

Internet Appendix for
The Creation and Evolution of Entrepreneurial Public Markets

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Table of Contents

Appendix A: Case Study Summary

Appendix B: Case Study: EASDAQ

Appendix C: Case Study: ChiNext

Figure A1. Histogram of Minority Shareholder Protection.

Figure A2: Geographic Location of IPOs in the Sample.

Figure A3: Median and Mean Number of IPOs on New Exchanges.

Figure A4: Fraction of IPO Activity and Proceeds Raised in All New Exchanges.

Figure A5: Fraction of IPO Activity and Proceeds Raised in All New Exchanges, Defining New Exchanges as Those Five Years Old or Less.

Table A1: The Sample of New Exchanges.

Table A2: Description of the Requirements for Companies to List on Exchanges.

Table A3: Construction of the IPO Sample.

Table A4: Comparing the IPO Sample (1990-2011) with Doidge et al. (2013).

Table A5: Construction of Venture Capital Activity by Nation and Year.

Table A6: Number of IPOs, Country Characteristics and Shareholder Protection Index.

Table A7: Breakdown of Countries by Region.

Table A8: Shareholder Protection (Continuous Measure) and Introduction of New Second-Tier Exchanges.

Table A9: Legal Origins and the Introduction of New Second-Tier Exchanges.

Table A10: Innovation (Continuous Measures) and Introduction of New Second-Tier Exchanges.

Table A11: Financial Development (Continuous Measures) and Introduction of New Second-Tier Exchanges.

Table A12: Relationship between Incumbent First-Tier and New Second-Tier Exchanges Performance – Interaction with Shareholder Protection.

Table A13: Listing Characteristics in the First-Tier Exchanges after the Introduction of a New Second-Tier Exchange.

Table A14: Legal Origins and the Performance of New Second-Tier Exchanges.

Table A15: Shareholder Protection and the Performance of New Second-Tier Exchanges for Domestic and Foreign Companies.

Table A16: Innovation and the Performance of New Second-Tier Exchanges for Domestic and Foreign Companies.

Table A17: Financial Development and the Performance of New Second-Tier Exchanges for Domestic and Foreign Companies.

Table A18: Listing Characteristics in New Second-Tier Exchanges (Excluding ChiNext).

Table A19: Missing Observations of Firm Characteristics at the Time of the IPO.

Appendix A: Case Study Summary

In this section, we discuss the cases of two second-tier markets, ChiNext and the European Association of Securities Dealers (EASDAQ). EASDAQ was introduced in 1996 as a pan-European exchange but struggled to gain traction and failed after the dot.com crash of 2000-01. ChiNext was created in 2010 as a subsidiary of the Shenzhen Stock Exchange, and despite volatility in stock prices, has proven a robust home for new listings of entrepreneurial firms. We discuss both cases in detail in Appendices A and B below.

While the outcomes of the two market development efforts were quite different, as were many of the macroeconomic and regulatory conditions, several insights emerge from the cases:

- *The desire to boost entrepreneurial and venture capital activity.* The key motivation in establishing these exchanges was that such a stock market might facilitate high-growth companies, as well as the intermediaries that support them. The establishment of these exchanges was also triggered by concerns that the absence of a dedicated market was encouraging entrepreneurial firms to list offshore.
- *The tradeoff between inclusiveness and investor protection.* Both exchanges sought to list entrepreneurial companies, which would otherwise be precluded from going public by the requirements of the incumbent exchanges. Of particular concern were rules regarding profitability, length of operations, and size. At the same time, the exchanges sought to reassure investors about the quality of the listed companies. ChiNext's approach was particularly interesting, as it sought to prohibit bad management behavior by, among other things, limiting insiders' access to the IPO proceeds, extending the lock-up period, and facilitating delistings.
- *The interplay between exchange designers and regulatory officials.* While both exchanges were nominally independent entities, in each case the involvement of government officials was important in their design. The EASDAQ exchange architects actively cultivated the support of the European Union and national policymakers, whose support lent gravitas to the effort and helped overcome some of the barriers to an international market. The ChiNext effort depended critically on receiving authorization to proceed from the China Securities Regulatory Commission.
- *The role of critical mass in exchange success.* Both teams of market designers sought to establish these exchanges as the dominant market for high-growth companies. They were motivated by the perception that market depth would translate into greater liquidity and market efficiency, as well as the certification that a listing on the dominant national or regional exchange would provide to portfolio firms. The success of the two exchanges in achieving this goal differed markedly: while ChiNext was the only such market authorized to operate in the People's Republic of China, and thus was able to attract a large number of Chinese companies that did not meet the requirements for the main boards of the Shenzhen or Shanghai exchanges, EASDAQ soon faced competition from a bevy of national exchanges across Europe.

Appendix B: Case Study: EASDAQ¹

1. What were the motivations for creating the exchange?

After the October 1987 decline in world equity prices, IPO activity in Europe dried up, as it did in the United States. But unlike the United States, which recovered with a “hot” IPO market beginning in 1991, in Europe there was no quick recovery. In 1992-93, there were 432 IPOs on the NASDAQ; on European second-tier markets (with 30% of the number of listed firms), there were only 31. In some countries, the decline in IPO activity was even more extreme: only five companies listed in Germany’s two second-tier stock markets in 1992-93, and none listed in Denmark’s between 1989 and 1993.

Trading volume in European markets for small-capitalization firms also lagged. The ratio of total transaction volume to end-of-year market capitalization was 21% in European second-tier markets in 1992; for the NASDAQ, the corresponding ratio was 138%. The lack of new issues and diminishing trading in existing shares contributed to a general decline in interest in these markets. Several second-tier markets, such as the Dutch Parallelmarkt, closed; others suffered precipitous declines.

With the reduction of activity at these second-tier exchanges, small firms and their venture backers were left with few options. The most promising firms could list on the NASDAQ in the U.S. But for the vast majority of firms, the only options were staying private or selling out. The poor state of the IPO market had discouraged venture capitalists from exiting these investments other than through acquisitions at often-unattractive valuations. The EVCA estimated that in mid-1994, European venture capitalists held 15,000 private companies in their portfolios.

2. What were the key design choices made in setting up the exchange?

The designers of EASDAQ were motivated by the failure of the Unlisted Securities Market (USM) in the United Kingdom. This exchange had been created in 1980 by the London Stock Exchange (LSE) as a home for small-capitalization stocks that could not meet the strict capitalization and profitability requirements for inclusion on its primary market, the “Official List.” At the close of 1989, the USM had 420 listed companies with a market capitalization of \$13.5 billion. But by May 1994, the number of companies listed on USM had fallen to 250, with a total capitalization of \$9 billion. (During the same time, the NASDAQ composite index increased by 55%.) The number of IPOs on the USM fell from 103 in 1988 to 12 in 1992 and 1993 combined. In December 1992, the LSE announced its intention to phase out the USM by 1997.

