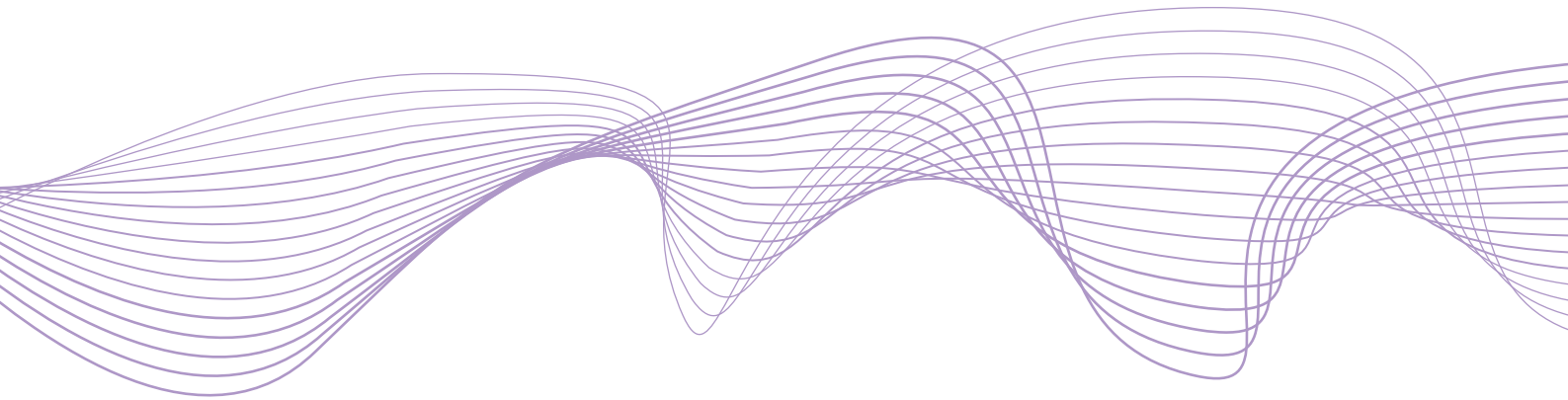


# Working Paper Series

No 4 / March 2016

Capital market financing,  
firm growth, and firm size  
distribution

by  
Tatiana Didier  
Ross Levine  
Sergio L. Schmukler



**ESRB**

European Systemic Risk Board

European System of Financial Supervision

## **Abstract**

How many and which firms issue equity and bonds in domestic and international markets, how do these firms grow relative to non-issuing firms, and how does firm performance vary along the firm size distribution (FSD)? To evaluate these questions, we construct a new dataset by matching data on firm-level capital raising activity with balance sheet data for 45,527 listed firms in 51 countries. Three main patterns emerge from the analysis. (1) Only a few large firms issue equity or bonds, and among them a small subset has raised a large proportion of the funds raised during the 1990s and 2000s. (2) Issuers grow faster than non-issuers in terms of assets, sales, and employment, i.e., firms do not simply use securities markets to adjust their financial accounts. (3) The FSD of issuers evolves differently from that of non-issuers, tightening among issuers and widening among non-issuers.

**JEL Classification Codes:** F65, G00, G10, G31, G32, L25

**Keywords:** access to finance, bond markets, capital market development, capital raisings, firm dynamics, firm financing, stock markets

## 1. Introduction

In this paper, we address three interrelated questions. (1) How many and which firms issue equity and bonds in domestic and international markets? (2) What happens to the assets, sales, and number of employees of firms that issue debt and equity relative to non-issuers? (3) How does the comparative performance of issuers and non-issuers differ across the firm size distribution (FSD)?

Researchers have not fully addressed these questions. Several papers argue that large firms are the ones that access capital markets (e.g., Harris and Raviv, 1991; Myers, 2003), but there is no systematic documentation of the number and size of firms issuing securities across countries and whether these have changed as the volume of capital market activity has expanded worldwide. In addition, a large literature discusses why firms issue new securities and how they perform when they raise new funds (e.g., Jensen, 1986; Hart, 1995; Welch, 2004; Henderson et al., 2006; Kim and Weisbach, 2008; De Angelo et al., 2009; Hertz and Li, 2010; Brealey et al., 2011; Graham and Harvey, 2011; Shin and Zhao, 2013; Shin, 2014). But this influential line of inquiry has not studied whether that performance varies with firm size. A separate, growing body of research focuses on firm size and analyzes whether firm growth varies along the FSD (e.g., Cabral and Mata, 2003; Angelini and Generale, 2008; Luttmer, 2011; Arellano et al., 2012; Buera et al., 2014; Midrigan and Xu, 2014). But this research has not studied the differential performance of firms of different sizes when they issue debt and equity. In this paper, we provide the first assessment of which firms issue securities and how they perform relative to non-issuing firms across the FSD.

To address these questions, we assemble a new dataset on firm-level domestic and international issuances of equities and bonds during 1991-2011 and match this information with balance sheet information on 45,527 publicly listed firms from 51 countries during 2003-2011. By linking issuance activity with balance sheet data, we document new patterns about the comparative behavior of assets, sales, and employment for issuing and non-issuing across the FSD. We conduct

these analyses over a period of rapid capital market growth. Between 1991-1995 and 2006-2011, the equity market capitalization as a percentage of gross domestic product (GDP) rose from 35% to 84% for the median developed country and from 17% to 59% for the median emerging country. Over the same period, the annual amount raised through equity or corporate bond offerings relative to GDP almost doubled for the median country.

This paper presents three main interrelated findings. First, only a small number of large firms issue securities in the typical country, and among these issuing firms a small subset has raised an increasing amount of funds during the 1990s and 2000s. That is, the growth in capital markets over this period has been associated mainly with growth in the intensive margin. In the median country, only about 20 listed firms per year issue securities in either their domestic capital market or in an international financial center; and this number has not varied significantly over time. Bond issuers are much larger than equity issuers. The median listed firm that conducts an equity offering is more than twice as large (as measured by total assets) as the median non-issuing firm. But the median bond-issuing firm is more than 36 times as large as the median non-issuing firm. Of the few debt and equity issuers, the top-5 firms receive over 66% of the funds raised through bond issuances and over 77% of the funds raised through equity issuances. Issuers of equity and bonds are larger than non-issuers at every decile of the FSD; the distribution of issuing firms lies to the right of non-issuing firms.

Second, despite being larger, issuers grow faster than non-issuers in terms of assets, sales, and employment, and they experience a significant boost in these different characteristics in the year that they sell securities. The median issuer by size experiences asset growth of 12% per annum, while the median non-issuer grows at 4.5%. Because issuers perform better than non-issuers, the FSD of issuing firms moves more to the right over time than that of non-issuing firms.

Third, the relation between firm growth and firm size is downward sloping for issuing firms and upward sloping for non-issuing firms. Thus, the FSD of issuers evolves differently from that of

non-issuers: smaller issuing firms grow faster than larger ones, so that the FSD of issuing firms tightens; but, larger non-issuing firms grow faster than smaller ones, so that their FSD widens. Moreover, when comparing issuing and non-issuing firms, we find that the positive growth gap between issuers and non-issuers is largest among smaller firms and declines with firm size. For example, the assets of issuing firms in the 1<sup>st</sup> decile grow at 13.3%, while those of non-issuing firms grow at 1.6%. At the other end, the assets of issuing firms in the 9<sup>th</sup> decile grow at 7.7%, while those of non-issuing firms grow at 6.4%.<sup>1</sup>

The findings in this paper relate to four major strands of research. First, although textbook explanations stress that firms issue securities to fund positive net present value projects, others emphasize that corporations issue securities to alter debt-equity ratios, replace expensive financing with cheaper funding, reduce free cash flows, minimize taxes, or change the duration of debt, with corresponding effects on corporate governance, profits, and risk exposure.<sup>2</sup> Because changes in capital structure might be related to corporate investment decisions, it is difficult to draw a clear distinction between these two motives for issuing securities. By showing that issuers of securities expand their assets, sales, and labor forces relative to comparable non-issuers, our findings suggest that modifying their capital structure is not the only factor behind firms' issuance activity (e.g., Kim and Weisbach, 2008; De Angelo et al. 2009; Hertz and Li, 2010; Graham and Leary, 2011).

Second, our findings also contribute to the large and rapidly growing literature on the evolution of the FSD. Although early research found support for the Gibrat's law, stating that firm growth is independent of firm size (Simon and Bonnini, 1958; Mansfield, 1962; Ijiri and Simon, 1964),

---

<sup>1</sup> Firm age does not drive our results. Existing work shows that younger firms tend to grow faster than older ones (e.g., Cooley and Quadri, 2001; Albuquerque and Hopenhayn, 2004; Clementi and Hopenhayn, 2006; Haltiwanger et al., 2013). Although firm age and size are positively correlated, we still find that smaller issuing firms grow faster than larger issuing ones across different age groups (young, mature, and old).

<sup>2</sup> A related literature studies why firms cross-list their securities in international markets and the evolution of capital structure and corporate valuations around those events (e.g., Karolyi, 2006; Claessens and Schmukler, 2007; Gozzi et al., 2008, 2010).

later work found that smaller firms grow faster than larger ones (Evans, 1987 is one of the early examples). In this paper, we contribute to this literature by examining a much wider array of countries than previous studies, focusing only on listed firms, and distinguishing by issuing and non-issuing firms. Although listed firms are a small subset of the universe of firms, they are more homogeneous than non-listed firms and they account for a significant proportion of national sales and employment.<sup>3</sup>

Whereas previous studies on the FSD find that smaller firms grow faster than larger ones, we find that on average this difference in performance depends on whether firms are issuers or non-issuers. The finding that smaller issuing firms grow faster than larger issuing firms, but larger non-issuing firms grow faster than smaller ones stresses the importance of considering corporate finance when assessing the evolution of the FSD.

Third, the findings in this paper also add to the debate on whether and how capital markets influence economic growth. Although the size of capital markets and the liquidity of secondary equity markets are positively associated with aggregate growth (e.g., Levine and Zervos, 1996, 1998; Demirguc-Kunt and Maksimovic, 1998; Henry, 2000; Beck and Levine, 2004; Bekaert et al., 2005; Levine, 2005), researchers have not determined whether the activity in primary markets is associated with growth across a broad cross-section of countries. Namely, is there a direct connection between a firm issuing securities and the growth of its assets, sales, and employment? Some research suggests that the development of capital markets foster economic growth by lowering the cost of diversifying and pooling risks (e.g., Levine, 1992; Obstfeld, 1994; Acemoglu and Zilibotti, 1997). Other research stresses that large, liquid markets increase the expected benefits from researching firms, with positive repercussions on the creation and dissemination of information (e.g., Grossman and Stiglitz, 1980; Holmström and Tirole, 1993). From these perspectives, well-functioning capital markets can help

---

<sup>3</sup> Several papers argue that the largest firms in a country play a crucial role in aggregate outcomes (e.g., Gabaix, 2011; di Giovanni and Levchenko, 2012; Eaton et al., 2012; Freund and Pierola, 2012).

listed firms even if those firms do not issue new securities.

By showing that when firms choose to issue securities they experience a material boost in assets, sales, and employment relative to listed firms that do not issue and relative to their own performance before issuing, our research suggests that there is a direct, positive connection between capital raising activity and growth at the firm level. Although we do not evaluate the causal impact of a firm issuing equity or bonds on its performance (issuing securities is anything but random), the findings in this paper indicate that firms grow faster when they issue; they do not simply issue securities to adjust their balance sheets. Thus, it is not just the availability of well-functioning securities markets that is related to the growth of listed firms.

Fourth, this paper's findings also inform research on corporate financing decisions. A considerable body of theoretical research suggests that informational asymmetries between firm managers and investors shape firms' financing choices. Some of this research indicates that more opaque firms would be more constrained in issuing securities than less opaque firms, and that opacity would constrain equity issuances more than debt issuances (e.g., Jensen and Meckling, 1976; Myers, 1984; Myers and Majluf, 1984; Jensen, 1986; Dang et al., 2014). Other research examines whether there is a hierarchy or pecking order in financing decisions.<sup>4</sup> In our research, we find that, even among listed firms, only a few of the largest (typically less opaque) ones issue securities. However, we also find that listed bond issuers around the world are much larger than equity issuers, which is consistent with other studies that obtain a similar pattern for the United States (e.g., Fama and French, 2002, 2005; Frank and Goyal, 2003).

The remainder of the paper is organized as follows. Section 2 describes the data. Section 3 briefly describes the evolution of capital market development and how many firms use and capture

---

<sup>4</sup> For other papers on this topic, see for example Frank and Goyal (2008), Bharath et al. (2009), Leary and Roberts (2010), Lemon and Zender (2010), de Jong et al. (2011), Gomes and Phillips (2012), and Shen (2014).

the capital market activity. Section 4 presents the results on which firms use these markets. Section 5 shows the results on firm performance and the evolution of the FSD. Section 6 explores additional heterogeneity in firm behavior according to the type of securities issued, market of issuance, and firms' home market. Section 7 studies the role of firm age. Section 8 concludes.

## 2. Data

To assess which firms issue securities, the comparative performance of issuing and non-issuing firms, and the evolution of the size distribution of firms as they issue securities, we assemble a comprehensive dataset covering corporate bond and equity issuances in capital markets around the world as well as balance sheet information on publicly listed firms. The data on firm capital raising activity cover the period 1991-2011 and 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 more than one year.<sup>5</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. For offerings in more than one market, we consider each market a separate issuance. The dataset includes 532,423 security issuances: 138,968 equity issuances and 393,455 bond issuances by listed and unlisted firms. Security issuances are classified as domestic or international based on the location of the main exchange where the issuances take place and compared with the issuing firm's nationality. The dataset includes 411,180 issuances in domestic markets and 116,811 issuances in foreign markets (4,432 issuances are not possible to be classified and have been assigned missing values).

To examine the comparative characteristic and performance of issuing and non-issuing firms,

---

<sup>5</sup> SDC Platinum collects data on security issuance mostly from filings with local regulatory agencies and stock exchanges. These data are augmented with data from other sources such as offering circulars, prospectuses, surveys of investment banks, brokers, and other financial advisors, news sources, trade publications, and wires.



we match the dataset on security issuances from SDC Platinum with 2003-2011 firm-level balance sheet information from the Orbis (Bureau van Dijk) database. The latter covers publicly listed companies, providing a rather homogeneous sample of firms. By omitting unlisted firms in the analysis using the matched data, the sample excludes firms that are (1) relatively small and sometimes informal, (2) likely to have different accounting standards, and (3) less likely to issue in capital markets. Moreover, because of a lack of coverage of capital raising activity in domestic bond markets, Canada and the Republic of Korea are not included in the sample. Firms from countries with less than 10 issuing firms between 2003 and 2011 are excluded from the final sample and so are the firms from offshore financial centers. The final matched dataset covers 45,527 firms from 51 countries.<sup>6</sup>

We classify firms as issuers or non-issuers based on whether they issued equity or bonds at any point during our sample period. Because firm-level balance sheet information is only available for the period from 2003 to 2011, we classify a firm as an issuer if it had at least one equity or bond issuance during that period. We further classify whether firms are equity or bond issuers depending on whether firms issued any equity or bonds, respectively. If a firm raised capital through equity and bond issuances between 2003 and 2011, we classify the firm as both an equity issuer and a bond issuer. We also classify firms as domestic or foreign equity issuers and as domestic or foreign bond issuers, depending on whether they raised capital in domestic or foreign markets. Foreign issuers are the firms that had at least one capital raising issuance in foreign markets between 2003 and 2011. Domestic issuers comprise firms that issued only in domestic markets.<sup>7</sup> Hence, firms that raised capital in both domestic and foreign markets over the sample period are classified as foreign issuers. The sample of

---

<sup>6</sup> Overall, our matched dataset covers at least 85% of the listed firms in each country. Appendix Table 1 reports the list of countries and the number of non-issuing and issuing firms from each country covered in the final matched dataset.

<sup>7</sup> For robustness, in unreported results, we considered overlapping groups of domestic and foreign issuers. That is, foreign issuers are the firms that had at least one capital raising issuance in foreign markets between 2003 and 2011, whereas domestic issuers comprise firms that had at least one capital raising issuance in domestic markets over the same period. The results are qualitatively similar to the ones reported in the paper.

non-issuing firms is held fixed throughout the paper. Non-issuing firms are those that did not have any issuance activity between 2003 and 2011. In the SDC-Orbis data, 18,342 firms are issuers (16,198 firms are equity issuers and 5,134 are bond issuers) and 27,185 are non-issuing firms.

We classify the countries in the sample into developed and emerging economies following the World Bank classification of countries. In particular, developed countries are those with a gross national income (GNI) per capita in 2009 above \$12,195 (U.S. dollars). All other countries are classified as emerging economies. The final matched dataset comprises firms from 20 emerging countries and 31 developed countries. Appendix Table 1 reports the list of countries in the sample.

