<i>Dependent Variable: Maturity in Years</i>			<i>Dependent Variable: Maturity in Years</i>		
	Corporate Bonds	Syndicated Loans	Total Debt	Corporate Bonds	Syndicated Loans	Total Debt
	(a)	(b)	(c)	(d)	(e)	(f)
Crisis (2008-2009)	-1.119 *** [0.189]	0.234 [0.239]	0.779 ** [0.300]	-0.956 ** [0.386]	1.057 * [0.576]	-0.344 [0.846]
Post-crisis (2010-2014)	-0.434 ** [0.188]	0.755 *** [0.155]	0.624 *** [0.197]	0.151 [0.888]	1.202 *** [0.262]	0.663 [0.682]
Constant	10.210 *** [0.0936]	4.389 *** [0.0518]	6.416 *** [0.110]	7.950 *** [0.594]	8.237 *** [0.192]	8.081 *** [0.506]
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1,487	1,853	1,996	909	1,206	1,405
R-squared	0.41	0.51	0.31	0.39	0.37	0.25
Number of Clusters	41	41	41	36	38	38
<b>B. Firm Evidence</b>						
	<b>Developed Countries</b>			<b>Developing Countries</b>		
	<i>Dependent Variable: Maturity in Years</i>			<i>Dependent Variable: Maturity in Years</i>		
	Corporate Bonds	Syndicated Loans	Total Debt	Corporate Bonds	Syndicated Loans	Total Debt
	(a)	(b)	(c)	(d)	(e)	(f)
Crisis (2008-2009)	-1.079 *** [0.178]	-0.029 [0.0505]	-0.097 [0.0963]	-0.787 *** [0.247]	0.096 [0.320]	-0.429 ** [0.190]
Post-crisis (2010-2014)	0.517 *** [0.175]	0.417 *** [0.0482]	0.608 *** [0.0847]	0.662 ** [0.321]	0.435 [0.290]	0.734 *** [0.239]
Constant	8.839 *** [0.0936]	3.876 *** [0.0211]	6.044 *** [0.0417]	7.078 *** [0.163]	6.314 *** [0.122]	6.763 *** [0.113]
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	25,485	29,569	55,054	4,914	2,145	7,059
R-squared	0.40	0.58	0.35	0.46	0.68	0.43
Number of Clusters	3,346	5,290	5,904	676	505	834

This table reports the regression results of the maturity of debt issuances (in years) as dependent variable regressed on a dummy variable that equals one for the crisis period and another dummy variable that equals one for post-crisis period. In Panel A the data for each country are aggregated at the quarterly level. In Panel B, only firms that issued any type of debt before and after 2008 are included. Regressions in Panel A are estimated using ordinary least squares, country fixed effect, adjusting standard errors for clustering at the country level. Regressions in Panel B are estimated using ordinary least squares, firm fixed effects, adjusting standard errors for clustering at the firm level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively. Financial sector issuances are excluded.

**Appendix Table 1  
Country Classification**

<b>Africa</b>	<b>Asia and the Pacific</b>	<b>Canada and United States</b>	<b>Eastern Europe</b>	<b>Latin America and the Caribbean</b>	<b>Middle East</b>	<b>Western Europe</b>
Egypt	Australia*	Canada*	Bulgaria	Argentina	Bahrain*	Austria*
Ghana	Azerbaijan	United States*	Croatia*	Bolivia	Israel*	Belgium*
Mauritius	Bangladesh		Czech Republic*	Brazil	Jordan	Cyprus*
Morocco	China		Hungary*	Chile	Kuwait*	Denmark*
Nigeria	Hong Kong*		Kazakhstan	Colombia	Lebanon	Finland*
South Africa	India		Poland*	Costa Rica	Oman*	France*
Tunisia	Indonesia		Romania	Ecuador	Qatar*	Germany*
	Japan*		Russian Fed	El Salvador	Saudi Arabia*	Greece*
	Malaysia		Slovak Rep*	Jamaica	Utd Arab Em*	Iceland*
	New Zealand*		Slovenia*	Mexico		Ireland-Rep*
	Pakistan		Turkey	Panama		Italy*
	Philippines		Ukraine	Peru		Luxembourg*
	Singapore*			Venezuela		Netherlands*
	South Korea*					Norway*
	Sri Lanka					Portugal*
	Taiwan*					Spain*
	Thailand					Sweden*
	Vietnam					Switzerland*
						United Kingdom*

This table presents the list of countries that constitute the different regions and their classification by income level. Countries are classified as developed or developing based on the World Bank income level classification of 2012. Developed countries correspond to high-income countries according to the World Bank classification, those with a GNI per capita of 12,476 U.S. dollars or higher in 2011. Developing countries correspond to low- and middle-income countries according to the World Bank classification, those with a GNI per capita below 12,476 U.S. dollars in 2011. \* means the country is classified as developed.