To the British venture capital community and other small business advocates, the decline of the USM was attributable to several factors. Some were issues over which Exchange officials had little control, such as the persistent recession in Great Britain. But other factors were direct consequences of actions by LSE officials, such as their willingness to list companies of dubious quality (which had the effect of deterring many institutional investors) and their failure to promote the new exchange. Furthermore, the LSE had responded to the USM’s problems not by heightening efforts to attract new firms to the exchange, but

¹ This note is based on Josh Lerner, “The European Association of Securities Dealers: November 1994,” Harvard Business School Case 9-295-116, 1995, and Josh Lerner, “European Association of Securities Dealers,” Harvard Business School Teaching Note 5-298-158, 1998; and assorted interviews and press accounts.

rather by facilitating small firms' inclusion on the main LSE exchange. (As in many other countries, the second-tier market was run by the organization also responsible for the primary market, the LSE.) The years of operation required for firms to be listed on the Official List was reduced from five to three; and the profitability and sales requirements for science-based research firms (primarily biotechnology companies) were relaxed.

Other problems could be attributed to the lack of specialized institutions focusing on serving smaller firms. This lack of dedicated institutions also may have explained the speed with which the British investment banks abandoned market making in, and research on, small companies. There was not a well-developed set of investment banks that made the bulk of their money working with smaller firms. In the United States, by contrast, several investment banks—e.g., Robertson, Stephens & Co., Hambrecht & Quist, and Alex. Brown & Sons—specialized in smaller firms. These institutions consequently had powerful incentives to ensure the vitality of the small-capitalization stock market, even during periods when investor interest was not strong.

The decision to close the USM led to protests by the venture capital community, which catalyzed the decision to champion EASDAQ. The key principles that emerged from the planning effort were:

- First, the European Venture Capital Association sought to create a pan-European market, rather than a national one. This market would (hopefully) achieve a larger scale, with more listed firms and greater trading volume. It was hoped that this choice would translate into lower transaction costs and lead to greater liquidity. The international structure, however, introduced a variety of additional problems, as discussed below.
- Second, the EASDAQ founders foresaw and sought to manage the challenging relationships with more-established exchanges in a more-sophisticated manner than had earlier designers of second-tier exchanges. Many earlier markets geared to small-capitalization stocks were established by the major stock exchanges. In many cases—as the experience of London's USM makes clear—the major exchanges were not committed to the success of these markets. For instance, the more-successful firms on the smaller markets were encouraged to list on the main exchange, reducing the trading volume and attractiveness of the second-tier market. The EASDAQ market, like NASDAQ, was established as a completely independent entity. At the same time, they sought to forestall (or at least buffer) outright competition from the major exchanges by enlisting their participation as equity investors in EASDAQ.
- Finally, the EASDAQ founders raised much of the financing from investors with a real interest in the success of the new exchange, the U.S. high-technology investment banks. This group had found it difficult to break into the underwriting of offerings on the various national exchanges in Europe. As a result, they had much to gain from the new exchange's success.

3. What were the major challenges with the exchange's design?

Before EASDAQ was formally established, however, numerous design issues had to be addressed. The first was ensuring that the market conformed to the appropriate government standards. While the European Commission (EC) had stipulated minimal standards for disclosure, insider trading, and other requirements,

each country had the right to set a more stringent standard. For instance, the equity stake that led to an investor being considered an insider (and hence subject to reporting and trading restrictions) varied widely, from 3% in Great Britain to 10% in Germany and Italy. It was unclear whether the legislation of the nation in which the company, the shareholder, or the exchange was located would take priority. A partial solution to this problem was to employ a structure akin to the depository rights that European companies often used to trade on the U.S. exchanges. These were to be fully convertible into shares on a one-to-one basis, but to allow the shareholders to avoid some—but not all—of the administrative difficulties associated with actual share ownership. These were to be called European Depository Rights (EDRs).

A related problem was posed by differences in tax policies across nations. European governments differed sharply in their tax treatment of securities transactions. For instance, many nations offered reduced capital gains tax rates for certain classes of firms. (In some cases, these preferential rates applied only to private firms; in other cases, to firms quoted on second-tier markets; in yet other cases, to firms that passed certain solvency tests.) Several nations had transactions taxes, and the treatment of dividends varied widely across nations. Depository rights were taxed at a higher rate than other securities in some countries, but at lower rates in others. It was ambiguous which nation's tax rate would apply in many international transactions.

A third set of problems related to the appropriate design of the exchange. Even if compliance with all governmental regulations could be assured, the EASDAQ faced several choices regarding the appropriate rules and structure. The first related to reporting requirements for companies on the exchange. Europe did not have an accounting standard like the Generally Accepted Accounting Principles (GAAP) in the United States. If companies complied only with their own nation's accounting requirements, there would be widespread differences in how such items as R&D, depreciation, and inventory were treated across firms. A lack of common accounting standards could make it easier for lower-quality firms to be listed. EASDAQ sought to avoid the experience of the American Stock Exchange, which had set up an Emerging Company Marketplace in 1992 to compete with NASDAQ for new issues. Because the ASE failed to carefully scrutinize the initial firms it listed, the questionable background of several of them generated a wealth of unfavorable publicity, and the new exchange proved unsuccessful in attracting a significant number of listings by growth firms.

Another issue related to the choice of currency. To be a true exchange, EASDAQ felt that trades had to be denominated in a single currency. If pounds, francs, or some other national currency was chosen, it might be perceived as giving too much power to a particular country. But if the EC's currency basket, the European Currency Unit (ECU), was chosen, the liquidity of the market would be affected. For instance, only four dozen banks exchanged ECUs into other currencies. The cost of converting pounds-to-ECU-to-pounds at a British bank was three times the cost of going from pounds-to-francs-to-pounds. Related problems included the choice of a primary language and headquarters location for the EASDAQ.

In addition, the settlement process was problematic. (A trade is settled when the seller has delivered the shares that have been sold and received the proceeds from the sale.) If there was not a rapid settlement of trades, the liquidity of the market could be impaired. In 1994, many European exchanges took weeks to clear cross-border trades, and there was little coordination of the settlement process between nations. This imposed a substantial cost on foreigners who traded in European markets. From the start, the EASDAQ hoped to introduce an efficient international clearing system; at the same time, they acknowledged that this was an ambitious goal.

A final design issue was the nature of the market itself. To each stock NASDAQ assigned several market-makers, who actively took positions in the firms that they specialized in. This helped assure liquidity for these stocks. The LSE and many other European systems, as well as the New York and American Stock Exchanges, instead employed specialists whose primary role was to match orders to buy and sell securities. In many cases, the specialists had inadequate incentives to devote much attention to smaller firms, since their primary compensation was a fee based on the volume of transactions handled. In contrast, NASDAQ market-makers tended to be the investment banks who had previously underwritten these firms' securities and whose analysts covered these stocks. Ideally, the EASDAQ system would handle both trading through market-makers and through order matching, to maximize the acceptance of the market throughout Europe.