Our analyses focus on firm size and growth, measured by the level and growth rate of total assets, sales, and the number of employees. Firm assets and sales are measured in constant 2011 U.S. dollars, using the U.S. consumer price index (CPI) to discount nominal values. The analysis also examines firm age (measured in 2011), firm profitability, and other financial indicators such as return on assets (ROA), leverage (including bank and other types of financing), and the maturity profile of liabilities.

We also match the SDC-Orbis dataset with the SDC Platinum database on mergers and acquisitions (M&A) to assess whether firms with M&A activity around their capital raisings display a similar performance than other firms raising capital. This helps us analyze whether the patterns we uncover are driven by M&A activity and whether the expansion of firms comes from their own internal growth. To do so, we identify whether issuing firms engage in some M&A activity as the acquirer firm in the year of the capital raising or the following year. Of the issuing firms in the sample, 8,919 firms conducted an M&A transaction (about 50% of the issuing firms). The results using the M&A data are mentioned in the text but not reported to save space.

Although in this paper we use firm-level data for 2003-2011 only due to the wide coverage of firms by Orbis, we also match the data on security issuances from SDC Platinum with balance sheet

information from the Thomson Reuters Worldscope database. One advantage of the matched SDC-Worldscope dataset is that it covers a longer time span, including the 1990s. However, due to the more limited Worldscope coverage, the matched Worldscope dataset contains a smaller set of firms (38,622 firms) than the matched Orbis dataset and does not include the United States. A comparison of the sample of firms in Orbis and Worldscope suggests that the Worldscope sample is biased toward larger firms. As with the analysis using the M&A data, the results using the Worldscope data are mentioned in the text but not reported.

### **3. Capital Market Growth: The Intensive and Extensive Margins**

Capital markets have grown markedly since the early 1990s in both developed and emerging economies (Figure 1). The median developed country's equity market expanded from an average of 35% of GDP over the period 1991-1995 to an average of 84% over 2006-2011.<sup>8</sup> Even more pronounced growth patterns are observed in emerging countries, where markets grew from 17% to 59% of GDP over the same period in the median country. Corporate bond markets also grew, especially in emerging economies where they increased more than 6-fold, albeit from a low base. In the median developed country, corporate bond markets expanded from an average of 27% of GDP in 1991-1995 to 41% in 2006-2011. As a comparison, private credit by deposit money banks increased from 81% to 117% (27% to 36%) of GDP in the median developed (emerging) country during the same period.

The issuance data show that the expansion in primary capital market activity has also been sizeable (Figure 2, Panel A). For the median country in our sample, the per annum amount of new

---

<sup>8</sup> Throughout the paper, we use different median values to describe our results. In each case, the median is taken for the variable we are describing in that instance. For example, in this paragraph we compute the median country according to the level of financial sector development (alternatively, equity market capitalization, corporate bond market capitalization, and bank credit). In the next paragraph, the median is computed using the amount raised.

equity issuances as a proportion of GDP almost doubled, from about 0.7% during 1991-1995 to 1.3% during 2006-2011. There has also been pronounced growth in the issuance of corporate bonds, especially in the late 2000s. Bond issuances rose from 1.8% of GDP per annum for the median country in the early 1990s to 3.1% in second half of the 2000s. Thus, whether considering market size or primary activity, the median country has experienced a noticeable expansion of equity and bond markets.

Capital market growth has been associated mainly with a growth in the intensive margin: a small number of firms have materially increased their use of capital markets since the 1990s. And there has not been much of an increase in the extensive margin, in the number of firms issuing securities. For the median country, the average number of firms issuing equity per year increased from 18 in the early 1990s to 23 in the late 2000s (Figure 2, Panel B). In the case of bonds, the average number of firms per annum issuing them in the median country was 27 in the early 1990s and 22 in the late 2000s.<sup>9</sup>

Not only do few firms raise funds in capital markets, an even smaller number of firms raise the bulk of the financing and account for the rapid growth of security issuances. For example, the amount raised in equity markets per year by the top-5 issuers in the median country remained at about 80% of the total amount raised over the entire period 1991-2011 (Figure 2, Panel C). The top-5 bond issuers in the median country captured close to 70% of the total amount raised, with the top-20 issuers capturing over 90%.

Although there is cross-country heterogeneity, the patterns described above exist for most economies. Even for the most developed markets, a small proportion of listed firms raise capital through equity or bond issuances (Appendix Figure 1). For example, in France, Germany, the United

---

<sup>9</sup> If we use a 5-year window, instead of examining issuances per year, the total number of firms issuing equity in the median country increased from 72 in 1991-1995 to 103 in 2006-2011. In the case of bonds, it dedined from 87 to 76 firms over the same period.

Kingdom, and the United States less than half of the firms in our sample conducted an equity offering or sold a bond over the period 2003-11. There is also remarkable skewness across virtually all countries. Only in Australia, China, Japan, Hong Kong SAR, the United Kingdom, and the United States is the amount raised by the top-5 equity issuers less than 50% of the total amount raised in equity markets. Even in other G7 economies like Germany, France, and Italy, the top-5 equity issuers captured 61%, 65%, and 71% of the total amount raised in our sample period, respectively. The concentration of funds raised by a few large firms in corporate bond markets is also pronounced across most countries.

#### **4. Which Firms Use Capital Markets?**

To assess which firms access capital markets, we compare the characteristics of non-issuing firms, issuing firms, and the different types of issuing firms. We compare (1) firm size (measured by assets and sales in 2011 U.S. dollars and the number of employees), (2) firm growth (measured by the growth rate of assets, sales, and employees), (3) firm leverage, (4) the liability structure of firm debt (measured by the ratio of long-term debt to total firm liabilities), and (5) firm profitability (measured by retained earnings over assets and return on assets, or ROA). Besides differentiating by whether firms issue equity and/or debt, we also examine whether firms issue equity domestically, equity in foreign markets, bonds domestically, and/or bonds in foreign markets. In comparing firm traits across non-issuing and issuing firms, we use the median across countries of the median firm in any given country, after obtaining the average over time for each firm. Because for the rest of the paper we use the matched SDC-Orbis dataset on capital raisings and balance sheet information, the sample is restricted to 2003-2011.

Issuing firms are different from non-issuing firms along many dimensions. Issuers are typically much larger than publicly listed firms that do not issue equities or bonds (Table 1). The median issuer

in the median country (of either equity or bonds) has assets of \$317 million, while non-issuers have \$100 million in assets. There are also large size differences across firms that issue equity and bonds and across those that issue securities in domestic and foreign capital markets. The median bond issuer has assets of \$3.7 billion, while the median equity issuer has assets of \$256 million, which is more than a 14-fold difference. Moreover, the median firm that issues securities abroad is much larger than the median firm that sells equities or bonds only in domestic markets. The median firm issuing bonds only in domestic markets has assets of \$1.5 billion, whereas the median bond issuer in foreign markets has assets of \$4.9 billion. The results are qualitatively similar when focusing on either sales or the number of employees rather than assets.<sup>10</sup>

Issuing firms also tend to grow much faster than non-issuing firms (Table 1). While the assets of non-issuing firms grew at a 4.3% a year during the sample period, the assets of equity and bond issuers grew at 10.5% and 9.4% a year, respectively. As a comparison, for the median country (Brazil and Bulgaria), the average GDP growth during this period was about 3.9%. Furthermore, firms that issue equity abroad tend to have faster growth rates than those that issue equity in domestic markets only. The differences in growth rates are also sizeable if we analyze sales and the number of employees. For example, growth in the number of employees for issuers averaged 4.4% a year, but only 0.9% for non-issuers between 2003 and 2011.

Do the differences between issuing and non-issuing firms exist before an issuance takes place? Or do they primarily emerge as firms issue equity or bonds? To address this, we estimate Probit models that measure the probability of issuing equity or bonds during the 2005-11 period based on firm-level

---

<sup>10</sup> The median issuing firm tends to be much larger than the median non-issuing firm in virtually all countries. For example, the assets of the median equity issuing firm are larger than the assets of the median non-issuing firm in all countries except in a handful of cases (Australia, France, Japan, Luxembourg, Malaysia, New Zealand, Singapore, Sweden, Thailand, and the United Kingdom). For about half of the countries, the median equity issuing firm is at least 2.5 times larger than the median non-issuing firm. In the case of bonds, in all but two countries (Australia and Luxembourg) the median bond issuer is at least five times as large as the median non-issuer.

attributes in 2004 (firms with capital raising activity only in 2003 and/or 2004 are excluded from these regressions).<sup>11</sup> In each regression, we use only one explanatory variable for size and one for growth due to multi-collinearity. All the regressions include country dummies to control for country-specific effects.<sup>12</sup>

Many differences between issuers and non-issuers exist before firms issue securities. The results show that larger firms and those with higher growth rates are more likely to raise capital in equity or bond markets (Table 2).<sup>13</sup> With respect to economic significance, firm size is generally the most important predictor of future capital raising activity. For example, a one standard deviation increase in the log of assets for the average firm raises the likelihood of issuing in capital markets by around 18 percentage points.<sup>14</sup> A one standard deviation increase in asset growth is associated with an increase of about 6 percentage points in the probability of issuing an equity or bond. The results using sales or the number of employees as a proxy for size are quantitatively and qualitatively similar. Moreover, a one standard deviation increase in ROA lowers the probability of new capital market activity by about 6 percentage points.

We also estimate the Probit models for the probability of issuing equity and bonds separately in domestic and foreign markets. The results are qualitatively similar to the ones obtained by estimating the probability of raising capital in general (Table 2, right panels). The estimations show that firm size

---

<sup>11</sup> In unreported results, we estimated Cox proportional hazard models to capture the probability of raising capital through equity or bonds. The Cox model estimates the determinants of the probability of issuing equity and bonds by employing all available information up to the year before an issuance takes place. The estimates obtained are consistent with the ones presented using Probit models.

<sup>12</sup> In unreported results, we used industry dummies to control for sector-specific effects, following the major industry divisions of the SIC classification at the two-digit level (agriculture, forestry, and fishing; construction; finance, insurance, and real estate; manufacturing; mining; public administration; retail trade; services; transportation, communications, and utilities; and wholesale trade). The results are similar to the ones reported here.

<sup>13</sup> Firms with longer-term debt are also more likely to issue. Although issuing firms are ex ante bigger and faster growing, they tend to be less profitable. In unreported results, we explored whether changes in profitability occur around the capital raising activity. We find that profitability does not increase in the year following an issuance.

<sup>14</sup> The estimates reported in Table 2 show the marginal effects on the probability of issuance of a unit change in each explanatory variable. These variables, however, are in different units, making these effects not directly comparable across variables. Thus, in the text, we discuss the marginal effects associated with a one standard deviation change in the explanatory variables.

and firm growth are positively and statistically related to the use of capital market financing.<sup>15</sup> The main difference between firms issuing equity and bonds is that the marginal effect of size on the probability of capital raising activity is much higher for bond issuers than for equity issuers. For example, a one standard deviation increase in the log of assets raises the likelihood of an issuance by about 3 percentage points for equity issuances and by about 30 percentage points for bond issuances.

In sum, we find that throughout our sample, while primary and secondary capital market activity has increased markedly, (1) only a few firms issued securities in the median country, and indeed in the vast majority of countries, (2) of the few firms that issued securities, only a handful of those accounted for the bulk of the funds raised by listed firms in capital markets, and (3) the ones that did issue securities in domestic and foreign markets tended to be large and fast growing.

## **5. How Do Assets, Sales, and Employment Evolve for Issuing and Non-issuing Firms?**

This section assesses (1) whether issuers grow faster than non-issuers, (2) how the growth of issuers and non-issuers differs across the entire distribution of firm size, (3) whether there is a bump in growth immediately after a firm issues securities, and (4) whether the growth of issuing firms is associated with the amount of capital raised relative to firm size.

We begin by estimating four probability density functions that capture the FSD: two for 2003 (one for issuers of either equity or bonds and one for non-issuers) and two analogous ones for 2010. Due to data availability on firm-level balance sheets in Orbis, we focus the rest of the paper on the 2003-2010 sample. That is, issuing firms that raised capital through equity or bonds only in 2011 are excluded from the analysis henceforth. However, the results are qualitatively similar if we use the full sample available for 2003-2011.

As illustrated in Figure 3, three key findings about the FSD emerge when using assets, sales,

---

<sup>15</sup> Issuance activity is also related to firms with a longer liability maturity structure and with lower profitability.



or the number of employees to measure firm size. First, the distribution of issuers in 2003 is to the right of that of non-issuers, indicating that issuing firms are typically larger ex ante than non-issuing firms. These patterns are consistent with the evidence presented in the previous section that larger firms are more likely to issue equity and debt securities. Second, the FSD for both issuing and non-issuing firms shifted to the right from 2003 to 2010, indicating that publicly listed firms typically grew over this period. Third, the distribution of issuing firms shifted farther to the right than that of non-issuers, implying that issuing firms grew more than non-issuing ones while they issued securities. The differences in the FSD are statistically significant based on unreported Kolmogorov-Smirnov statistics.

To further assess whether issuing firms are typically larger and faster growing than non-issuing ones across the distribution of firm size, we estimate quantile regressions using differences-in-differences specifications. More specifically, we use information on firm size for 2003 and 2010 for all firms in the sample, and estimate quantile regressions on a constant, a dummy for issuer firms, a 2010 dummy variable that takes the value of one for observations in 2010, and a term interacting these two dummy variables. We estimate these regressions using the log of assets, sales, or the number of employees as dependent variables.

The estimated coefficients from the quantile regressions in Table 3 are reported in exponential form and need to be interpreted as follows. For a given quantile, the constant term measures the size in 2003 of non-issuing firms. The coefficient on the dummy for whether it is an issuing firm measures the size of issuers relative to the size of non-issuers in 2003. The coefficient on the 2010 dummy measures the growth rate of non-issuing firms between 2003 and 2010.<sup>16</sup> The coefficient on the interaction term (the interaction between the dummy for an issuing firm and the dummy for

---

<sup>16</sup> The level of the  $j^{th}$  quantile of size for non-issuing firms in 2010 can be obtained by multiplying the constant and the reported coefficient on the 2010 dummy variable. Similar calculations make it possible to recover the levels of the  $j^{th}$  quantiles for the other distributions.

observations in 2010) measures the growth of issuers relative to non-issuers; therefore, it captures whether the distribution of issuers shifts more to the right than that of non-issuers between 2003 and 2010. Thus, the coefficient on this interaction term is of special interest.

Consistent with the kernel density estimates, the results of the quantile regressions show that issuing firms are ex ante larger than non-issuing firms. Importantly, not only are the issuers larger than non-issuers in the top of the firm size distribution, but these size differences also exist at every decile, including the bottom ones. The results are statistically significant for all estimates, except for the bottom deciles of the distribution of the number of employees. These differences are also economically significant. For example, issuing firms at the 1<sup>st</sup> decile are larger than non-issuing firms at the same decile of the FSD by 63% in assets, 24% in sales, and 7% in the number of employees.

Issuing firms not only start larger than non-issuing firms, but they also grow much faster than non-issuing firms at all deciles of the distribution. In other words, there is actually ex post divergence in firm size between issuers and non-issuers. The coefficients on the interacted term are larger than one and statistically significant for every estimated decile, with the exception of the top decile of the FSD in all three specifications (assets, sales, and the number of employees), thus providing evidence that issuing firms grew faster than non-issuing firms over the same period. There is in fact a sizeable additional growth for issuing vis-à-vis non-issuing firms between 2003 and 2010 even after taking into account the initial differences in size between issuers and non-issuers. For example, as shown by the estimated interacted term, the ratio of firm size between issuers and non-issuers at the bottom 1<sup>st</sup> decile of the distribution of assets increased 115% over this period; issuing firms were 63% larger than non-issuing firms in 2003 and became 250% larger by 2010. The implied differential in annualized growth rates is substantial. Non-issuing firms at the 1<sup>st</sup> decile of the distribution of assets grew 1.6% per year between 2003 and 2010, whereas issuing firms at the same decile of the distribution grew 13.3% per year over the same period. Qualitatively similar differences are estimated for sales and the

number of employees.

Figure 4 plots the growth rate of issuers and non-issuers implied by the regressions for the different deciles of the FSD based on assets, sales, and the number of employees. Table 4 shows the inter-quantile tests of equality of coefficients and compares the 5<sup>th</sup> decile with the 1<sup>st</sup> decile, the 6<sup>th</sup> with the 2<sup>nd</sup>, and so forth. These tests not only provide quantitative evidence on the statistical differences across deciles, but also capture the monotonicity of these effects.

For non-issuing firms, there is divergence in the distribution of firm size. While one observes growth for all deciles of non-issuing firms, we find faster growth among the larger non-issuing firms. The estimated coefficients on the 2010 dummy variable in Table 3 are larger for higher deciles than for the lower ones. For example, firms at the 1<sup>st</sup> decile of the distribution of assets grew 1.6% per year between 2003 and 2010, whereas firms at the 9<sup>th</sup> decile of the distribution grew 6.4% per year. The increase in growth rates is more subdued for the distributions based on sales and the number of employees.