**Appendix Table 2**  
**Total Number of Issuances per Country**

Developed Countries			Developing Countries		
Country	Corporate Bond	Syndicated Loan	Country	Corporate Bond	Syndicated Loan
Australia	8,549	4,994	Argentina	1,249	332
Austria	1,910	214	Azerbaijan	5	65
Bahrain	57	145	Bangladesh	4	45
Belgium	790	662	Bolivia	175	17
Canada	9,023	6,485	Brazil	3,689	950
Croatia	21	161	Bulgaria	13	109
Cyprus	44	89	Chile	1,024	437
Czech Republic	81	287	China	4,333	3,151
Denmark	1,305	326	Colombia	1,303	147
Finland	1,575	576	Costa Rica	294	28
France	9,583	6,236	Ecuador	230	14
Germany	15,992	4,513	Egypt	29	201
Greece	262	431	El Salvador	462	33
Hong Kong	7,139	2,665	Ghana	2	73
Hungary	124	307	India	8,069	2,936
Iceland	235	165	Indonesia	1,171	1,580
Ireland-Rep	2,298	562	Jamaica	26	46
Israel	315	110	Jordan	3	36
Italy	3,210	2,847	Kazakhstan	123	191
Japan	13,588	24,864	Lebanon	36	6
Kuwait	25	146	Malaysia	3,731	934
Luxembourg	2,098	494	Mauritius	14	47
Netherlands	8,891	2,526	Mexico	2,551	884
New Zealand	631	1,157	Morocco	7	58
Norway	1,422	1,081	Nigeria	15	143
Oman	18	153	Pakistan	41	161
Poland	104	416	Panama	209	241
Portugal	1,498	580	Peru	1,133	168
Qatar	73	203	Philippines	497	432
Saudi Arabia	40	384	Romania	14	182
Singapore	1,986	1,589	Russian Fed	1,434	1,278
Slovak Rep	15	98	South Africa	323	482
Slovenia	13	131	Sri Lanka	10	42
South Korea	26,981	2,676	Thailand	1,933	1,233
Spain	2,579	4,299	Tunisia	14	50
Sweden	3,123	1,015	Turkey	172	1,170
Switzerland	3,434	1,013	Ukraine	83	177
Taiwan	6,688	4,897	Venezuela	233	87
United Kingdom	15,077	10,317	Vietnam	56	217
United States	96,877	86,327	<b>Total</b>	<b>34,710</b>	<b>18,383</b>
Utd Arab Em	367	667			
<b>Total</b>	<b>248,041</b>	<b>176,808</b>			

This table reports for each country the total number of issuances in corporate bond and syndicated loan markets. The sample period is 1991-2014.

**Appendix Table 3**  
**Total Number of Issuers per Country**

Developed Countries			Developing Countries		
Country	Corporate Bond	Syndicated Loan	Country	Corporate Bond	Syndicated Loan
Australia	1,085	1,484	Argentina	349	159
Austria	237	83	Azerbaijan	3	21
Bahrain	25	55	Bangladesh	3	23
Belgium	187	214	Bolivia	48	8
Canada	2,214	1,991	Brazil	1,354	430
Croatia	7	58	Bulgaria	12	40
Cyprus	21	39	Chile	242	184
Czech Republic	29	122	China	2,314	1,842
Denmark	117	119	Colombia	301	77
Finland	355	203	Costa Rica	45	11
France	821	1,912	Ecuador	107	12
Germany	877	1,347	Egypt	12	66
Greece	69	166	El Salvador	33	12
Hong Kong	1,057	1,088	Ghana	2	25
Hungary	23	117	India	864	1,290
Iceland	18	55	Indonesia	393	704
Ireland-Rep	224	198	Jamaica	12	12
Israel	37	37	Jordan	2	20
Italy	404	1,082	Kazakhstan	45	70
Japan	2,485	7,471	Lebanon	15	4
Kuwait	18	71	Malaysia	620	443
Luxembourg	382	173	Mauritius	6	25
Netherlands	779	787	Mexico	631	338
New Zealand	123	270	Morocco	5	22
Norway	277	404	Nigeria	11	59
Oman	11	60	Pakistan	31	69
Poland	69	165	Panama	105	122
Portugal	564	214	Peru	185	102
Qatar	18	80	Philippines	145	179
Saudi Arabia	28	138	Romania	11	87
Singapore	475	716	Russian Fed	587	446
Slovak Rep	12	41	South Africa	115	172
Slovenia	9	38	Sri Lanka	7	16
South Korea	3,715	859	Thailand	345	531
Spain	407	1,559	Tunisia	1	18
Sweden	285	300	Turkey	76	291
Switzerland	511	290	Ukraine	42	62
Taiwan	685	1,384	Venezuela	107	43
United Kingdom	1,732	3,287	Vietnam	34	103
United States	13,913	25,827	<b>Total</b>	<b>9,220</b>	<b>8,138</b>
Utd Arab Em	94	241			
<b>Total</b>	<b>34,399</b>	<b>54,745</b>			

This table reports for each country the total number of issuers in corporate bond and syndicated loan markets. The sample period is 1991-2014.