Even if the above problems could be overcome and an optimal exchange designed, there remained the problem of implementation. There were several powerful institutional barriers to success. For instance, the LSE controlled a large fraction of international European equity trading through its SEAQ International system. Furthermore, many promising British firms that otherwise might list on the LSE might opt for EASDAQ. Consequently, LSE could view EASDAQ as a threat. Furthermore, the committee members, as experienced observers of the European scene, knew that there was a need to maintain cohesion among themselves. In past joint initiatives, as success appeared more probable, there was sometimes a tendency to fragment. Each group might begin neglecting the overall goal of achieving success and instead push for its own interests.

4. What were the outcomes?

The EASDAQ market officially opened in September 1996. As planned, the key regulations and structures were modeled after that of NASDAQ. The first public offering, Dr. Solomon's Group (a British software concern), followed shortly thereafter in an IPO underwritten by Hambrecht and Quist. Deviating from the original design, this and other securities were valued in a variety of national currencies, rather than in the pan-European monetary unit.

The experience of EASDAQ in its first few years was rather mixed. A total of 25 firms were listed in the first two years, with a market capitalization of \$5.1 billion. But the exchange struggled to generate substantial trading volumes. Many of the firms cross-listed on NASDAQ, where the bulk of the trading took place due to lower transaction costs. Many of the firms that were not cross-listed had modest market capitalizations and were very thinly traded. A single firm (Immogenetics) accounted for the bulk of the EASDAQ volume.

Meanwhile, the EASDAQ faced intensive competition from new national markets. The French Nouveau Marche opened in early 1996, and as of the spring of 1998 had attracted 19 firms (almost all French) with a combined market capitalization of \$1.1 billion. The lightly regulated Alternative Investment Market in London had 240 firms with a market capitalization of \$8 billion, but a single British underwriter accounted for the bulk of the offerings. Meanwhile, competing efforts were launched by, among others, the Amsterdam, Brussels, and Frankfurt exchanges. Many of them had lower listing requirements, which attracted many firms that EASDAQ was uninterested in. However, some of these firms turned out to be fraudulent, generating bad publicity particularly in France and Germany. Paradoxically, this publicity also dulled EASDAQ's luster by raising questions about the validity of small-capitalization exchanges in general.

A much more formidable potential competitor emerged in early 2000, when NASDAQ announced its intention to set up a European offshoot in 2001, backed by Softbank, News Corp, and Vivendi. In May 2000, LSE and Deutsche Börse announced their intention to merge and to support the NASDAQ effort.

In addition to the country-specific exchanges, the European financial institutions that benefited from the lack of a dynamic market also subtly opposed the exchange. One example may have been Deutsche Bank (as well as other major German banks). Small German firms historically had few alternatives except to raise private financing through these banks. Not only did the banks dominate lending activity, but they played a key role in underwriting public equity issues for small firms: for instance, Deutsche Bank alone accounted for 69% of German IPOs in 1997. The new market might be a real threat to these banks' control over the financing choices of small European firms, as they naturally feared increased competition from the U.S. institutions for lucrative underwriting arrangements.

Ultimately, the exchange experienced a sharp decline in listings and trading in the wake of the dot.com crash of 2000-01. EASDAQ was purchased by NASDAQ in 2001 and became NASDAQ Europe. Operations were shut down soon thereafter, however, because of the continuing tech downturn.

Appendix C: Case Study: ChiNext²

1. What were the motivations for creating the exchange?

The evolution of what became the ChiNext exchange was gradual, and its rationales evolved over time. In the late 1990s, China was negotiating its way into the World Trade Organization, which stipulated a further opening of China's capital markets. The dot-com bubble was also evident in China as numerous domestic Internet firms were listed on the NASDAQ. In 1999, the Chinese State Council announced a policy to strengthen the country's innovation capabilities. Soon afterward, various parties, including the China Securities Regulatory Commission (CSRC), the Shanghai and Shenzhen (SZSE) bourses, academics, and practitioners, took up the issue of capital market liberalization.

The initial thought was to create a board specifically for "high-tech" companies. However, the designers realized that it would be difficult to define that term. Finally, it was named the "Growth Enterprise Board" (GEB) to cater to companies that offered substantial growth potential. As the GEB was about to launch in 2000, the dot-com bubble burst and the demand for listings dropped sharply. Exchange officials and regulators also realized that many of the pre-IPO companies were not entirely trustworthy. The investor community was calling for more-stringent supervision over issues such as earnings manipulation, insider trading, and the proliferation of shareholder fraud. In light of these concerns, the decision was made to postpone the launch of the GEB.

Then, in a move that reflected the gradual pace of state-directed development, a new board emerged at the SZSE in 2004. In February, the State Council promulgated a policy to create a multi-tier capital market in China. On May 27, the Small and Medium Enterprise Board (SME Board) was established at the SZSE, under the so-called "Two Remain" and "Four Separate" principles. "Two Remain" meant that the existing securities laws and regulations and the IPO listing requirements governing the main board companies would remain unchanged for those listing on the SME Board. "Four Separate" indicated that the SME Board would have separate trading systems, supervisory mechanisms, stock coding, and price indexes.

Despite the "Four Separate" principle, the SME board was basically the same as the Main Board with the same set of listing requirements. Yet the SME board hosted mainly companies that were "smaller" in terms of revenues or assets or that operated in certain high-tech industries such as information technology or biotechnology, where (unlike the Main Board) large, state-owned enterprises did not dominate.

In December 2008, just after the outbreak of the global financial crisis, China's State Council called for the establishment of "the Second Board at a good time." The CSRC then issued a document in March 2009 to lay down rules for the second board. Most of the proposed listing requirements were lower than those of the Main Board. At the same time, various measures were taken to safeguard investors' interests and to attract companies with greater growth prospects than those that typically listed on the SME Market.

2. What were the key design choices made in setting up the exchange?

There were several areas in which the new exchange made critical design decisions.

² This profile is based on Josh Lerner and Keith Chi-Ho Wong, "Oriental Fortune Capital: Building a Better Stock Exchange," Harvard Business School Case 9-811-105, 2011, and assorted press accounts, as well as the ChiNext web-site.