In contrast, there is convergence in the FSD among issuing firms. That is, smaller firms typically grow faster than larger firms. Moreover, the growth rates of issuing firms actually decrease monotonically with firm size as indicated by the negative inter-decile tests in Table 4. The decline in growth rates is particularly accentuated in the top half of the FSD, with tests between the 9<sup>th</sup> and the 5<sup>th</sup> deciles statistically significant for all three distributions. These differences in growth rates are in fact quantitatively large. For instance, issuing firms at the 9<sup>th</sup> decile typically grew around 52% less than issuing firms at the 5<sup>th</sup> decile of the distribution of assets between 2003 and 2010.

These growth patterns imply that the growth differential between issuing and non-issuing firms is much greater for smaller firms than for larger firms (Figure 4). Namely, issuing firms grow faster than non-issuing firms at each decile of the distribution of firm size, but the growth gap between small issuing and non-issuing firms is much larger than the growth gap between large issuing and non-

issuing firms. The negative and statistically significant inter-decile tests (Table 4) show that this growth differential for issuers relative to non-issuers declines monotonically with firm size. In fact, as indicated by the interacted coefficients (Table 3), at the 9<sup>th</sup> decile the differences in growth rates between issuing and non-issuing firms are no longer statistically significant.

The previous estimations of the FSD do not distinguish firms by country (they pool all the observations), because for most countries very few firms issue securities and the FSD cannot be estimated at the country level. But to assess whether the patterns we find are driven by country-specific effects (in particular, by countries growing at different rates), we estimate cross-sectional regressions of firm aggregate growth between 2003 and 2010 on country fixed effects and a dummy variable that captures whether the firm is an issuer (Table 5). Analogous to the estimations in Table 3, we split firms into deciles according to their size in 2003 and estimate standard linear regressions using the observations within each decile. The results are consistent with the findings in Table 3. Issuing firms grew faster between 2003 and 2010 than non-issuing firms. Moreover, the estimated coefficients for the issuing dummy are typically larger at the lower deciles than at the upper deciles, indicating convergence in size among issuing firms over time.

We next assess whether growth rises at the time of issuance. Because the estimations in Tables 3 and 5 show results for the entire 2003-2010 period, they do not show what happens in the year when firms actually issue. To do so, we first conduct an event study, computing the growth rate of issuers versus non-issuers in each year (+/- 3 years) around the time of issuance, grouping firms by the year of their first issuance. The results show that while issuers grow faster than non-issuers before and after they issue, the growth rate at the time of issuance increases significantly (Figure 5).

We then pool the groups of firms issuing in different years and estimate panel regressions. On average, the assets of issuing firms continuously rise over the 7-year window around a capital raising issue (Table 6, Panel A). Moreover, the average asset growth of issuers is higher than that of non-

issuers, particularly so during the year of issuance: 8.6 percentage points one year before issuing, 22.7 percentage points the year of issuance, and 8.2 percentage points the year after issuance (Table 6, Panel B). This growth differential becomes smaller two and three years before and after issuing. Similar patterns are obtained when using sales and the number of employees.

The faster growth of smaller issuing firms seems to be related to more capital being raised by these firms relative to their size. In fact, regardless of whether we use assets, sales, or employment as a measure of size, the fraction of the total amount raised to initial firm size is larger for firms at the 1<sup>st</sup> decile of the FSD and declines monotonically with firm size (Figure 6). This pattern is similar to the decline in the growth rates shown earlier (Figure 4). For firms in the 1<sup>st</sup> decile, the capital they raise is many times their size. But starting in the 3<sup>rd</sup> decile, the fraction raised is very similar to their growth rate, especially for sales. For example, firms in the 3<sup>rd</sup> decile grew at about 75% during the 2003-2010 period and the capital they raised in those years was about 75% of their sales in 2003.

The estimates above provide additional evidence on two key features of security issuances. First, it is not just that fast growing firms are more likely to issue securities. Rather, firm assets, sales, and employment tend to rise substantially in the year they issue securities. Second, firms do not issue securities simply to adjust their capital structure. Instead, the estimates in levels and growth rates show that assets, sales, and employment rise as firms issue securities. Third, the growth in these three variables is faster, the larger the capital raised in capital markets is. This is more pronounced for smaller firms, and declines for larger firms.

We conducted a number of additional robustness tests. First, the results presented in this paper are quantitatively and qualitatively robust to the exclusion of financial and utility firms. Moreover, the results hold when using only financial and utility firms, suggesting that they do not behave differently than firms in other industries. Second, the results hold when controlling for M&A activity. In particular, the results are robust to the exclusion of firms that engage (as acquirer) in an M&A activity

in the year of the capital raising or in the following year. Third, Chinese and Indian firms represent a relatively large fraction of the sample (about 16%) and the patterns documented in this paper are similar in these two countries (Didier and Schmukler, 2013). However, the results are qualitatively similar to the ones reported here when excluding China and India, which indicates that these countries are not driving the results. Fourth, the results are robust when considering only the second half of the sample, namely 2006-2010. Fifth, the results are also qualitatively similar to the ones reported here when using the Worldscope balance sheet database that covers a longer time span (1995-2011) but with fewer firms. In particular, we estimated the regressions over three different sample periods (1995-2011, 1995-2002, and 2003-2011) to verify the robustness of our findings to these different partitions.<sup>17</sup> Sixth, although the analysis considers both IPO (initial public offerings) and non-IPO capital raising activity, the results are robust to the exclusion of IPO capital raising activity. Seventh, the reported estimates from quantile regressions use bootstrapped standard errors with 400 replications clustered at the firm level. The results are robust to the alternative use of more replications, non-clustered standard errors, and other levels of clustering (country, sector, and country-sector level).

Overall, firms that use capital market financing are larger to begin with, grow faster, especially in the year of issuance, and become larger than non-issuing firms. There is not only divergence in size between issuing and non-issuing, but also among non-issuing firms, as the growth rates of non-issuing firms increase with firm size. However, among issuing firms, the growth rates decrease monotonically with firm size, indicating convergence in size among them. Furthermore, the growth differential between issuing and non-issuing firms is significantly larger for smaller firms and declines with firm size.

---

<sup>17</sup> This addresses some of the potential problems that could arise with the Orbis database, although those problems are mostly linked to the non-listed firms for which data are not as consistently reported.

## 6. Additional Heterogeneity in Firm Behavior

To provide additional information on the performance of issuing and non-issuing firms along the FSD, we split these firms by (1) type of securities issued (equity versus bonds), (2) issuing market (domestic versus foreign), and (3) the level of development of the firms' home market (developed versus emerging countries, the former divided in bank-based and market-based countries).<sup>18</sup> In unreported tests, we compared developed versus emerging countries and bank-based versus market-based countries (pooling developed and emerging countries) and obtained qualitatively similar conclusions. We provide results based only on assets, but the findings are robust to using sales or the number of employees. We do not report all these results to reduce the number of tables.

The results show that bond issuers are much larger than equity issuers at all deciles of the FSD (Table 7, Panels A and B). For example, equity issuers at the 1<sup>st</sup> decile of the distribution were 17% larger than non-issuers in 2003, whereas bond issuers were 1,391% larger. Moreover, equity issuing firms grew relatively faster than bond issuing firms between 2003 and 2010. For example, after taking into account the initial differences in size between issuers and non-issuers, equity issuers at the 5<sup>th</sup> decile of the distribution grew 73% more than non-issuers, whereas bond issuers at the same decile of the FSD had an expansion in assets of 41% more than non-issuers. These differences are statistically significant according to unreported tests. In sum, firms that issue equity are smaller than bond issuers and tend to experience faster growth. These results are consistent with the view that high-growth firms use relatively more equity financing to cover their funding needs (i.e., Stulz, 1990; McConnell and Servaes, 1995; Hovakimian et al., 2001, 2004; Gatchev et al., 2009).

The core findings that issuers are larger and grow faster than non-issuers hold across markets

---

<sup>18</sup> The control group of non-issuing firms is the same in all these different cases, namely, the firms that did not issue either equity or bonds between 2003 and 2011. As in the previous section, we focus the analysis in this section on the 2003-2010 sample due to data availability on firm-level balance sheets in Orbis. Hence, the issuing firms with capital raising activity only in 2011 are excluded from the sample.

(Table 7, Panels C and D).<sup>19</sup> Firms that use domestic capital market financing, be it equity or bond financing, start out larger and grow faster than non-issuing firms. For instance, the median firm issuing domestically is twice as large as non-issuers. In contrast, the median firm issuing abroad is 26 times as large. Despite being considerably larger, firms issuing in foreign markets also typically grow faster than non-issuing firms. Complementing and reinforcing the previous results, the differential growth of issuers in foreign markets relative to non-issuers also declines monotonically with firm size. Small, foreign issuers grow faster than small, domestic issuers. But at the 9<sup>th</sup> decile, the differences in growth between both equity and bond foreign issuers and non-issuers are typically no longer statistically significant.

Next, we examine the characteristics and performance of issuing firms by differentiating the nature of their home securities markets. The developed countries are classified according to their financial structure—whether they have bank- or market-based financial systems. For emerging economies, we do not have enough variation to split this group by bank- and market-based financial systems. Following Demirguc-Kunt and Levine (2001), we construct a measure of financial structure based on relative size. The developed countries with an average ratio of total banking claims on the private sector to equity market capitalization above the sample median are classified as bank-based economies—16 developed countries in the sample are classified as such. The other 15 developed economies are classified as having market-based financial systems.<sup>20</sup> Tables 8 and 9 show quantile regressions for equity and bond issuers splitting developed countries (also divided in bank-based and market-based financial systems) and emerging countries.

---

<sup>19</sup> The results reported here are quantitatively and qualitatively robust to separately analyzing the patterns for domestic equity issuers, foreign equity issuers, domestic bond issuers, and foreign bond issuers.

<sup>20</sup> See Appendix Table 1 for the list of countries in each of these categories. To classify countries, we use data between 2000 and 2003, but these measures tend to be fairly stable over time. Moreover, several papers show that measures of financial structure based on size are very similar to measures based on activity, such as the ratio of bank credit to value traded in equity markets. Indeed, Beck and Levine (2002) show that the correlations between these two measures are over 0.65 and significant at the 1% level. Also see Levine (2002), Demirguc-Kunt and Maksimovic (2002), Ergungor (2004), and Demirguc-Kunt et al. (2013).



In terms of ex ante firm size, equity issuers at the bottom half of the distribution in market-based developed economies are significantly smaller than non-issuing firms, contrary to the trends observed in developed bank-based economies. For example, equity-issuing firms at the 1<sup>st</sup> decile of the distribution in developed bank-based economies are four times larger than non-issuing firms at the same decile, while in developed market-based economies equity issuers are 52% smaller than non-issuing firms. That is, in the latter economies smaller firms issue equity as well.

There are also some differences in the growth patterns for issuing firms across countries. In particular, the magnitude of the growth differentials between issuing and non-issuing firms in market-based developed countries is consistently larger than in developed bank-based economies for firms of different sizes, especially those at the bottom deciles. In emerging countries, both non-issuing firms and equity issuing firms at the top deciles of the distribution typically grow faster than those at the bottom deciles. These patterns imply a divergence in the FSD for both equity issuing and non-issuing firms. Furthermore, the growth differential between equity issuing and non-issuing firms is somewhat stable across the different deciles in these countries. In the case of bonds in emerging countries, the growth differential between issuing and non-issuing firms declines with firm size because bond-issuing firms grow similarly across the FSD. These results are consistent with the arguments that larger firms in emerging economies behave differently than larger firms in developed economies (e.g., Ayyagari et al., 2014; Hsieh and Klenow, 2014).

To summarize, there is heterogeneity in firm size and performance around capital raising activity depending on whether the securities are equity or debt, whether they are issued in domestic or foreign markets, and whether the firm's home market is emerging, or a more bank-based or market-based financial system. First, firms that issue equity are smaller than bond issuers and tend to experience faster growth than bond issuers. Second, firms that issue securities in foreign markets are typically much larger than domestic issuers, and small, foreign issuers tend to grow faster than small,

domestic issuers. Thus, firm attributes and performance vary with the location of issuance. Third, equity issuers at the bottom half of the distribution of firm size in market-based developed economies are significantly smaller than non-issuing firms, which is the opposite of the patterns observed in developed bank-based economies. Among listed firms, being large is not a defining characteristic of equity issuing corporations in developed economies with highly developed equity markets. Fourth, the growth differential between issuers and non-issuers in developed market-based economies is consistently larger than the growth gap in developed bank-based countries. And in emerging economies larger equity issuing firms grow faster than smaller issuing firms, contrary to the patterns observed in developed countries.

## **7. The Role of Firm Age**

In this section we assess whether the results that (1) firms that issue securities tend to be larger than those that do not, (2) issuers tend to grow faster than non-issuers, and (3) that the FSD of issuing and non-issuing firms behave differently simply reflect differences in firm age. This is important because size, age, and the degree to which firms issue securities are correlated and because the median issuing firm (in the median country) is typically younger than the median non-issuing firm (Table 1).

We explore the degree to which firm age accounts for our results in two ways. To capture its average effect, we first estimate panel regressions of firm size in 2003 and 2010 and cross-sectional regressions of firm growth between 2003 and 2010, both on age and issuance activity as explanatory variables. Second, we assess whether the evolution of the FSD for issuing and non-issuing firms differs across three firm age groups: young firms (10 years or younger in 2011), mature firms (11-30 years in 2011), and old firms (older than 30 years in 2011).<sup>21</sup>

---

<sup>21</sup> The results are robust to the use of other thresholds on firm age. In particular, we obtained qualitatively similar results with the following splits: (1) based on the deciles of the firm age distribution (17 years and younger, 18-32 years, more than 32 years in 2011); (2) balanced split of firms into three groups (18 years and younger, 19-40 years, more than 40 years

After controlling for firm age, Table 10 indicates that our core results hold: issuing firms start out larger and grow faster than non-issuing firms. Moreover, the results in Panels A and B for the three proxies for firm size (assets, sales, and the number of employees) are quantitatively similar to those reported in the last columns of Tables 3 and 5, respectively. These patterns hold on average for both equity and bond issuers in bank-based and market-based developed countries and in emerging economies.

Our findings regarding the FSD are qualitatively robust to the split of the sample by firm age (Table 11). The estimated coefficients on the issuer dummy show that issuing firms are ex ante larger than non-issuing firms for firms in all age groups. The results are statistically significant for all estimates across all deciles. Issuing firms are not only larger to start with, but they also grow faster than non-issuing firms across the three age groups. Also consistent with our previous findings, the regressions show that while non-issuing firms of all ages expanded between 2003 and 2010, their growth rates increased with firm size, especially for young and mature firms. In contrast, among issuing firms, smaller firms typically grew faster than larger firms. Hence, these results indicate that there is some divergence in the FSD for non-issuing firms and convergence for issuing firms. These patterns are observed across the three sub-samples of young, mature, and old firms.

In addition, the growth differential between issuing and non-issuing firms declines with firm age. The growth differential for younger firms is larger than that for mature firms, which in turn is larger than that for old firms. For example, the growth differential between issuing and non-issuing firms in the 1<sup>st</sup> decile of the distribution of young firms is 36 percentage points per year between 2003 and 2010, whereas the differential in the same decile of the distribution of mature and old firms is 10 and 4 percentage points per year, respectively. The estimations show that, controlling for firm size,

---

in 2011); (3) 15 years and younger, 16-25 years, more than 25 years in 2011; and (4) 10 years and younger, 11-20 years, more than 20 years in 2011.

firm age and growth are negatively associated, especially for issuing firms, as younger firms typically expanded faster than older ones between 2003 and 2010.

Overall, our results show that even after controlling for age, firms that use capital market financing are larger to begin with and grow faster than non-issuing firms. There is not only divergence in size between issuing and non-issuing, but also among non-issuing firms across firms in the three age groups. Among issuing firms the growth rates decrease with firm size. Furthermore, the growth differential between issuing and non-issuing firms is significantly larger for smaller firms across firms of all age groups. These patterns suggest that smaller firms (after controlling for age) and younger firms (after controlling for size) tend to grow faster after issuing securities than larger and older firms.

## **8. Conclusions**

During the boom in capital market activity that started in the 1990s in both developed and emerging countries, how many and which firms issued debt and equity in domestic and international markets, how much did issuing firms grow relative to non-issuers, and how did these patterns vary along the FSD?

Using a new dataset that matches firm-level capital raising activity with balance sheet information, we document the following patterns. First, for the median country, only around 20 large firms per country per year issue equity or bonds and this has not changed much since the 1990s. Moreover, among the few issuers, the top-5 issuers capture between 66% and 93% of the capital raising activity. Thus, the expansion of primary capital market activity is much less widespread than one might infer from, for example, simply observing the large increases in market capitalization or aggregate capital raising activity around the world.