The first decision was where the board should be located. Both Shanghai and Shenzhen wanted the new exchange, but over-competition would result if both were granted second-tier exchanges. Most of the multi-tier capital markets overseas, such as the NYSE and the NASDAQ, or Tokyo and Osaka, were formed by market forces. Here, the government segmented the markets for each of the exchanges. Shanghai specialized in state-owned firms and blue-chip companies, following the example of the NYSE. Since its inception in 1990, the Shenzhen Stock Exchange (SZSE) had been smaller than its counterpart in Shanghai and targeted a different niche than either the Shanghai or the Hong Kong exchanges. The Shenzhen special economic zone, where the SZSE was located, was dominated by small- to medium-sized enterprises in sectors such as information technology, biotechnology, and pharmaceutical research, and SZSE became the main listing venue for these companies. This tradition, as well as the success of the SME Board, led to the selection of the SZSE to host ChiNext.

The SME Board had introduced a variety of governance protections that would be replicated in ChiNext. First, once a company was listed, a substantial amount of money was often raised, possibly tempting the controlling shareholders to appropriate the money for their private use. To contain this problem, the SME Board created a separate bank account specifically for depositing all the money raised from an IPO. Second, the Chinese underwriting system was far from mature. While all new IPO issuers needed to have a sponsor to underwrite their stocks, the sponsor finished the job once the company was listed. In the SME Board, the sponsors were responsible for the ongoing monitoring of the performance of a newly listed company for an extended period. Lastly, SZSE tightened control of the disposal of shares by the majority shareholders. The SME Board introduced a lock-up period during which insiders were not allowed to sell their shares in the open market.

The major difference between the listing requirements for ChiNext and the Main Board was the “profit test.” To qualify for listing on either Board, the issuer had to be profitable for the previous three consecutive years, while listing on ChiNext required only two years. Accumulated profits over the three-year period had to be at least RMB 30 million (US\$4.6 million) for the Main and SME Boards, but only RMB 10 million (US\$1.6 million) for ChiNext. A company could also list on ChiNext if it had been profitable only in the most recent year, with a minimum net profit of RMB 5 million (US\$0.76 million), provided that it attained no less than RMB 50 million (US\$7.6 million) in revenues and achieved more than 30% revenue growth over the last two years prior to the IPO.

The CSRC also tightened information disclosure standards for ChiNext. All prospectuses for ChiNext shares had to include a disclosure of the “high investment risks” involved, including operation risks, delisting risks, and the subsequent market risks. Additionally, SZSE established its own market risk warning system and set up a continuing investor-education program

The ChiNext listing rules also stipulated measures to enhance market efficiency. A one-year “lock-up period” was imposed during which the directors, supervisors, and senior management of a ChiNext-listed company could not dispose of their shares. At the expiry of the lock-up period, they could sell only 25% of their shares every 12 months. If they left the company, they were not allowed to trade shares within six months of their resignation. After the six months were up, they could sell half of their shares within the next 12 months, and all the remaining shares thereafter.

Sponsors of ChiNext-listed stocks had to agree to “continuous supervision and guidance” for three full fiscal years after the listing. The “supervision” period for the Main Board stock was only two years. During this period, the sponsor was required to compile a follow-up report within 15 days of the issuer’s release of annual and interim reports. The follow-up report consisted of the sponsor’s analysis and independent opinion on the issuer’s financial performance.

Delisting conditions on ChiNext were also stricter than on the Main Board. If a company recorded audited negative net assets for the most recent fiscal year, or the company’s auditor issued an adverse opinion or a disclaimer of opinion on the annual results, a delisting warning would be issued. If the company was unable to publish the annual or interim report two months after missing the statutory deadline, trading in its shares would be suspended. This happened after six months on the Main Board. To ensure adequate liquidity on ChiNext, a delisting warning would be issued to a company if the cumulative trading volume of its shares dropped below one million over 120 trading days.

Another key design feature was expediting the review process (at least on the part of exchange officials, though regulators were also a critical gating feature), in order to allow capital-hungry firms a chance to access funds more quickly. The creation of ChiNext, therefore, provided a timely exit for the domestic venture capital firms who previously had limited options to recoup their investments other than going to markets such as NASDAQ, Hong Kong, or London. The emergence of ChiNext also meant that local entrepreneurs did not need to deal with legal and regulatory hurdles overseas, or with the language, cultural, and distance factors that often complicated efforts to raise capital on foreign exchanges.

3. What were the major challenges with the exchange’s design?

The ChiNext encountered several issues that led to a reform of several rules in its first years of operation, as well as to the discussion of other changes.

One of the problems common to ChiNext-listed companies was an “equity glut” from founders or top management. A lock-up period prohibited a company’s founding shareholders and top management from selling their shares for a year, but the rule could be circumvented if they resigned their positions. After resigning, they could not sell any shares within the next six months but could sell half of their shares in the twelve months after the IPO. As a result, in the first year after ChiNext was launched, more than 60 senior executives from 37 ChiNext-listed companies had resigned from their posts.

Shortly thereafter, the rules were changed to prohibit officers leaving a company from selling shares within eighteen months from their departure day. Meanwhile, limits on the controlling shareholders became even more stringent than they had been at ChiNext’s inception. Controlling shareholders had to promise that they would not transfer the companies’ shares issued prior to the IPO within three years of the listing. They could, however, sell their shares one year after the listing, provided that the transaction was between a parent and a subsidiary and was approved by the SZSE.

Second, while the high price/earnings multiples on ChiNext led to favorable valuations for both owners looking for extra funding and early-stage investors seeking a favorable exit, sponsors faced difficulties determining issuance prices. Among the first 36 listed companies, most share prices immediately jumped to twice their initial offering price. Seeing share prices skyrocket on opening trades often left majority shareholders with a feeling that the sponsors had failed to maximize the potential proceeds. On the other

hand, regulators were concerned about the sizeable funds raised from the IPOs, fearing possible embezzlement by the majority shareholders. In response, the SZSE imposed more-restrictive rules on companies' disposal of IPO proceeds. The exchange stipulated that a maximum of 20% of the proceeds could be used for repaying debts or as working capital. The use of more than RMB 50 million or 20% of the proceeds for these purposes would be subject to shareholders' approval.

These steps, however, failed in dampening the volatility of this market. The ChiNext market—and Chinese growth companies more generally—mirrored the volatility of Chinese equity markets in somewhat exaggerated form. For instance, between June 2014 and June 2015, the ChiNext index increased three-fold, only to drop by 56% in the ensuing three months (see the graph of the ChiNext index at the end of the write-up).

This volatility stimulated discussion of whether ChiNext should adjust its listing requirements. On the one hand, some internet companies were losing money or lacked an adequate operational history to be listed on ChiNext or other Chinese exchanges; instead they opted for a NASDAQ or NYSE listing. But on the other hand, the concern was whether lowering the standards would degrade the quality of the listed firms and the reputation of the exchange. As of mid-October 2018, the listing requirements had changed little since the exchange's inception.

Another area of early concern was ChiNext's mechanism for delisting underperforming stocks.³ Despite the provision for a delisting warning, there was no specific rule governing how exactly a stock would be delisted. As a result, there was a sense that companies on ChiNext would not be delisted, and as a result prices could diverge from fundamentals. Observers worried about investor expectations that the government or the state would always bail out failed businesses, not necessarily with cash, but through "administrative procedures." In particular, local government officials often regarded these IPOs as among their major achievements (which directly linked to their performance appraisals). Rather than having firms being delisted, they provided pressure to undertake restructurings. Moreover, there were few rights for minority shareholders once firms delisted, which could lead to these investors being wiped out and to demonstrations and social unrest. As a result, there was a real likelihood of extensive numbers of restructuring "zombie" companies. Moreover, the restructuring process had the potential to lead to insider trading and other nefarious activities.

Before formalizing the delisting mechanism, the listing requirements were tightened, not by changing the rules, but rather by more-vigorous enforcement of the existing rules. In 2010, more than 60 IPO applications to the ChiNext board were rejected by the CSRC.

Measures that have been under consideration were either to delist underperformers directly or to demote them to the OTC market running in Beijing's Zhongguancun Science Park and available exclusively to institutional investors. It appears that this change had not been implemented as of late 2018. Another proposed rule change would be more thorough information disclosure: ChiNext-listed companies would be required to report not only all information to the exchange, but also on its own website or via other direct channels to investors.

³ This issue has surfaced in many new second-tier exchanges. For instance, European second-tier exchanges in the 1990s faced difficulties in forcing companies to delist (Giudici and Roosenboom (2004)). In contrast, NASDAQ's \$1 minimum price rule has proven very effective at purging unsuccessful companies in a timely manner.

4. What were the outcomes?

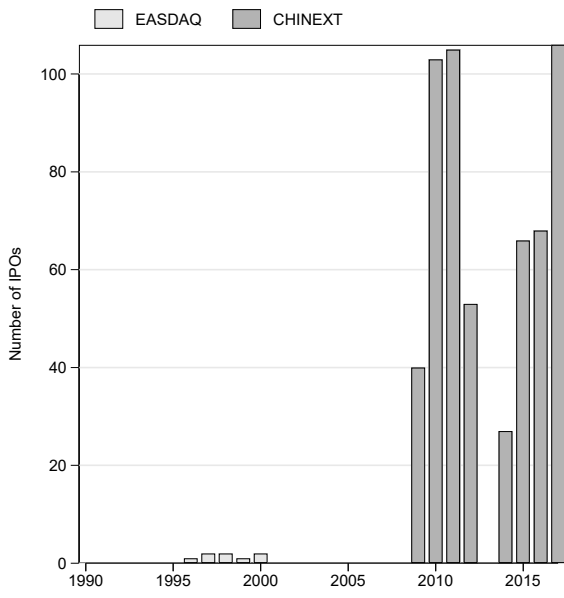
ChiNext's opening in October 2009 was at a propitious time: as China's economy recovered steadily in late 2009 and 2010 due in part to an RMB 4 trillion (US\$586 billion) economic stimulus program, China also started to lead the world in IPOs. In 2010, a total of 476 Chinese companies were listed across various exchanges worldwide, representing about 62% of all newly listed firms and 58% of the total funds raised in IPOs during the year.

Among the first batch of 28 ChiNext companies, 23 were backed by venture capital firms. The initial 28 stocks closed on average 76.5% higher than their issue prices at the end of their first trading day. The average IPO Price/Earnings multiple (P/E) stood at 56.6 times at the end of the first trading day, while the overall average for the A-share markets in Shenzhen and Shanghai was 25.

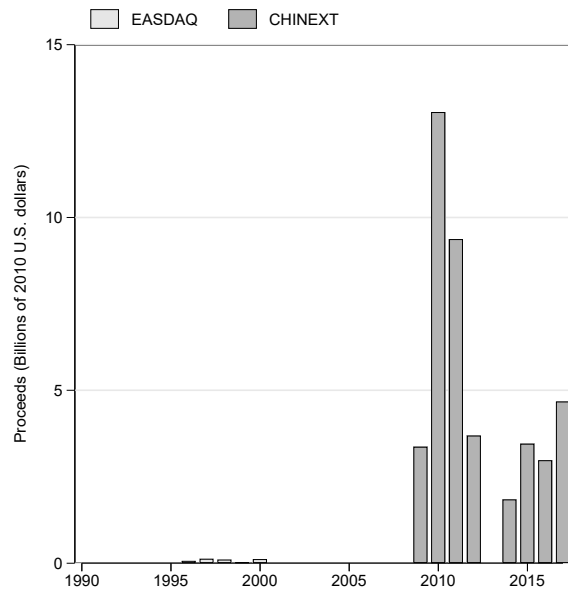
By October 2010, the VCs who had taken their companies public on ChiNext had attained outstanding returns. One measure of success was the ratio of the capital gain achieved by the venture investor via the IPO (the valuation of the VC's stake at the IPO price minus the investment amount) to the amount invested. Newly listed ChiNext companies had an average multiple of 12.1, while the overall multiple of IPOs on China's two stock markets was 10.4, and Chinese companies that conducted their IPOs on NASDAQ recorded an average multiple of only 2.8.

At year-end 2010, 153 companies with a total market capitalization of RMB 736 billion (US\$ 111 billion) had listed on ChiNext, raising RMB 117 billion (US\$18 billion). Most of these were high-tech companies belonging to one of the seven "strategic emerging industries" designated by China's central government, such as clean energy, semiconductors, chemical engineering and pharmaceuticals, alternative materials, and new-generation IT services. During the first three-quarters of 2010, the profits for all ChiNext-listed companies grew an average of 26.9% on a year-on-year basis, and revenues increased by 36.5%.

As of October 2018, ChiNext had 734 listed firms with an aggregate market capitalization of 3.9 trillion RMB. (IPO activity is contrasted with that of EASDAQ in the figure below). The daily trading volume was 53 billion RMB (\$7.6 billion). Both the market capitalization and volume were down somewhat from the highs in the mid-2010s, reflecting the reduction in valuations of many of the growth firms: the average price-earnings ratio of ChiNext-listed firms has fallen from 146 in June 2015 to 31 in mid-October 2018. The ChiNext price index compiled by Bloomberg is also illustrated below.



(a) Number of IPOs



(b) Total Proceeds

IPO activity in ChiNext and EASDAQ. This figure shows the number of IPOs and total proceeds raised in IPOs (in billions of 2010 U.S. dollars) in EASDAQ and ChiNext.

Figure A1. Histogram of Minority Shareholder Protection.

The figure presents a histogram of the protecting minority investor index. The index ranges from a score of 0 to 100, from lowest to highest economy on this measure. The index was taken from the World Bank's Doing Business database for the year 2017.