Second, the few large firms that do issue equity and bonds across most economies tend to experience faster rates of growth in assets, sales, and employment than non-issuers. For example, the

assets of issuing firms grow at 12% per year on average, while those of non-issuers grow at 4% per year. During the year of issuance, firms tend to grow at much more rapid rates relative to other years, and relative to non-issuing firms. Thus, the FSD of issuing firms shifts to the right of the FSD of non-issuing firms as issuing firms become relatively larger.

Third, the relation between firm growth and firm size is downward sloping for issuing firms and upward sloping for non-issuing firms. Thus, the FSD of issuers evolves differently from that of non-issuers: (1) there is convergence among issuing firms because smaller firms grow faster than larger ones; and (2) there is divergence among non-issuing firms because smaller firms grow more slowly than larger firms. Therefore, the positive growth differential between issuing and non-issuing firms is largest for smaller firms and decreases monotonically with firm size.

The positive association between firms issuing securities and firm growth sheds new light on the debates concerning the mechanisms through which capital markets might influence firm growth. It is not just that firms grow faster in economies with better functioning capital markets. Rather, we find that, within an economy, issuers (especially smaller ones) grow much faster than non-issuers. This evidence does not reject theories that predict that firms do not need to sell securities to reap the benefits of better capital markets, but it does establish that there is a strong positive relation between issuance and firm growth across a wide array of economies. Future research would need to identify the degree to which supply side factors (such as shocks that relax financing constraints) drive the positive association between capital raising and firm growth, and how much demand side factors (such as high growth opportunities) prompt firms to tap capital markets.

The findings in this paper suggest that firms do not issue securities just to shape their capital structure, because their assets, sales, and number of employees expand as they sell equity or bonds. This evidence is particularly strong for smaller firms, as smaller firms expand even more rapidly than larger firms when they issue securities. The different behavior of smaller and larger firms suggests that

size is an important aspect of firm dynamics, especially when analyzing the behavior of firms around capital raising episodes. Future work could explore further this dimension to try to explain some of the mixed results found in the literature related to firm performance around capital raisings.

## References

- Acemoglu, D., Zilibotti, F., 1997. Was Prometheus unbound by chance? Risk, diversification, and growth. *Journal of Political Economy* 105(4), 709-51.
- Albuquerque, R., Hopenhayn, H., 2004. Optimal lending contracts and firm dynamics. *Review of Economic Studies* 71(2), 285-315.
- Angelini, P., Generale, A., 2008. On the evolution of firm size distributions. *American Economic Review* 98(1), 426-438.
- Arellano, C., Bai, Y., Zhang, J., 2012. Firm dynamics and financial development. *Journal of Monetary Economics* 59(6), 533-549.
- Ayyagari, M., Demirguc-Kunt, A., Maksimovic, M., 2014. Does local financial development matter for firm lifecycle? Evidence from India. World Bank Policy Research Working Paper No. 7008.
- Beck, T., Levine, R., 2002. Industry growth and capital allocation: does having a market- or bank-based system matter? *Journal of Financial Economics* 64(2), 147-180.
- Beck, T., Levine, R., 2004. Stock markets, banks, and growth: panel evidence. *Journal of Banking and Finance* 28(3), 423-442.
- Bekaert, G., Harvey, C., Lundblad, C., 2005. Does financial liberalization spur economic growth. *Journal of Financial Economics* 77(1), 3-55.
- Bharath, S., Pasquariello, P., Wu, G., 2009. Does asymmetric information drive capital structure decisions? *Review of Financial Studies* 22(8), 3211-3243.
- Brealey, R., Myers, S., Allen, F., 2011. *Principles of Corporate Finance, Global Edition*. New York: McGraw-Hill/Irwin.
- Buera, F., Fattal-Jaef, R., Shin, Y., 2014. Anatomy of a credit crunch: from capital to labor markets. *Review of Economic Dynamics*, forthcoming.
- Cabral, L., Mata, J., 2003. On the evolution of the firm size distribution: facts and theory. *American Economic Review* 93(4), 1075-1090.
- Claessens, S., Schmukler, S., 2007. International financial integration through equity markets: which firms from which countries go global? *Journal of International Money and Finance* 26(5), 788-813.
- Clementi, G., Hopenhayn H., 2006. A theory of financing constraints and firm dynamics. *Quarterly Journal of Economics* 121(1), 229-265.
- Cooley, T., Quadrini, V., 2001. Financial markets and firm dynamics. *American Economic Review* 91(5), 1286-1310.
- Dang, T., Gorton, G., Holmström, B., Ordoñez, G., 2014. Banks as secret keepers. NBER Working Paper 20255.
- De Angelo, H., De Angelo, L., Stulz, R., 2009. Seasoned equity offerings, market timing, and the corporate lifecycle. *Journal of Financial Economics* 95(1), 275-295.
- De Jong, A., Verbeek, M., Verwijmeren, P., 2011. Firms' debt-equity decisions when the static tradeoff theory and the pecking order theory disagree. *Journal of Banking and Finance* 35(5), 1303-1314.
- Demirguc-Kunt, A., Feyen, E., Levine, R., 2013. The evolving importance of banks and securities markets. *World Bank Economic Review* 27(3), 476-490.
- Demirguc-Kunt, A., Levine, R. (eds.), 2001. *Financial Structure and Economic Growth: A Cross-country Comparison of Banks, Markets, and Development*. Cambridge, MA: MIT Press.

- Demirguc-Kunt, A., Maksimovic, V., 1998. Law, finance, and firm growth. *Journal of Finance* 53(6), 2107-2137.
- Demirguc-Kunt, A., Maksimovic, V., 2002. Funding growth in bank-based and market-based financial systems: evidence from firm-level data. *Journal of Financial Economics* 65(3), 337-363.
- Didier, T., Schmukler, S., 2013. The financing and growth of firms in China and India: evidence from capital markets. *Journal of International Money and Finance* 39(c), 111-137.
- di Giovanni, J., Levchenko, A., 2012. Country size, international trade, and aggregate fluctuations in granular economies. *Journal of Political Economy* 120(6), 1083-1132.
- Eaton, J., Kortum, S., Sotelo, S., 2012. International trade: linking micro and macro. NBER Working Paper No. 17864.
- Ergungor, O., 2004. Market- versus bank-based financial systems: do rights and regulations really matter? *Journal of Banking and Finance* 28(12), 2869-2887.
- Evans, D., 1987. The relationship between firm growth, size, and age: estimates for 100 manufacturing industries. *Journal of Industrial Economics* 35(4), 567-81.
- Fama, E., French, K., 2002. Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies* 15(1), 1-33.
- Fama, E., French, K., 2005. Financing decisions: who issues stock? *Journal of Financial Economics* 76, 549-582.
- Frank, M., Goyal, V., 2003. Testing the pecking order theory of capital structure. *Journal of Financial Economics* 67(2), 217-248.
- Frank, M., Goyal, V., 2008. Trade-off and pecking order theories of debt. In *Handbook of Corporate Finance: Empirical Corporate Finance*. Vol. 2, E. Eckbo (ed.), 135-202. Amsterdam: Elsevier.
- Freund, C., Pierola, M., 2012. Export superstars. World Bank Policy Research Working Paper No. 6222.
- Gabaix, X., 2011. The granular origins of aggregate fluctuations. *Econometrica* 79(3), 733-772.
- Gatchev, V., Spindt, P., Tarhan, V., 2009. How do firms finance their investments? The relative importance of equity issuance and debt contracting costs. *Journal of Corporate Finance* 15(2), 179-195.
- Gibrat, R., 1931, *Les Inegalites Economiques*. Paris: Librairie du Recueil Sirey.
- Gomes, A., Phillips, G., 2012. Why do public firms issue private and public securities? *Journal of Financial Intermediation*, 21(4), 619-658.
- Gozzi, J.C., Levine, R., Schmukler, S., 2008. Internationalization and the evolution of corporate valuation. *Journal of Financial Economics* 88(3), 607-632.
- Gozzi, J.C., Levine, R., Schmukler, S., 2010. Patterns of international capital raisings. *Journal of International Economics* 80(1), 45-57.
- Graham, J., Harvey, C., 2001. The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics* 60(2), 187-243.
- Graham, J., Leary, M., 2011. A review of empirical capital structure research and directions for the future. *Annual Review of Financial Economics* 3, 309-345.
- Grossman, S., Stiglitz, J., 1980. Stockholder unanimity in making production and financial decisions. *Quarterly Journal of Economics* 94(3), 543-66.

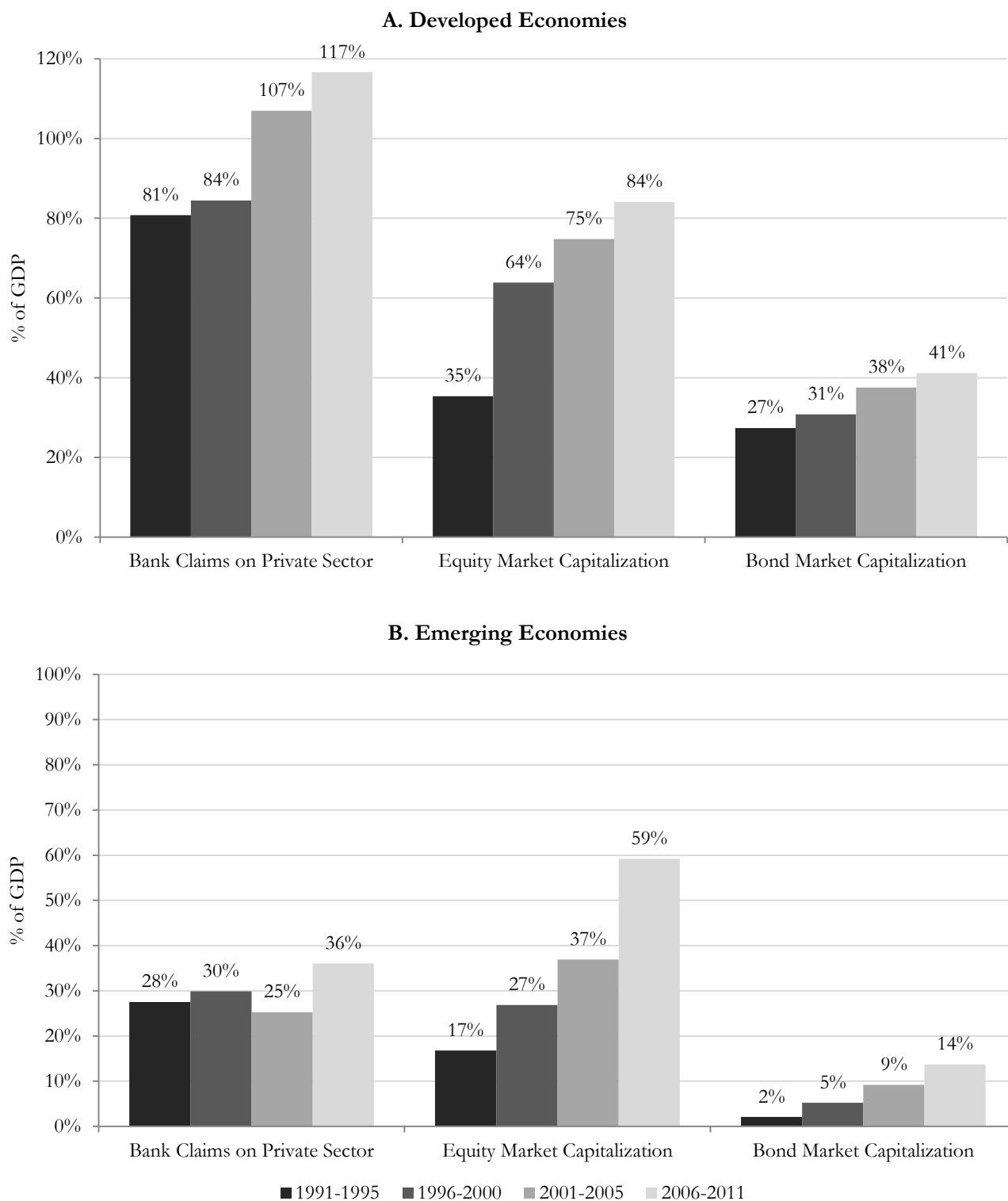


- Haltiwanger, J., Jarmin, R., Miranda, J., 2013. Who creates jobs? Small versus large versus young. *Review of Economics and Statistics* 95(2), 347-361.
- Harris, M., Raviv, A., 1991. The theory of capital structure. *Journal of Finance* 46(1), 297-355.
- Hart, O., 1995. *Firms Contracts and Financial Structure*. New York: Oxford University Press.
- Henderson, B.J., Jegadeesh, N., Weisbach, M., 2006. World markets for raising new capital. *Journal of Financial Economics* 82(1), 63-101.
- Henry, P.B., 2000. Stock market liberalization, economic reform, and emerging market equity prices. *Journal of Finance* 55(2), 529-564.
- Hertzel, M., Li, Z., 2010. Behavioral and rational explanations of stock price performance around SEOs: evidence from a decomposition of market-to-book ratios. *Journal of Financial and Quantitative Analysis* 45(4), 935-958.
- Holmström, B., Tirole, J., 1993. Market liquidity and performance monitoring. *Journal of Political Economy* 101(4), 678-709.
- Hovakimian, A., Opler, T., Titman, S., 2001. The debt-equity choice. *Journal of Financial and Quantitative Analysis* 36(1), 1-24.
- Hovakimian, A., Hovakimian, G., Tehranian, H., 2004. Determinants of target capital structure: the case of dual debt and equity issues. *Journal of Financial Economics* 71(1), 517-540.
- Hsieh, C.T., Klenow, P., 2014. The life cycle of plants in India and Mexico. *Quarterly Journal of Economics* 129(3), 1035-1084.
- Ijiri, Y., Simon, H., 1964. Business firm growth and size. *American Economic Review* 54(2), 77-89.
- Jensen, M., 1986. Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review* 26(1) 323-329.
- Jensen, M., Meckling, W., 1976. Theory of the firm: managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics* 3(4), 305-360.
- Karolyi, A., 2006. The world of cross-listings and cross-listings of the world: challenging conventional wisdom. *Review of Finance* 10(1), 99-152.
- Kim, W., Weisbach, M., 2008. Motivations for public equity offers: an international perspective. *Journal of Financial Economics* 87(3), 281-307.
- Leary, M., Roberts, M., 2010. The pecking order, debt capacity, and information asymmetry. *Journal of Financial Economics* 95(3), 332-355.
- Lemmon, M., Zender, J., 2010. Debt capacity and tests of capital structure theories. *Journal of Financial and Quantitative Analysis* 45(5), 1161-1187.
- Levine, R., 1992. Financial structures and economic development. *World Bank Policy Research Working Paper Series No. 849*.
- Levine, R., 2002. Bank-based or market-based financial systems: which is better? *Journal of Financial Intermediation* 11(4), 398-428.
- Levine, R., 2005. Finance and growth: theory and evidence. In *Handbook of Economic Growth*. Vol. 1A, P. Aghion and S. Durlauf (eds.), 865-934. Amsterdam: Elsevier.
- Levine, R., Zervos, S., 1996. Stock market development and long-run growth. *World Bank Economic Review* 10(2), 323-39.

- Levine, R., Zervos, S., 1998. Stock markets, banks, and economic growth. *American Economic Review* 88(3), 559-586.
- Luttmer, E.G.J., 2011. On the mechanics of firm growth. *Review of Economic Studies* 78(3), 1042-1068.
- Mansfield, E., 1962. Entry, Gibrat's law, innovation, and the growth of firms. *American Economic Review* 52(5), 1023-1051.
- McConnell, J., Servaes, H., 1995. Equity ownership and the two faces of debt. *Journal of Financial Economics* 39(1), 131-157.
- Midrigan, V., Xu, D., 2014. Finance and misallocation: evidence from plant-level data. *American Economic Review* 104(2), 422-58.
- Mitton, T., 2008. Institutions and concentration. *Journal of Development Economics* 86(2), 367-394.
- Myers, S., 1984. The capital structure puzzle. *Journal of Finance* 39(3), 575-592.
- Myers, S., 2003. Financing of corporations. In *Handbook of the Economics of Finance*. Vol. 1A, G. Constantinides, M. Harris, and R. Stulz (eds.), 215-253. Amsterdam: Elsevier.
- Myers, S., Majluf, N., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13(2), 187-221.
- Obstfeld, M., 1994. Risk-taking, global diversification, and growth. *American Economic Review* 84(5), 1310-1329.
- Simon, H., Bonini, C., 1958. The size distribution of business firms. *American Economic Review* 48(4), 607-617.
- Shen, C. H.H., 2014. Pecking order, access to public debt market, and information asymmetry. *International Review of Economics and Finance* 29, 291-306.
- Shin, H., 2014. Complexity and funding stability. Presentation at the OFR-FSOC Third Annual Conference.
- Shin, H., Zhao, L., 2013. Firms as surrogate intermediaries: evidence from emerging economies. Princeton University, mimeo.
- Stulz, R., 1990. Managerial discretion and optimal financing policies. *Journal of Financial Economics* 26(1), 3-27.
- Welch, I., 2014. Capital structure and stock returns. *Journal of Political Economy* 112(1), 106-131.