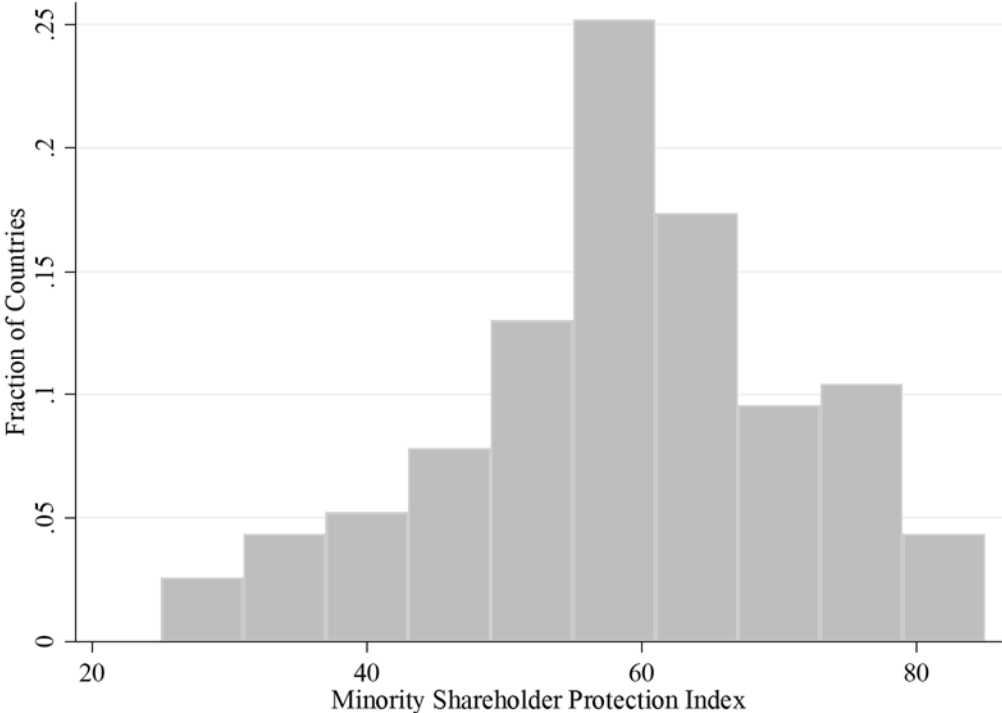


Figure A2: Geographic Location of IPOs in the Sample.

This figure shows the total number of IPOs listed on all exchanges between 1990 and 2017. Panel A shows the distribution by region for IPOs in the first-tier exchanges. Panel B shows the distribution by region for IPOs in second-tier exchanges. Table A7 in the Internet Appendix lists the countries in each region.

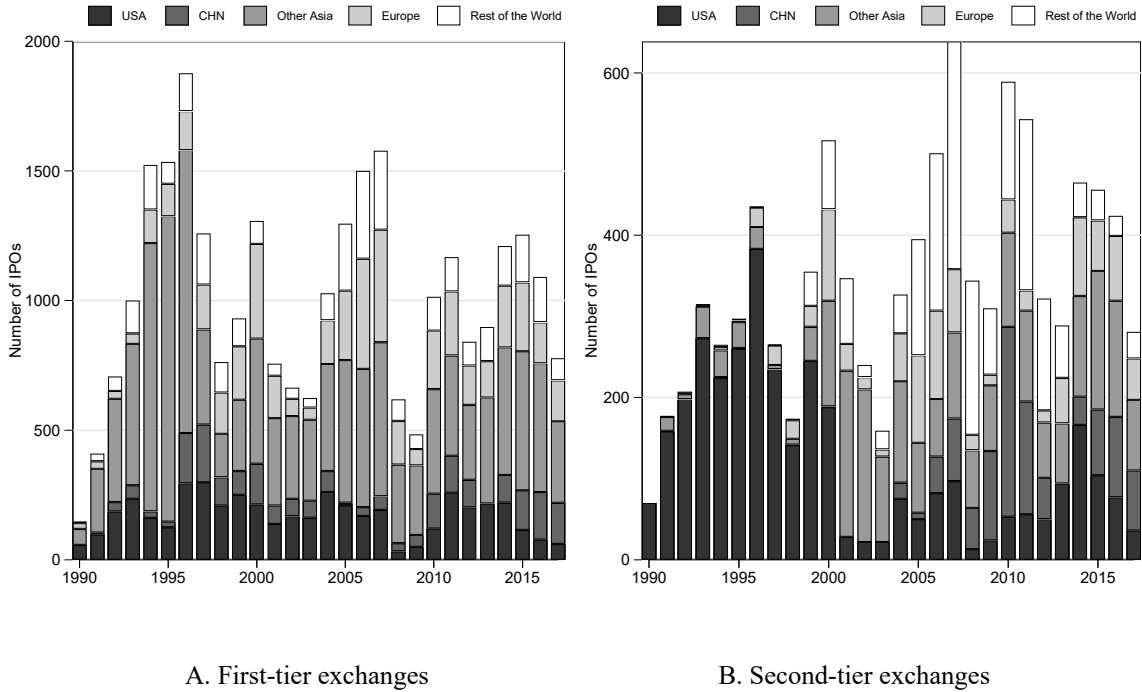
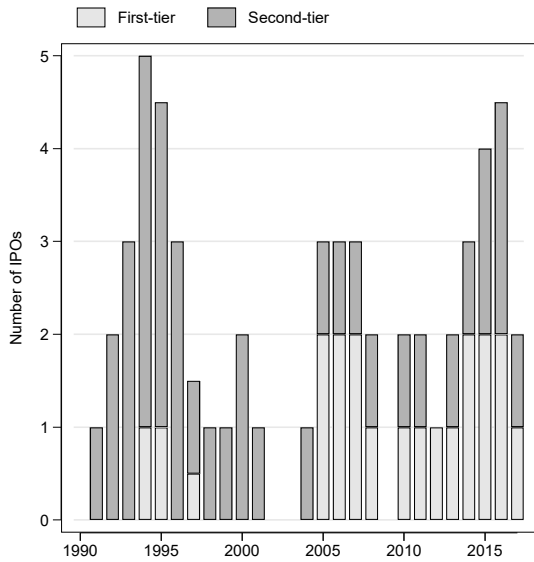
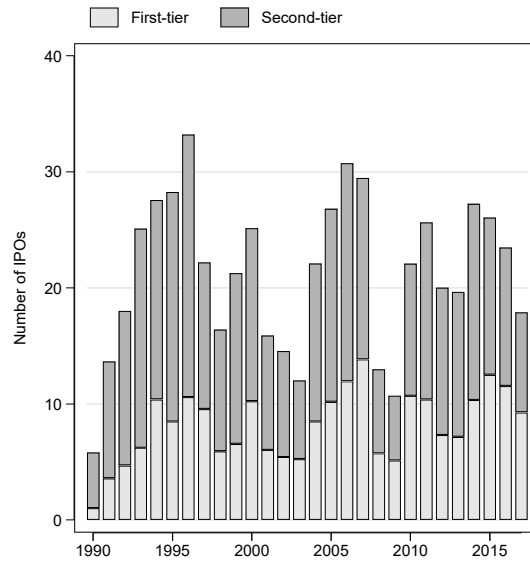


Figure A3: Median and Mean Number of IPOs on New Exchanges.

This figure shows in Panel A the median number of IPOs per active new first- and second-tier exchanges (i.e., exchanges established between 1990 and 2013) in a given year. Panel B shows the mean number of IPOs per active new first- and second-tier exchange in a given year.



A. Median Number of IPOs



B. Mean Number of IPOs

Figure A4: Fraction of IPO Activity and Proceeds Raised in All New Exchanges.

This figure shows the fraction of total IPOs and proceeds raised in new exchanges (i.e., exchanges established between 1990 and 2013) in a given year by exchange tier. Panel A shows the fraction of total IPO activity in new exchanges for first- and second-tier exchanges. Panel B shows the fraction of total proceeds raised in new exchanges for first- and second-tier exchanges.

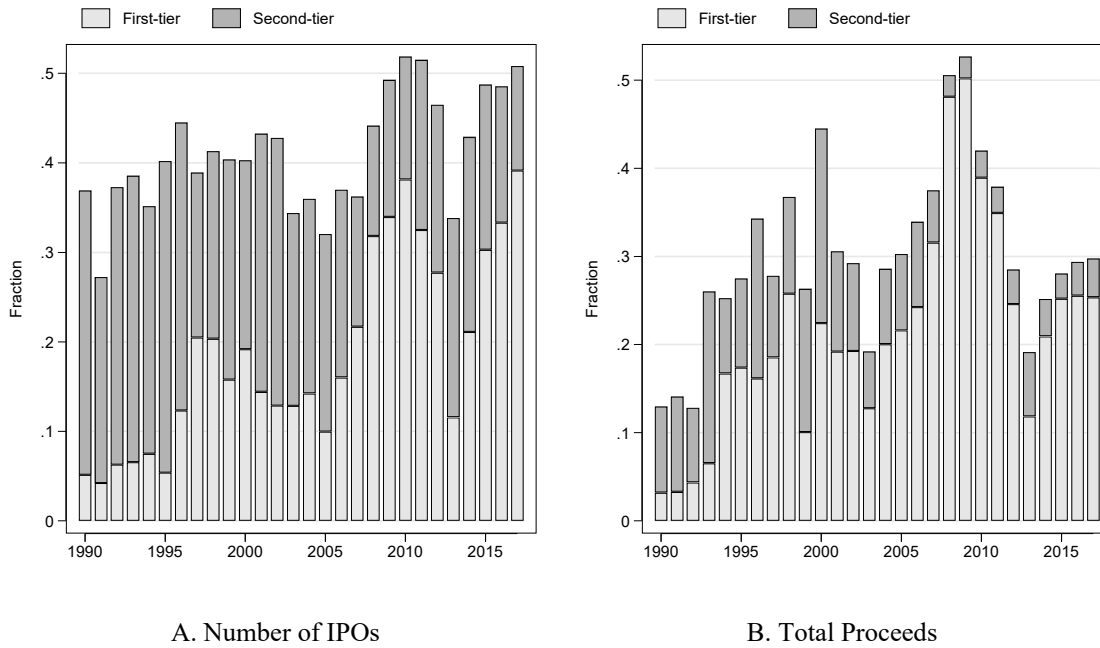
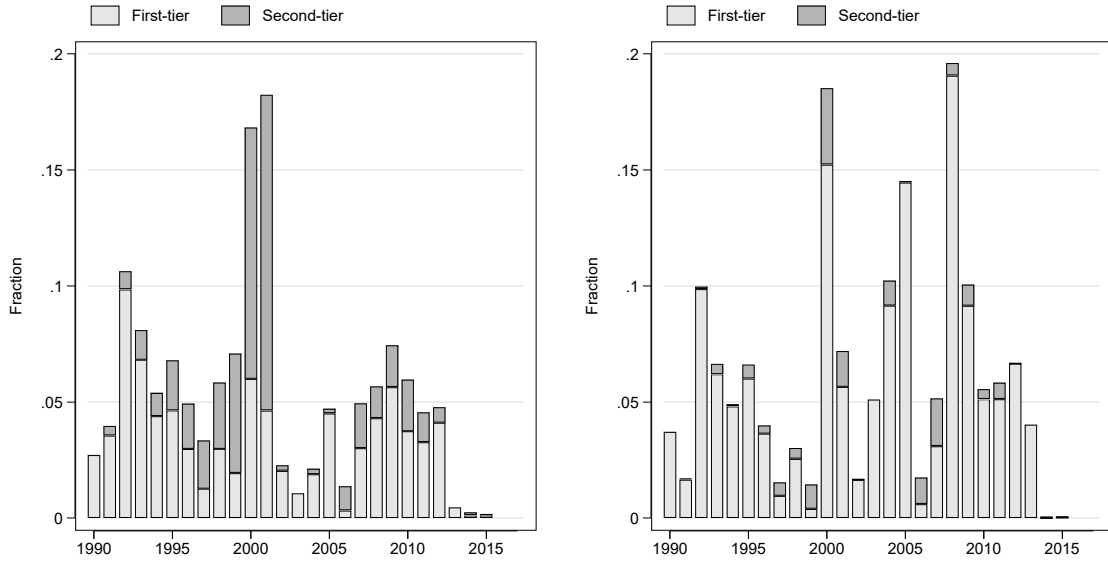


Figure A5: Fraction of IPO Activity and Proceeds Raised in All New Exchanges, Defining New Exchanges as Those Five Years Old or Less.

This figure shows the fraction of total IPOs and proceeds raised in a given year in all new exchanges, now defining new exchanges as those in their first five years of operation. Panel A shows the fraction of total IPO activity in new exchanges for first- and second-tier exchanges. Panel B shows the fraction of total proceeds raised in new exchanges for first- and second-tier exchanges.



A. Number of IPOs

B. Total Proceeds

Table A1: The Sample of New Exchanges.

This table reports the country, name, entry year, exit year, tier of the new exchanges (i.e., exchanges established between 1990 and 2013) in the sample (and if second-tier, its status at the time of establishment relative to a first-tier exchange). The table also reports exchanges consolidated due to mergers and acquisitions and name changes.