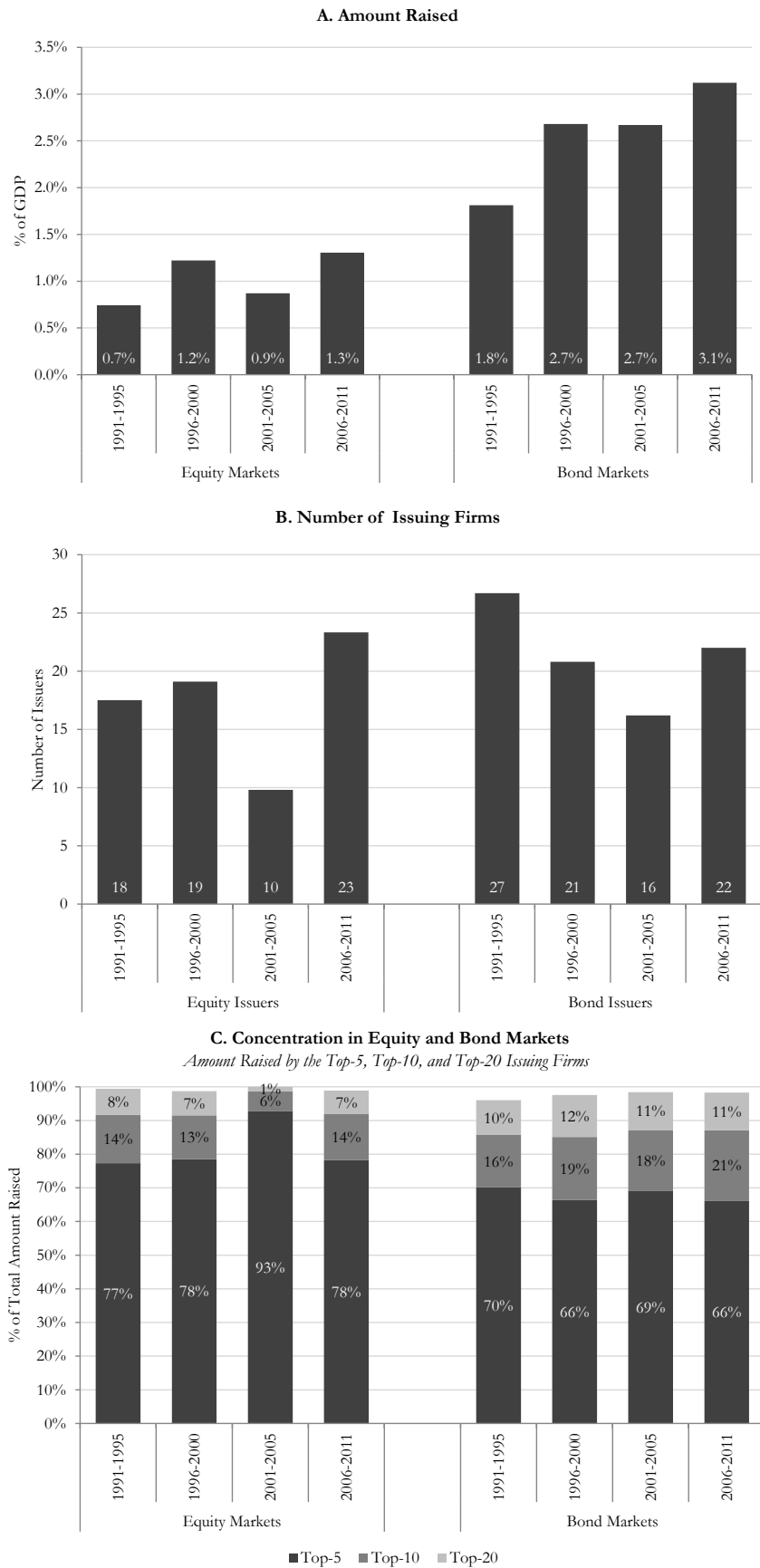
**FIGURE 1. SIZE OF FINANCIAL SYSTEMS**

This figure shows claims on the private sector (credit) by deposit money banks (and other financial institutions), domestic equity market capitalization, and private bond market capitalization as a percentage of GDP between 1991 and 2011. The measures for each type of financial market are calculated as the median across countries of the average across years for each country. The data source is the Financial Development and Structure database of the World Bank.



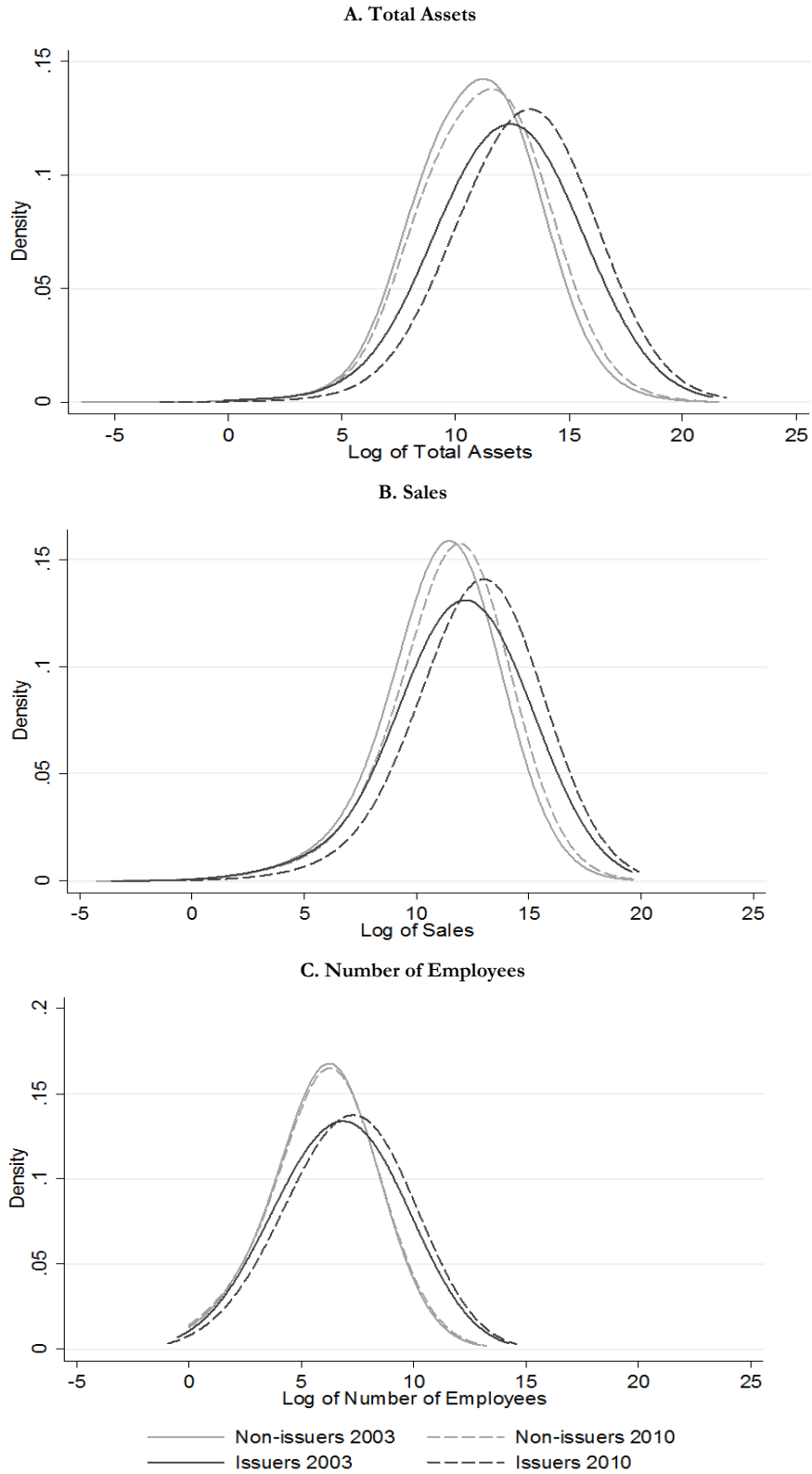
**FIGURE 2. ISSUANCE ACTIVITY**

This figure shows in panel A the median amount raised in equity and bond markets as a percentage of GDP. Panel B shows the median number of issuing firms per year in equity and bond markets. Panel C shows the median amount raised by the top-5, top-10, and top-20 issuers as a percentage of the total amount raised. All the measures are calculated as the median across countries of the average across years by country. The data on bonds for China and India are available only for the period 2000-2011.



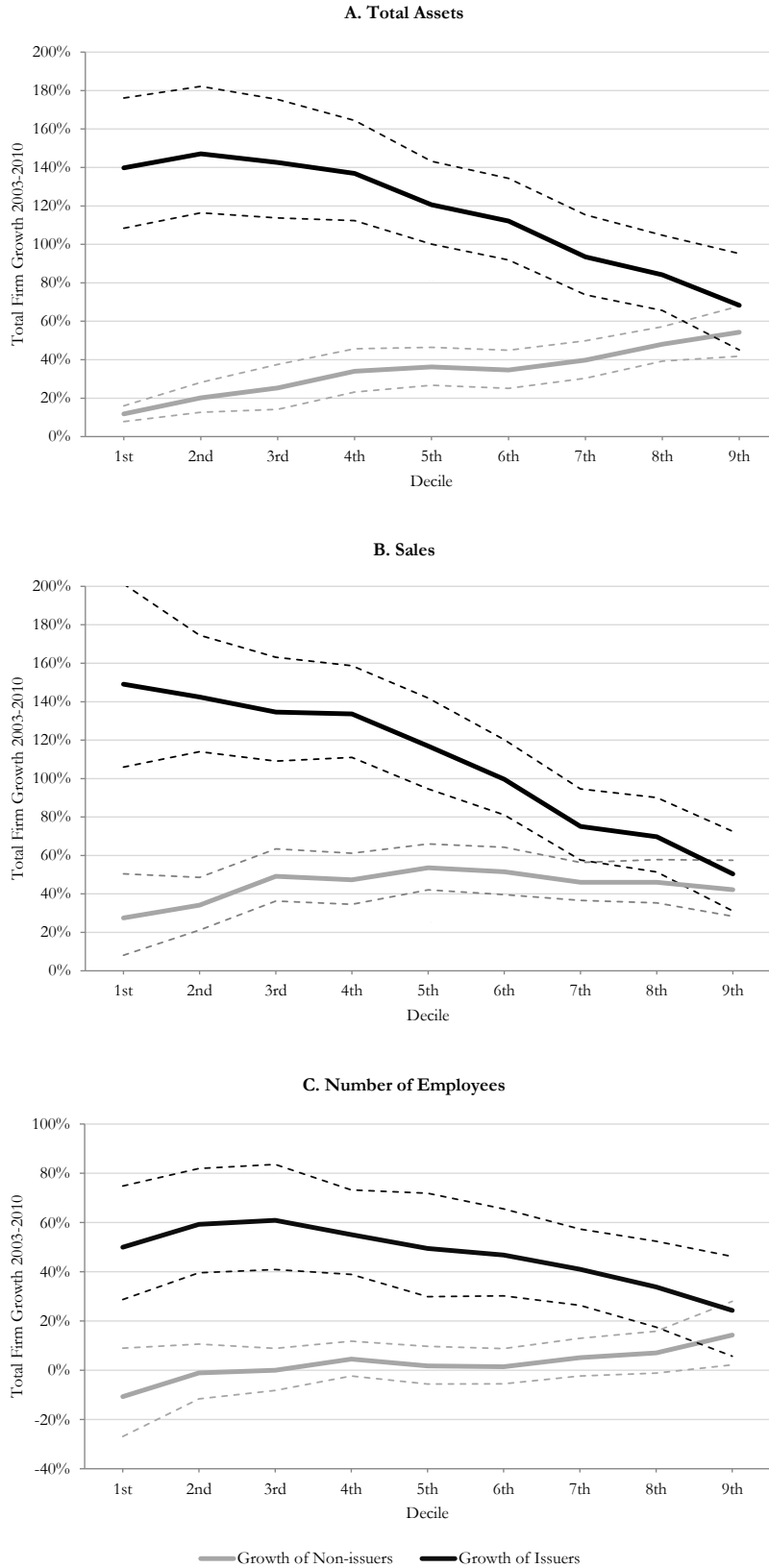
**FIGURE 3. FIRM SIZE DISTRIBUTION**

This figure shows the estimated kernel distributions for firm size for issuing and non-issuing firms in 2003 and 2010. Panel A uses the log of total assets as a proxy for size, whereas panels B and C use the log of sales and the log of the number of employees, respectively. Issuing firms are those that raised capital through equity or bonds between 2003 and 2010. Firms that issued equity or bonds only in 2011 are excluded from this figure. Non-issuers are the other firms in our sample. Only firms with data in both 2003 and 2010 are included in this figure. The kernel type used is a Gaussian with a band-width of 1.5.



**FIGURE 4. QUANTILE REGRESSION ESTIMATES**

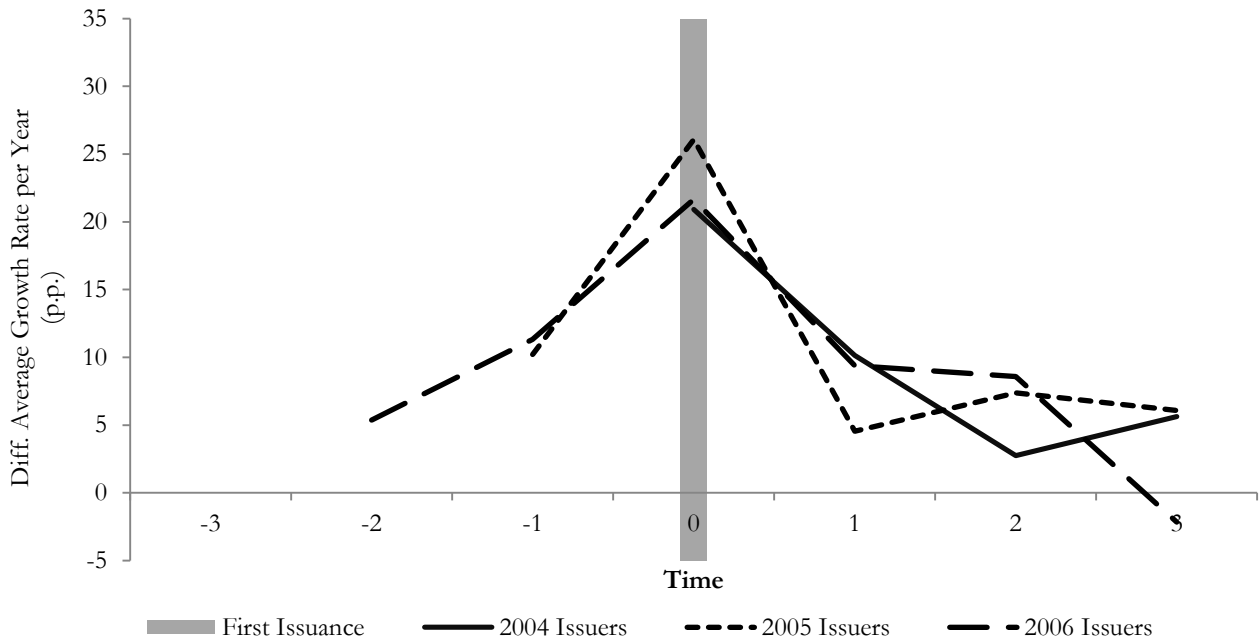
This figure shows the total growth rates between 2003 and 2010 implied by the estimated quantile regression coefficients for each decile of the distribution of firm size. Dashed lines represent confidence intervals at the 95% statistical confidence level. Issuing firms are those that raised capital through equity or bonds between 2003 and 2010. Firms that issued only in 2011 are excluded from this figure. Non-issuers are the other firms in our sample.



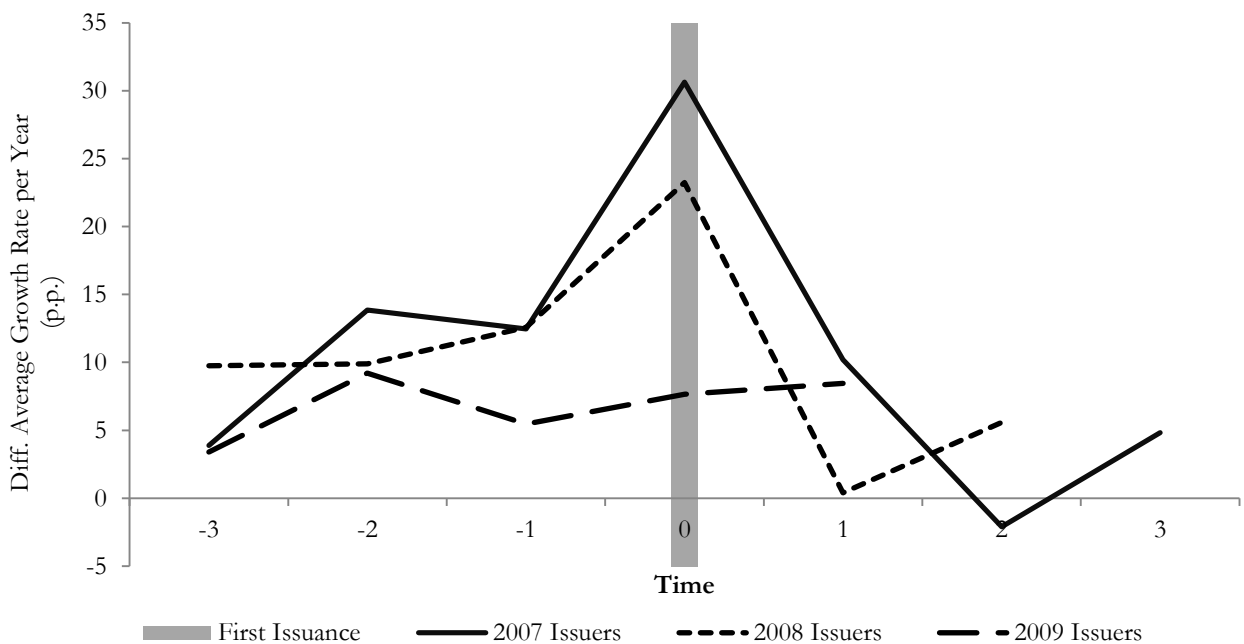
### FIGURE 5. EVENT STUDIES

This figure shows the difference (in percentage points, p.p.) in the average annual growth rate of total assets for issuers relative to non-issuers for the 2003-2010 period. Time 0 represents the year of the first issuance for issuing firms. Issuing firms are those that raised capital through equity or bonds between 2003 and 2010. Firms that issued only in 2011 are excluded from this figure. Non-issuers are the other firms in our sample.

#### A. 2004-2006 Issuers vs. Non-issuers



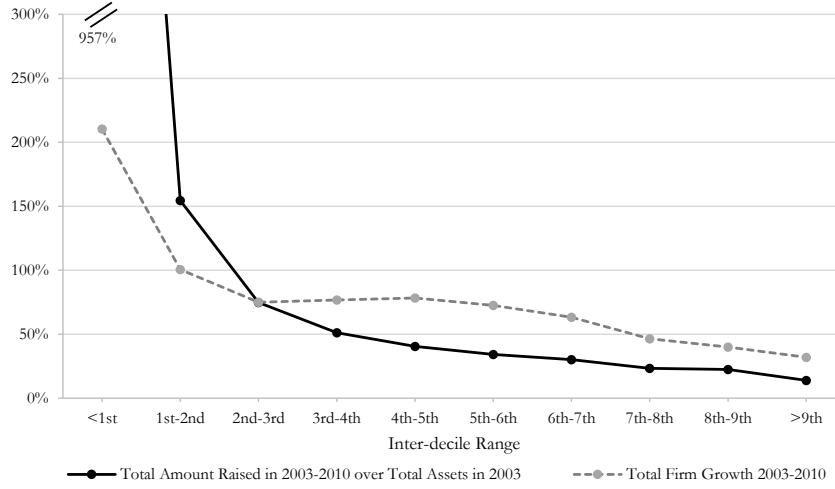
#### B. 2007-2009 Issuers vs. Non-issuers



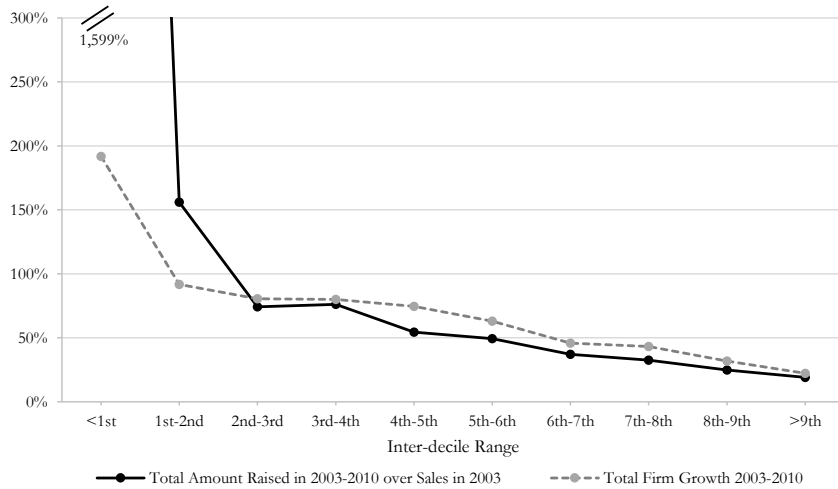
**FIGURE 6. CAPITAL RAISED AND FIRM GROWTH**

This figure shows the median of the ratio of the total amount raised during 2003-2010 over firm size (in 2003) and the median of firm total growth during 2003-2010 for each decile of the firm size distribution. The reported statistics are calculated for issuing firms only. Issuing firms are those that raised capital through equity or bonds between 2003 and 2010. Firms that issued only in 2011 are excluded from this figure.

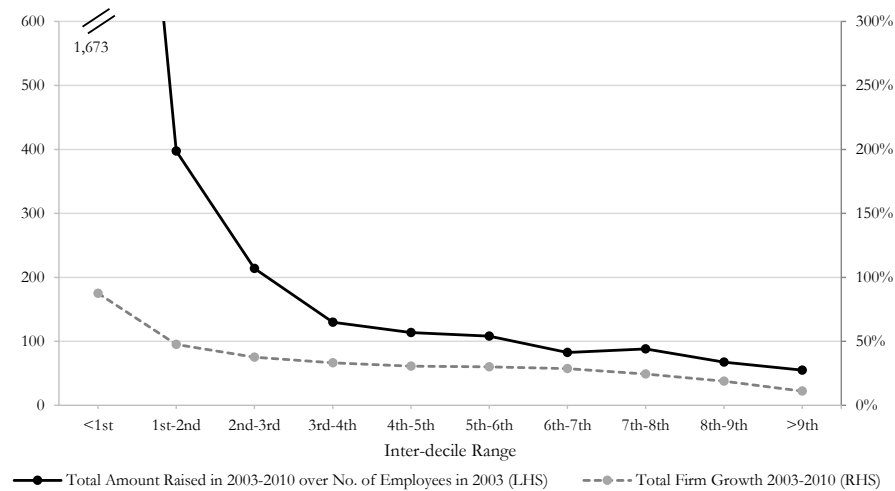
**A. Total Assets**



**B. Sales**



**C. Number of Employees**





**TABLE 1. FIRM CHARACTERISTICS**

This table reports the median firm attributes for the 2003-2011 period. The firm attributes are calculated as the median across countries of the median firm per country. The firm-level data are averages across time per firm. The table also reports the statistical significance of median tests for each group (in the different columns) vs. non-issuers (in the first column). Issuing firms are those with at least one capital raising issuance between 2003 and 2011. Non-issuing firms are those that did not issue during this period. Firms classified as domestic issuers did not have any issuances abroad. Firms classified as foreign issuers could also have domestic issuances. Total assets and sales are reported in thousands of 2011 U.S. dollars. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

	<u>Non-issuers</u>	<u>Issuers</u>	<u>Equity Issuers</u>	<u>Bond Issuers</u>	<u>Domestic Equity Issuers</u>	<u>Domestic Bond Issuers</u>	<u>Foreign Equity Issuers</u>	<u>Foreign Bond Issuers</u>
<b>Total Assets</b>	99,823	316,528 ***	255,701 ***	3,685,394 ***	230,066 ***	1,487,168 ***	318,051 ***	4,905,160 ***
<b>Sales</b>	73,700	132,457 ***	114,015 **	1,011,641 ***	120,982 ***	531,643 ***	105,485 **	1,466,253 ***
<b>Number of Employees</b>	327	705 ***	470 ***	3,080 ***	474 ***	2,029 ***	1,300 ***	4,746 ***
<b>Asset Growth</b>	4.31%	9.29% ***	10.48% ***	9.43% ***	10.05% ***	10.09% ***	11.04% ***	8.87% ***
<b>Sales Growth</b>	5.48%	9.37% ***	9.48% ***	8.68% ***	9.07% ***	9.45% ***	11.80% ***	7.44% ***
<b>Employee Growth</b>	0.87%	4.44% ***	4.97% ***	4.18% ***	4.56% ***	3.73% ***	6.46% ***	4.25% ***
<b>Leverage</b>	49.36%	55.33% ***	54.18% ***	60.55% ***	54.35% ***	61.50% ***	53.66%	60.40% ***
<b>Long-term Debt/Total Liabilities</b>	14.75%	22.48% ***	21.50% ***	36.29% ***	20.01% ***	33.26% ***	19.96% ***	39.53% ***
<b>Retained Earnings/Total Assets</b>	5.56%	6.05% **	4.42% **	8.64% **	4.38% **	9.01%	3.65%	10.45% **
<b>ROA</b>	3.66%	3.59%	3.06% **	4.00%	3.07% **	3.46%	2.86% **	3.61%
<b>Firm Age (in 2011)</b>	26	20 ***	19 ***	32	19 ***	25	17 ***	35
<b>Number of Firms</b>	27,185	18,342	16,198	4,877	14,849	3,192	1,349	1,859
<b>Percentage of Total Firms</b>	59.71%	40.29%	35.58%	10.71%	32.62%	7.01%	2.96%	4.08%
<b>No. of Observations for Total Assets</b>	191,616	133,869	116,268	40,059	106,712	25,936	9,556	15,347

**TABLE 2. PROBABILITY OF CAPITAL RAISING ACTIVITY**

This table shows the marginal effects of Probit estimates of the probability of capital raising activity during the 2005-2011 period as a function of firm attributes in 2004. The first three columns use different measures for firm size and growth. Issuing firms that only issued in 2003 and/or 2004 are dropped from the sample in this table. Total assets and sales are in logs of thousands of 2011 U.S. dollars. Robust standard errors are reported in brackets. \*, \*\*, and \*\*\* indicate statistical significance at 10%, 5%, and 1%, respectively.

	<u>All Issuers</u>	<u>All Issuers</u>	<u>All Issuers</u>	<u>Equity Issuers</u>	<u>Bond Issuers</u>	<u>Domestic Equity Issuers</u>	<u>Domestic Bond Issuers</u>	<u>Foreign Equity Issuers</u>	<u>Foreign Bond Issuers</u>
	<i>Total Assets</i>	<i>Sales</i>	<i>Number of Employees</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>
<b>Proxy for Firm Size and Growth</b>									
<b>Independent Variables</b>									
Size	0.0660 *** [0.002]	0.0502 *** [0.002]	0.0461 *** [0.003]	0.0105 *** [0.002]	0.0739 *** [0.002]	0.0305 *** [0.002]	0.0633 *** [0.002]	0.0058 *** [0.001]	0.0299 *** [0.002]
Growth	0.0010 *** [0.000]	0.0005 *** [0.000]	0.0009 *** [0.000]	0.0010 *** [0.000]	0.0003 *** [0.000]	0.0009 *** [0.000]	0.0006 *** [0.000]	0.0002 *** [0.000]	0.0001 *** [0.000]
Leverage	0.0002 ** [0.000]	0.0000 [0.000]	-0.0001 [0.000]	0.0000 [0.000]	0.0001 *** [0.000]	0.0001 * [0.000]	0.0001 ** [0.000]	-0.0001 * [0.000]	0.0001 *** [0.000]
Long-term Debt/Total Liabilities	0.0025 *** [0.000]	0.0037 *** [0.000]	0.0046 *** [0.000]	0.0021 *** [0.000]	0.0013 *** [0.000]	0.0024 *** [0.000]	0.0015 *** [0.000]	0.0001 [0.000]	0.0008 *** [0.000]
ROA	-0.0040 *** [0.000]	-0.0037 *** [0.000]	-0.0039 *** [0.000]	-0.0036 *** [0.000]	-0.0018 *** [0.000]	-0.0036 *** [0.000]	-0.0025 *** [0.000]	-0.0006 *** [0.000]	-0.0003 [0.000]
<b>Country Dummies</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>No. of Observations</b>	16,177	15,290	10,840	16,177	15,966	14,430	10,462	8,551	10,009
<b>Predicted Probability</b>	43.3%	43.8%	46.5%	33.9%	18.4%	35.0%	17.6%	5.0%	10.5%



**TABLE 4. TOTAL GROWTH DIFFERENTIAL AND INTER-QUANTILE EQUALITY TESTS**

This table reports the total growth differential between selected deciles (in percentage points) implied by the coefficient estimates shown in Table 3, separately for non-issuing firms, issuing firms, and the relative growth between issuing and non-issuing firms. The table also reports the statistical significance of inter-quantile equality tests. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively. D1 denotes the 1<sup>st</sup> decile, D2 the 2<sup>nd</sup> decile, and so forth.

<b>A. Total Assets (Percentage Points)</b>					
	<b>D5-D1</b>	<b>D6-D2</b>	<b>D7-D3</b>	<b>D8-D4</b>	<b>D9-D5</b>
<b>Growth of Non-issuers</b>	24.4 ***	14.4 ***	14.5 **	14.0 **	18.1 ***
<b>Growth of Issuers</b>	-19.2	-35.0 **	-49.1 ***	-52.7 ***	-52.3 ***
<b>Growth of Issuers Minus Growth of Non-issuers</b>	-52.5 ***	-48.1 ***	-55.2 ***	-52.3 ***	-52.9 ***
<b>B. Sales (Percentage Points)</b>					
	<b>D5-D1</b>	<b>D6-D2</b>	<b>D7-D3</b>	<b>D8-D4</b>	<b>D9-D5</b>
<b>Growth of Non-issuers</b>	26.1 **	17.3 **	-3.1	-1.2	-11.4
<b>Growth of Issuers</b>	-32.2	-42.7 ***	-59.5 ***	-63.9 ***	-66.5 ***
<b>Growth of Issuers Minus Growth of Non-issuers</b>	-54.1 ***	-48.7 ***	-37.4 ***	-42.5 ***	-35.6 ***
<b>C. Number of Employees (Percentage Points)</b>					
	<b>D5-D1</b>	<b>D6-D2</b>	<b>D7-D3</b>	<b>D8-D4</b>	<b>D9-D5</b>
<b>Growth of Non-issuers</b>	12.5	2.5	5.1	2.5	12.5 *
<b>Growth of Issuers</b>	-0.5	-12.5	-19.9 *	-21.3 **	-25.2 **
<b>Growth of Issuers Minus Growth of Non-issuers</b>	-21.1	-16.3	-26.7 **	-23.4 **	-38.2 ***

**TABLE 5. 2003-2010 GROWTH AS A FUNCTION OF INITIAL SIZE**

This table reports mean regressions of total firm growth between 2003 and 2010 on a dummy that equals one for companies that issued between 2003 and 2010, and zero otherwise. Firms that issued only in 2011 are excluded from this table. The regressions are estimated separately for each decile of the distribution of firm size according to their size in 2003. The deciles are calculated by pooling all countries together. Mean regressions for the whole sample of firms are reported in the last column of each panel. Robust standard errors are reported in brackets. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

<b>A. Total Assets</b>											
	<b>Inter-decile Range</b>										<b>All Firms</b>
	<b>&lt;1st</b>	<b>1st-2nd</b>	<b>2nd-3rd</b>	<b>3rd-4th</b>	<b>4th-5th</b>	<b>5th-6th</b>	<b>6th-7th</b>	<b>7th-8th</b>	<b>8th-9th</b>	<b>&gt;9th</b>	
<b>Issuer Dummy</b>	1.233 *** [0.160]	0.820 *** [0.105]	0.695 *** [0.081]	0.495 *** [0.058]	0.453 *** [0.047]	0.550 *** [0.041]	0.460 *** [0.037]	0.401 *** [0.032]	0.300 *** [0.030]	0.168 *** [0.034]	0.483 *** [0.017]
<b>Country Fixed Effects</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>No. of Observations</b>	2,379	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,379	23,798
<b>R-squared</b>	0.20	0.16	0.13	0.12	0.14	0.16	0.16	0.18	0.21	0.21	0.09
<b>B. Sales</b>											
	<b>Inter-decile Range</b>										<b>All Firms</b>
	<b>&lt;1st</b>	<b>1st-2nd</b>	<b>2nd-3rd</b>	<b>3rd-4th</b>	<b>4th-5th</b>	<b>5th-6th</b>	<b>6th-7th</b>	<b>7th-8th</b>	<b>8th-9th</b>	<b>&gt;9th</b>	
<b>Issuer Dummy</b>	1.429 *** [0.157]	0.652 *** [0.080]	0.463 *** [0.069]	0.560 *** [0.058]	0.435 *** [0.056]	0.429 *** [0.049]	0.392 *** [0.043]	0.303 *** [0.040]	0.229 *** [0.042]	0.041 [0.035]	0.436 *** [0.021]
<b>Country Fixed Effects</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>No. of Observations</b>	1,569	1,571	1,570	1,571	1,570	1,570	1,571	1,570	1,570	1,570	15,702
<b>R-squared</b>	0.13	0.08	0.07	0.14	0.11	0.13	0.15	0.16	0.17	0.17	0.06
<b>C. Number of Employees</b>											
	<b>Inter-decile Range</b>										<b>All Firms</b>
	<b>&lt;1st</b>	<b>1st-2nd</b>	<b>2nd-3rd</b>	<b>3rd-4th</b>	<b>4th-5th</b>	<b>5th-6th</b>	<b>6th-7th</b>	<b>7th-8th</b>	<b>8th-9th</b>	<b>&gt;9th</b>	
<b>Issuer Dummy</b>	0.518 *** [0.097]	0.398 *** [0.067]	0.282 *** [0.059]	0.292 *** [0.060]	0.263 *** [0.055]	0.335 *** [0.056]	0.317 *** [0.047]	0.370 *** [0.047]	0.208 *** [0.046]	0.190 *** [0.065]	0.290 *** [0.019]
<b>Country Fixed Effects</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>No. of Observations</b>	1,233	1,251	1,263	1,251	1,250	1,249	1,252	1,250	1,250	1,249	12,498
<b>R-squared</b>	0.08	0.14	0.11	0.16	0.09	0.13	0.14	0.14	0.11	0.09	0.05

**TABLE 6. EVENT STUDY OF FIRMS DYNAMICS AROUND ISSUANCE ACTIVITY**

This table reports panel regressions of firm attributes on a seven-year window around the capital raising issuances that took place between 2003 and 2011. The seven-year windows are captured by a dummy variable for the issuance year, three dummies for the three preceding years, and three dummies for the three subsequent years. The regressions include firms with no issuances as part of the control group. Total assets and sales are in logs of thousands of 2011 U.S. dollars; number of employees is in logs. Standard errors, shown in brackets, are clustered at the country level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

<b>A. Regressions in Levels</b>			
	<i>Total Assets</i>	<i>Sales</i>	<i>Number of Employees</i>
Issuance year - 3	0.371 ** [0.142]	0.229 [0.146]	0.220 *** [0.081]
Issuance year - 2	0.454 *** [0.163]	0.343 ** [0.152]	0.266 *** [0.084]
Issuance year - 1	0.519 *** [0.145]	0.378 *** [0.124]	0.322 *** [0.077]
Issuance year	0.939 *** [0.142]	0.627 *** [0.095]	0.622 *** [0.095]
Issuance year + 1	0.999 *** [0.144]	0.705 *** [0.099]	0.683 *** [0.103]
Issuance year + 2	1.072 *** [0.165]	0.8 *** [0.113]	0.756 *** [0.121]
Issuance year + 3	1.116 *** [0.187]	0.867 *** [0.130]	0.79 *** [0.144]
Constant	12.048 *** [0.044]	11.915 *** [0.036]	6.175 *** [0.033]
Country Fixed Effects	Yes	Yes	Yes
Country Fixed Effects x Time Trend	Yes	Yes	Yes
No. of Observations	208,676	138,365	107,247
R-squared	0.25	0.18	0.08
<b>B. Growth Regressions</b>			
	<i>Total Assets</i>	<i>Sales</i>	<i>Number of Employees</i>
Issuance year - 3	8.433 *** [0.903]	7.351 *** [1.966]	6.971 *** [0.934]
Issuance year - 2	8.002 *** [1.341]	8.894 *** [2.388]	5.021 *** [1.080]
Issuance year - 1	8.649 *** [2.058]	7.473 *** [2.282]	5.748 *** [1.073]
Issuance year	22.677 *** [3.083]	11.35 *** [1.580]	8.172 *** [0.868]
Issuance year + 1	8.193 *** [1.617]	8.762 *** [0.941]	6.53 *** [1.015]
Issuance year + 2	4.315 *** [0.716]	5.44 *** [1.244]	4.582 *** [0.483]
Issuance year + 3	4.244 *** [1.175]	5.743 *** [1.081]	3.446 *** [1.052]
Constant	3.375 *** [0.283]	5.278 *** [0.358]	2.043 *** [0.227]
Country Fixed Effects	Yes	Yes	Yes
Country Fixed Effects x Time Trend	Yes	Yes	Yes
No. of Observations	183,463	121,803	92,721
R-squared	0.03	0.01	0.01

TABLE 7. QUANTILE AND MEAN REGRESSIONS

This table reports quantile and mean regressions of total assets as a proxy for firm size on a constant, a dummy variable for 2010, a dummy variable for issuing firms, and an interaction term of these two dummies. The dependent variable pools the data on total assets at two points in time (2003 and 2010) for all firms with data in both years. Issuing firms are those that raised capital through equity (panel A) or bonds (panel B) between 2003 and 2010. Issuers are also split into domestic and foreign (panels C and D, respectively) according to whether they issued in the country of their domicile or not. Firms that issued only in 2011 are excluded from this table. See the main text for more details. Total assets are in logs of thousands of 2011 U.S. dollars. All coefficients are reported in exponential form. Standard errors, shown in brackets, are bootstrapped (using 400 replications) and clustered at the firm-level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

A. Equity Issuers						
	Quantile Regressions					Mean
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	Regression
<b>Constant</b>	3,517 ***	15,067 ***	64,710 ***	207,537 ***	893,746 ***	55,443 ***
<i>(Size of Non-issuers in 2003)</i>	[51.629]	[439]	[1,502]	[4,458]	[23,565]	[1,083]
<b>Issuer Dummy</b>	1.169 **	2.048 ***	2.046 ***	2.696 ***	5.597 ***	2.390 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[0.077]	[0.100]	[0.083]	[0.136]	[0.338]	[0.092]
<b>2010 Dummy</b>	1.118 ***	1.253 ***	1.362 ***	1.398 ***	1.543 ***	1.340 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.023]	[0.058]	[0.045]	[0.046]	[0.063]	[0.013]
<b>Issuer Dummy x 2010 Dummy</b>	2.313 ***	1.974 ***	1.729 ***	1.595 ***	1.239 **	1.746 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.182]	[0.149]	[0.101]	[0.104]	[0.103]	[0.033]
<b>Average Growth of Non-issuers</b>	1.6%	3.3%	4.5%	4.9%	6.4%	4.3%
<b>Average Growth of Issuers</b>	14.5%	13.8%	13.0%	12.1%	9.7%	12.9%
<b>No. of Observations</b>	44,302	44,302	44,302	44,302	44,302	44,302
<b>R-squared</b>						0.05
B. Bond Issuers						
	Quantile Regressions					Mean
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	Regression
<b>Constant</b>	3,517 ***	15,067 ***	64,710 ***	207,537 ***	893,746 ***	55,443 ***
<i>(Size of Non-issuers in 2003)</i>	[48]	[430]	[1,434]	[4,355]	[26,179]	[1,083]
<b>Issuer Dummy</b>	14.914 ***	31.903 ***	22.931 ***	22.989 ***	28.498 ***	22.941 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[1.874]	[1.839]	[1.107]	[1.206]	[1.923]	[1.066]
<b>2010 Dummy</b>	1.118 ***	1.253 ***	1.362 ***	1.398 ***	1.543 ***	1.340 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.023]	[0.059]	[0.047]	[0.049]	[0.069]	[0.013]
<b>Issuer Dummy x 2010 Dummy</b>	2.432 ***	1.736 ***	1.410 ***	1.231 ***	1.006	1.457 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.429]	[0.135]	[0.090]	[0.087]	[0.095]	[0.029]
<b>Average Growth of Non-issuers</b>	1.6%	3.3%	4.5%	4.9%	6.4%	4.3%
<b>Average Growth of Issuers</b>	15.4%	11.7%	9.8%	8.1%	6.5%	10.0%
<b>No. of Observations</b>	36,666	36,666	36,666	36,666	36,666	36,666
<b>R-squared</b>						0.24
C. Domestic Issuers						
	Quantile Regressions					Mean
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	Regression
<b>Constant</b>	3,517 ***	15,067 ***	64,710 ***	207,537 ***	893,746 ***	55,443 ***
<i>(Size of Non-issuers in 2003)</i>	[51]	[468]	[1,581]	[4,702]	[23,770]	[1,083]
<b>Issuer Dummy</b>	1.322 ***	2.355 ***	2.278 ***	2.862 ***	4.518 ***	2.466 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[0.080]	[0.118]	[0.102]	[0.138]	[0.288]	[0.092]
<b>2010 Dummy</b>	1.118 ***	1.253 ***	1.362 ***	1.398 ***	1.543 ***	1.340 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.024]	[0.065]	[0.050]	[0.049]	[0.061]	[0.013]
<b>Issuer Dummy x 2010 Dummy</b>	2.124 ***	1.836 ***	1.624 ***	1.402 ***	1.175 *	1.585 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.169]	[0.145]	[0.105]	[0.089]	[0.103]	[0.029]
<b>Average Growth of Non-issuers</b>	1.6%	3.3%	4.5%	4.9%	6.4%	4.3%
<b>Average Growth of Issuers</b>	13.2%	12.6%	12.0%	10.1%	8.9%	11.4%
<b>No. of Observations</b>	43,820	43,820	43,820	43,820	43,820	43,820
<b>R-squared</b>						0.05
D. Foreign Issuers						
	Quantile Regressions					Mean
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	Regression
<b>Constant</b>	3,517 ***	15,067 ***	64,710 ***	207,537 ***	893,746 ***	55,443 ***
<i>(Size of Non-issuers in 2003)</i>	[50]	[416]	[1,423]	[4,491]	[24,076]	[1,083]
<b>Issuer Dummy</b>	5.095 ***	26.234 ***	26.871 ***	29.454 ***	47.104 ***	21.326 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[0.832]	[2.822]	[2.254]	[2.379]	[4.821]	[1.656]
<b>2010 Dummy</b>	1.118 ***	1.253 ***	1.362 ***	1.398 ***	1.543 ***	1.340 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.023]	[0.056]	[0.046]	[0.050]	[0.062]	[0.013]
<b>Issuer Dummy x 2010 Dummy</b>	3.808 ***	2.199 ***	1.452 ***	1.352 ***	1.089	1.802 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.838]	[0.340]	[0.158]	[0.140]	[0.162]	[0.061]
<b>Average Growth of Non-issuers</b>	1.6%	3.3%	4.5%	4.9%	6.4%	4.3%
<b>Average Growth of Issuers</b>	23.0%	15.6%	10.2%	9.5%	7.7%	13.4%
<b>No. of Observations</b>	32,678	32,678	32,678	32,678	32,678	32,678
<b>R-squared</b>						0.16

**TABLE 8. EQUITY MARKET FINANCING: QUANTILE AND MEAN REGRESSIONS BY COUNTRY GROUP**

This table reports quantile and mean regressions of total assets as a proxy for firm size on a constant, a dummy variable for 2010, a dummy variable for issuing firms, and an interaction term of these two dummies. The dependent variable pools the data on total assets at two points in time (2003 and 2010) for all firms with data in both years. Issuing firms are those that raised capital in equity markets between 2003 and 2010. Firms that issued only in 2011 are excluded from this table. Non-issuers include firms that did not issue (equity or bonds) in our sample. The table presents separately the results for bank-based developed economies (panel A), market-based developed economies (panel B), and emerging economies (panel C). Total assets are in logs of thousands of 2011 U.S. dollars. All coefficients are reported in exponential form. Standard errors, shown in brackets, are bootstrapped (using 400 replications) and clustered at the firm-level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

A. Bank-based Developed Economies						
	Quantile Regressions					Mean Regression
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	
<b>Constant</b>	3,619 ***	7,282 ***	40,357 ***	203,765 ***	1,004,107 ***	48,504 ***
<i>(Size of Non-issuers in 2003)</i>	[45]	[221]	[2,717]	[8,393]	[44,838]	[1,542]
<b>Issuer Dummy</b>	5.047 ***	14.100 ***	8.054 ***	5.754 ***	13.335 ***	7.976 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[0.428]	[1.091]	[0.751]	[0.533]	[1.719]	[0.540]
<b>2010 Dummy</b>	1.077 ***	1.128 ***	1.129	1.143 **	1.277 ***	1.156 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.018]	[0.046]	[0.111]	[0.063]	[0.095]	[0.011]
<b>Issuer Dummy x 2010 Dummy</b>	1.537 ***	1.411 ***	1.334 **	1.307 **	1.121	1.372 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.177]	[0.153]	[0.176]	[0.176]	[0.224]	[0.032]
<b>Average Growth of Non-issuers</b>	1.1%	1.7%	1.7%	1.9%	3.6%	2.1%
<b>Average Growth of Issuers</b>	7.5%	6.9%	6.0%	5.9%	5.3%	6.8%
<b>No. of Observations</b>	14,378	14,378	14,378	14,378	14,378	14,378
<b>R-squared</b>						0.14
B. Market-based Developed Economies						
	Quantile Regressions					Mean Regression
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	
<b>Constant</b>	4,412 ***	37,321 ***	122,467 ***	348,494 ***	1,349,377 ***	91,047 ***
<i>(Size of Non-issuers in 2003)</i>	[497]	[1,728]	[4,380]	[14,300]	[62,560]	[3,544]
<b>Issuer Dummy</b>	0.477 ***	0.446 ***	0.661 ***	1.393 ***	3.183 ***	0.962
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[0.068]	[0.034]	[0.048]	[0.093]	[0.287]	[0.060]
<b>2010 Dummy</b>	1.141	1.218 ***	1.226 ***	1.364 ***	1.398 ***	1.260 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.172]	[0.086]	[0.066]	[0.080]	[0.110]	[0.027]
<b>Issuer Dummy x 2010 Dummy</b>	2.245 ***	2.309 ***	2.292 ***	1.675 ***	1.289 **	1.940 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.438]	[0.265]	[0.230]	[0.155]	[0.164]	[0.066]
<b>Average Growth of Non-issuers</b>	1.9%	2.9%	3.0%	4.5%	4.9%	3.4%
<b>Average Growth of Issuers</b>	14.4%	15.9%	15.9%	12.5%	8.8%	13.6%
<b>No. of Observations</b>	16,890	16,890	16,890	16,890	16,890	16,890
<b>R-squared</b>						0.02
C. Emerging Economies						
	Quantile Regressions					Mean Regression
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	
<b>Constant</b>	2,627 ***	16,560 ***	47,911 ***	136,635 ***	464,069 ***	41,041 ***
<i>(Size of Non-issuers in 2003)</i>	[166]	[587]	[2,049]	[4,803]	[20,727]	[1,238]
<b>Issuer Dummy</b>	3.023 ***	2.195 ***	2.175 ***	2.201 ***	5.259 ***	2.83 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[0.293]	[0.143]	[0.155]	[0.159]	[0.560]	[0.181]
<b>2010 Dummy</b>	1.352 ***	1.486 ***	1.696 ***	1.719 ***	2.254 ***	1.67 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.140]	[0.080]	[0.098]	[0.079]	[0.138]	[0.028]
<b>Issuer Dummy x 2010 Dummy</b>	1.761 ***	1.776 ***	1.937 ***	2.402 ***	1.589 ***	1.89 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.266]	[0.199]	[0.197]	[0.263]	[0.235]	[0.061]
<b>Average Growth of Non-issuers</b>	4.4%	5.8%	7.8%	8.0%	12.3%	7.6%
<b>Average Growth of Issuers</b>	13.2%	14.9%	18.5%	22.5%	20.0%	17.8%
<b>No. of Observations</b>	13,034	13,034	13,034	13,034	13,034	13,034
<b>R-squared</b>						0.09



**TABLE 9. BOND MARKET FINANCING: QUANTILE AND MEAN REGRESSIONS BY COUNTRY GROUP**

This table reports quantile and mean regressions of total assets as a proxy for firm size on a constant, a dummy variable for 2010, a dummy variable for issuing firms, and an interaction term of these two dummies. The dependent variable pools the data on total assets at two points in time (2003 and 2010) for all firms with data in both years. Issuing firms are those that raised capital through bonds markets between 2003 and 2010. Firms that issued only in 2011 are excluded from this table. Non-issuers include firms that did not issue (equity or bonds) in our sample. The table presents separate results for bank-based developed economies (panel A), market-based developed economies (panel B), and emerging economies (panel C). Total assets are in logs of thousands of 2011 U.S. dollars. All coefficients are reported in exponential form. Standard errors, shown in brackets, are bootstrapped (using 400 replications) and clustered at the firm-level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

<b>A. Bank-based Developed Economies</b>						
	Quantile Regressions					Mean Regression
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	
<b>Constant</b>	3,619 ***	7,282 ***	40,357 ***	203,765 ***	1,004,107 ***	48,504 ***
<i>(Size of Non-issuers in 2003)</i>	[44]	[225]	[2,686]	[8,397]	[43,122]	[1,542]
<b>Issuer Dummy</b>	43.598 ***	138.941 ***	74.131 ***	47.308 ***	46.558 ***	59.753 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[5.424]	[13.091]	[7.770]	[5.944]	[5.784]	[4.810]
<b>2010 Dummy</b>	1.077 ***	1.128 ***	1.129	1.143 **	1.277 ***	1.156 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.018]	[0.050]	[0.120]	[0.066]	[0.094]	[0.011]
<b>Issuer Dummy x 2010 Dummy</b>	1.098	1.092	1.227	1.308	1.097	1.183 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.232]	[0.136]	[0.193]	[0.222]	[0.211]	[0.026]
<b>Average Growth of Non-issuers</b>	1.1%	1.7%	1.7%	1.9%	3.6%	2.1%
<b>Average Growth of Issuers</b>	2.4%	3.0%	4.8%	5.9%	4.9%	4.6%
<b>No. of Observations</b>	12,686	12,686	12,686	12,686	12,686	12,686
<b>R-squared</b>						0.29
<b>B. Market-based Developed Economies</b>						
	Quantile Regressions					Mean Regression
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	
<b>Constant</b>	4,412 ***	37,321 ***	122,467 ***	348,494 ***	1,349,377 ***	91,047 ***
<i>(Size of Non-issuers in 2003)</i>	[485]	[1,629]	[4,429]	[14,027]	[58,020]	[3,544]
<b>Issuer Dummy</b>	4.016 ***	14.460 ***	13.498 ***	13.645 ***	18.814 ***	12.010 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[0.896]	[1.485]	[1.022]	[0.996]	[1.832]	[0.900]
<b>2010 Dummy</b>	1.141	1.218 ***	1.226 ***	1.364 ***	1.398 ***	1.260 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.166]	[0.087]	[0.069]	[0.083]	[0.102]	[0.027]
<b>Issuer Dummy x 2010 Dummy</b>	2.636 ***	1.509 ***	1.358 ***	1.171	0.976	1.470 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.844]	[0.202]	[0.131]	[0.121]	[0.123]	[0.051]
<b>Average Growth of Non-issuers</b>	1.9%	2.9%	3.0%	4.5%	4.9%	3.4%
<b>Average Growth of Issuers</b>	17.0%	9.1%	7.6%	6.9%	4.5%	9.2%
<b>No. of Observations</b>	12,764	12,764	12,764	12,764	12,764	12,764
<b>R-squared</b>						0.18
<b>C. Emerging Economies</b>						
	Quantile Regressions					Mean Regression
	1st Decile	3rd Decile	5th Decile	7th Decile	9th Decile	
<b>Constant</b>	2,627 ***	16,560 ***	47,911 ***	136,635 ***	464,069 ***	41,041 ***
<i>(Size of Non-issuers in 2003)</i>	[152]	[618]	[2,035]	[4,660]	[20,065]	[1,238]
<b>Issuer Dummy</b>	29.856 ***	16.023 ***	13.952 ***	12.442 ***	17.063 ***	17.430 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[3.836]	[1.198]	[1.458]	[1.311]	[2.234]	[1.276]
<b>2010 Dummy</b>	1.352 ***	1.486 ***	1.696 ***	1.719 ***	2.254 ***	1.673 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.135]	[0.084]	[0.092]	[0.081]	[0.136]	[0.028]
<b>Issuer Dummy x 2010 Dummy</b>	2.467 ***	2.359 ***	1.984 ***	1.997 ***	1.374 *	1.997 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.540]	[0.263]	[0.276]	[0.297]	[0.261]	[0.072]
<b>Average Growth of Non-issuers</b>	4.4%	5.8%	7.8%	8.0%	12.3%	7.6%
<b>Average Growth of Issuers</b>	18.8%	19.6%	18.9%	19.3%	17.5%	18.8%
<b>No. of Observations</b>	11,216	11,216	11,216	11,216	11,216	11,216
<b>R-squared</b>						0.24

**TABLE 10. MEAN REGRESSIONS CONTROLLING FOR FIRM AGE**

This table reports in panel A mean regressions of firm size on a constant, a dummy variable for 2010, a dummy variable for issuing firms, an interaction term of these two dummies, and a variable for firm age. The dependent variable pools the data on firm size at two points in time (2003 and 2010) for all firms with data in both years. All coefficients in this panel are reported in exponential form. Panel B reports regressions of firm growth between 2003 and 2010 on a dummy variable for issuing firms, a variable for firm age, and a variable for firm size in 2003. All regressions in this panel include country fixed effects. For both panels in this table, the issuer dummy equals one for companies that issued between 2003 and 2010, and zero otherwise. Firms that issued only in 2011 are excluded from the sample. The headings in each column indicate the type of issuer and the proxy for firm size used in the regression estimates. Total assets and sales are in logs of thousands of 2011 U.S. dollars; number of employees is in logs. Robust standard errors, shown in brackets, are clustered at firm level. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1%, respectively.

	A. Regressions in Levels								
	Whole Sample			Bank-based Developed Economies		Market-based Developed Economies		Emerging Economies	
	All Issuers	All Issuers	All Issuers	Equity Issuers	Bond Issuers	Equity Issuers	Bond Issuers	Equity Issuers	Bond Issuers
<b>Proxy for Firm Size</b>	<i>Total Assets</i>	<i>Sales</i>	<i>Number of Employees</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>
<b>Constant</b>	18,650 ***	24,736 ***	207 ***	13,062 ***	13,732 ***	27,150 ***	33,395 ***	31,309 ***	34,955 ***
<i>(Size of Non-issuers in 2003)</i>	[556]	[1,037]	[7]	[740]	[838]	[1,609]	[1,951]	[1,568]	[1,681]
<b>Issuer Dummy</b>	3.642 ***	2.396 ***	2.027 ***	5.165 ***	23.018 ***	1.267 ***	11.964 ***	2.792 ***	15.905 ***
<i>(Relative Size of Issuers vs. Non-issuers in 2003)</i>	[0.124]	[0.093]	[0.081]	[0.340]	[2.192]	[0.078]	[0.883]	[0.177]	[1.146]
<b>2010 Dummy</b>	1.328 ***	1.424 ***	1.024 *	1.151 ***	1.151 ***	1.231 ***	1.231 ***	1.668 ***	1.668 ***
<i>(Total Growth of Non-issuers between 2003 and 2010)</i>	[0.013]	[0.021]	[0.013]	[0.011]	[0.011]	[0.028]	[0.028]	[0.028]	[0.028]
<b>Issuer Dummy x 2010 Dummy</b>	1.638 ***	1.467 ***	1.413 ***	1.376 ***	1.185 ***	2.001 ***	1.497 ***	1.887 ***	2.023 ***
<i>(Relative Total Growth of Issuers vs. Non-issuers)</i>	[0.028]	[0.032]	[0.026]	[0.033]	[0.026]	[0.070]	[0.054]	[0.061]	[0.072]
<b>Firm Age (in 2011)</b>	1.029 ***	1.024 ***	1.015 ***	1.034 ***	1.033 ***	1.028 ***	1.023 ***	1.009 ***	1.006 ***
	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]	[0.001]	[0.001]	[0.001]	[0.001]
<b>No. of Observations</b>	46,048	30,634	23,944	14,156	12,508	15,892	11,938	12,794	10,976
<b>R-squared</b>	0.22	0.15	0.10	0.39	0.50	0.12	0.27	0.10	0.24

	B. Growth Regressions								
	Whole Sample			Bank-based Developed Economies		Market-based Developed Economies		Emerging Economies	
	All Issuers	All Issuers	All Issuers	Equity Issuers	Bond Issuers	Equity Issuers	Bond Issuers	Equity Issuers	Bond Issuers
<b>Proxy for Firm Growth</b>	<i>Total Assets</i>	<i>Sales</i>	<i>Number of Employees</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>	<i>Total Assets</i>
<b>Issuer Dummy</b>	0.637 ***	0.569 ***	0.368 ***	0.350 ***	0.319 ***	0.712 ***	0.772 ***	0.786 ***	1.021 ***
	[0.019]	[0.022]	[0.019]	[0.026]	[0.031]	[0.035]	[0.047]	[0.034]	[0.063]
<b>Firm Age (in 2011)</b>	0.000 *	0.000	-0.001 ***	0.000	0.000	0.001 **	0.000	0.001	0.001
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]	[0.001]
<b>Total Assets in 2003</b>	-0.135 ***			-0.064 ***	-0.051 ***	-0.179 ***	-0.142 ***	-0.105 ***	-0.109 ***
	[0.007]			[0.008]	[0.009]	[0.011]	[0.013]	[0.018]	[0.022]
<b>Total Sales in 2003</b>		-0.171 ***							
		[0.009]							
<b>Total Number of Employees in 2003</b>			-0.102 ***						
			[0.006]						
<b>Country Fixed Effects</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>No. of Observations</b>	23,024	15,317	11,972	7,078	6,254	7,946	5,969	6,397	5,488
<b>R-squared</b>	0.15	0.15	0.10	0.11	0.09	0.16	0.11	0.12	0.12



**APPENDIX TABLE 1. COUNTRY COVERAGE**

This table reports the number of issuing and non-issuing firms per country. The table also reports the classification of countries according to their level of development (panels A, B, and C). Issuing firms are those with at least one equity or bond issuance between 2003 and 2011. Non-issuing firms are all other firms in the sample.

<b>A. Developed Bank-based Economies</b>		
<b>Country</b>	<b>Number of Firms</b>	
	<b>Non-issuing Firms</b>	<b>Issuing Firms</b>
Austria	87	54
Belgium	133	98
Cyprus	129	23
Denmark	146	85
Germany	723	410
Ireland	46	55
Israel	535	93
Italy	156	183
Japan	1,978	2,125
Netherlands	147	109
New Zealand	55	105
Norway	239	148
Poland	504	335
Portugal	67	34
Spain	3,028	91
United Arab Emirates	73	37

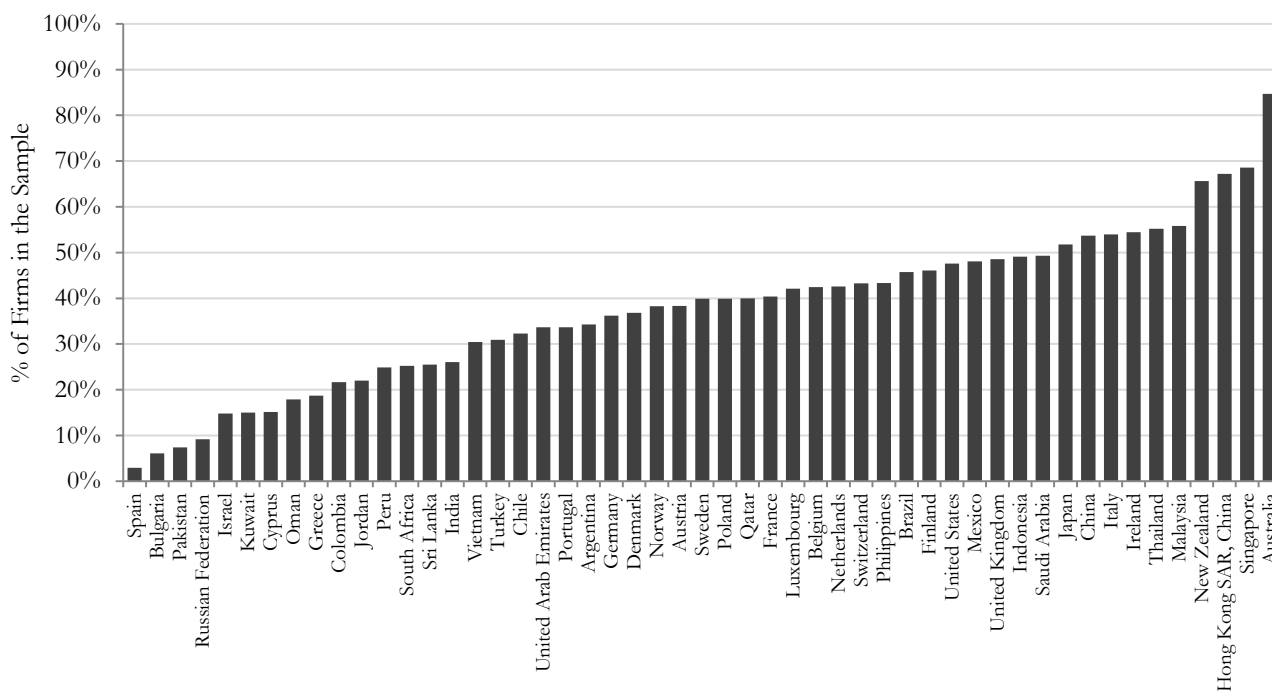
<b>B. Developed Market-based Economies</b>		
<b>Country</b>	<b>Number of Firms</b>	
	<b>Non-issuing Firms</b>	<b>Issuing Firms</b>
Australia	296	1,636
Greece	243	56
Finland	83	71
France	680	461
Hong Kong SAR, China	78	160
Kuwait	181	32
Luxembourg	44	32
Oman	110	24
Qatar	27	18
Saudi Arabia	73	71
Singapore	225	491
Sweden	423	281
Switzerland	186	142
United Kingdom	1,540	1,452
United States	4,622	4,191

<b>C. Emerging Economies</b>		
<b>Country</b>	<b>Number of Firms</b>	
	<b>Non-issuing Firms</b>	<b>Issuing Firms</b>
Argentina	71	37
Brazil	297	250
Bulgaria	402	26
Chile	172	82
China	1,268	1,471
Colombia	94	26
India	3,501	1,233
Indonesia	230	222
Jordan	202	57
Malaysia	472	596
Mexico	81	75
Pakistan	525	42
Peru	142	47
Philippines	145	111
Russian Federation	1,161	117
South Africa	285	96
Sri Lanka	187	64
Thailand	260	320
Turkey	268	120
Vietnam	565	247

### APPENDIX FIGURE 1. PERCENTAGE OF ISSUING FIRMS

This figure shows the number of issuing firms as a percentage of the number of firms in each country in the sample. Issuing firms are those with at least one equity or bond issuance between 2003 and 2011.



## Acknowledgements

The authors are grateful to Juan Jose Cortina, Matias Moretti, and Lucas Núñez for truly outstanding research assistance. We received very helpful comments from Jean-Louis Arcand, Eugenia Andreasen, Fernando Broner, Paco Buera, Eduardo Cavallo, Julian di Giovanni, Roberto Fattal-Jaef, Tomoo Kikuchi, Edith Liu, Eswar Prasad, Luis Servén, and participants at presentations held at the XVII Workshop on International Economics and Finance (San Jose, Costa Rica), Columbia University (New York, NY), Cornell University (Ithaca, NY), CREI and Universitat Pompeu Fabra (Barcelona, Spain), the Geneva Graduate Institute (Geneva, Switzerland), HKIMR, HKU, and HKUST (Hong Kong, China), the LACEALAMES Annual Meeting (Sao Paulo, Brazil), the National Institute of Public Finance and Policy (Delhi, India), Pontificia Universidad Javeriana (Bogota, Colombia), and the World Bank (Washington, DC). Generous research support came from the World Bank's Development Economics Department, Knowledge for Change Program, and the Latin America and the Caribbean (LAC) Region's Chief Economist Office. The paper was revised while Schmukler visited the Centre de Reserca en Economia Internacional (CREI) in Barcelona and the Hong Kong Institute for Monetary Research (HKIMR).

### **Tatiana Didier**

World Bank; email: [tdidier@worldbank.org](mailto:tdidier@worldbank.org)

### **Ross Levine**

University of California at Berkeley, NBER; email: [rosslevine@berkeley.edu](mailto:rosslevine@berkeley.edu)

### **Sergio L. Schmukler**

NBER; email: [sschmukler@worldbank.org](mailto:sschmukler@worldbank.org)

### **© European Systemic Risk Board, 2016**

Postal address      60640 Frankfurt am Main, Germany  
Telephone            +49 69 1344 0  
Website                [www.esrb.europa.eu](http://www.esrb.europa.eu)

All rights reserved. Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

**Note: The views expressed in ESRB Working Papers are those of the authors and do not necessarily reflect the official stance of the ESRB, its member institutions, or the institutions to which the authors are affiliated.**

ISSN                    2467-0677 (online)  
ISBN                    978-92-95081-31-4 (online)  
DOI                      10.2849/742612 (online)  
EU catalogue No      DT-AD-16-004-EN-N (online)