Africa

Country	Exchange	Entry Year	Exit Year	Tier	Status (if 2 nd -Tier)	Consolidated Exchanges
Algeria	Algiers Stock Exchange	1997	Present	First		
Botswana	Botswana Venture Capital Market	2001	Present	Second	Subsidiary	
Cameroon	Douala Stock Exchange	2001	Present	First		
Egypt	Nile Stock Exchange	2010	Present	Second	Subsidiary	
Ghana	Ghana Alternative Market	2013	Present	Second	Subsidiary	
Ivory Coast	Bourse des Valeurs Mobilieres	1998	Present	First		
Libya	Libya Stock Exchange	2007	Present	First		
Libya	Libyan Sub-Market	2007	Present	Second	Subsidiary	
Malawi	Malawi	1996	Present	First		
Morocco	Casablanca Development Market	1997	Present	Second	Subsidiary	
Morocco	Casablanca Growth Market	1997	Present	Second	Subsidiary	
Mozambique	Mozambique Stock Exchange	1998	Present	First		
Namibia	Namibian Stock Exchange	1992	Present	First		
Rwanda	Rwanda Stock Exchange	2011	Present	First		
Sudan	Khartoum Stock Exchange	1994	Present	First		
Swaziland	Swaziland Stock Exchange	1990	Present	First		
Tanzania	Dar es Salaam	1998	Present	First		
Tanzania	Dar es Salaam Enterprise Growth Market	2013	Present	Second	Subsidiary	
Uganda	Uganda Stock Exchange	1997	Present	First		
Zambia	Lusaka Stock Exchange	1994	Present	First		
Zimbabwe	FINSEC	2016	Present	Second	Independent	

Americas

Country	Exchange	Entry Year	Exit Year	Tier	Status (if 2 nd -Tier)	Consolidated Exchanges
Barbados	Barbados Junior Market	1999	Present	Second	Subsidiary	
Brazil	Sociedade Operadora Mercado Ativos	1996	Present	Second	Subsidiary	
Brazil	Novo Mercado Brazil	1998	Present	Second	Subsidiary	
Canada	NEX Board	2001	Present	Second	Subsidiary	
Canada	Canadian National Stock Exchange	2003	Present	Second	Independent	
Canada	Aequitas Neo Exchange	2015	Present	First		
Ecuador	Bolsa de Valores de Guayaquil	1993	Present	First		
El Salvador	Bolsa de Valores de El Salvador	1992	Present	First		
Guyana	Guyana Stock Exchange	2003	Present	First		
Jamaica	Jamaica Junior Market	2009	Present	Second	Subsidiary	
Nicaragua	Bolsa de Valores de Nicaragua	1994	Present	First		
Panama	Bolsa de Valores de Panama, S.A.	1990	Present	First		
United States	AMEX Emerging Company Mktplace	1992	1995	Second	Subsidiary	
United States	NYSE Arca	2006	Present	Second	Subsidiary	
United States	BATS Global Markets	2007	Present	First		
United States	NYSE Alternext US LLC	2008	Present	Second	Subsidiary	

Asia

Country	Exchange	Entry Year	Exit Year	Tier	Status (if 2 nd -Tier)	Consolidated Exchanges
Armenia	NASDAQ OMX Armenia Second List	1997	Present	Second	Subsidiary	
Armenia	OMX Armenia	1997	Present	First		
Azerbaijan	Baku Stock Exchange	2000	Present	First		
Cambodia	Cambodia Stock Exchange	2011	Present	First		
China	Shanghai Stock Exchange	1990	Present	First		
China	Shenzhen Stock Exchange	1990	Present	First		
China	Shenzhen Small & Medium Enterprise	2004	Present	Second	Subsidiary	

China	Shenzhen ChiNext	2009	Present	Second	Subsidiary	
Taiwan	Taiwan OTC	1994	Present	Second	Independent	
Cyprus	Cyprus Stock Exchange	1996	Present	First		
Cyprus	Cyprus Stock Exchange Emerging	2000	Present	Second	Subsidiary	
Georgia	Georgian Stock Exchange	1999	Present	First		
Hong Kong	Hong Kong Growth Enterprise Market	1999	Present	Second	Subsidiary	
India	The Delhi Stock Exchange Assoc Ltd	1990	2017	First		
India	The Hyderabad Stock Exchange Ltd	1990	2007	First		
India	The OTC Exchange of India	1990	2015	Second	Subsidiary	
India	Vadodara	1991	2015	First		
India	National Stock Exchange of India	1992	Present	First		
India	Metropolitan Stock Exchange	2008	Present	First		
Iraq	Iraq Stock Exchange	2004	Present	First		
Japan	TSE JASDAQ	1991	Present	Second	Subsidiary	
Japan	NASDAQ Japan Standard	1996	Present	Second	Subsidiary	Nippon New Market Hercules-Standard (2000-2010)
Japan	Osaka New Market Section	1996	Present	Second	Subsidiary	Jasdaq Growth (1996-), Jasdaq NEO (1996-), NASDAQ Japan Growth (2000-2002), Nippon New Market Hercules Growth (2000-2010)
Japan	Mothers	1999	Present	Second	Subsidiary	
Japan	Nagoya Stock Exchange Centrex	1999	Present	Second	Subsidiary	
Japan	Sapporo Ambitious	1999	Present	Second	Subsidiary	
Japan	Fukuoka-Q Board	2000	Present	Second	Subsidiary	
Japan	Tokyo Aim	2009	Present	Second	Independent	
Jordan	Amman Stock Exchange	1999	Present	First		
Jordan	Amman Bourse Second Market	1999	Present	Second	Subsidiary	
Kazakhstan	Kazakhstan Stock Exchange	1993	Present	First		
Korea	Korea Freeboard Market	2005	Present	Second	Subsidiary	
Korea	KOSDAQ	1996	Present	Second	Subsidiary	
Kyrgyzstan	KSE Kyrgyz Stock Exchange	1994	Present	First		

Laos	Lao Securities Exchange	2011	Present	First		
Lebanon	Beirut Junior Market	2016	Present	Second	Subsidiary	
Malaysia	Kuala Lumpur Second Board	1991	2009	Second	Subsidiary	
Malaysia	ACE Market	1997	Present	Second	Subsidiary	Mesdaq (1997-2009)
Maldives	Maldives S E	2008	Present	First		
Mongolia	Mongolian Stock Exchange	1991	Present	First		
Myanmar	Yangon Stock Exchange	2015	Present	First		
Nepal	Nepal Stock Exchange	1994	Present	First		
Palestine	Palestine Securities Exchange	1995	Present	First		
Palestine	Palestine Securities Exchange Second Market	1995	Present	Second	Subsidiary	
Qatar	Doha Securities Market {DSM}	1997	Present	First		
Saudi Arabia	Saudi Arabian Stock Exchange	1994	Present	First		Tadawul (2007-)
Singapore	Singapore SESDAQ	1999	2008	Second	Subsidiary	
Singapore	Singapore Exchange	1999	Present	First		
Singapore	Singapore Exchange Catalist Market	2008	Present	Second	Subsidiary	
Syria	Damascus Securities Exchange	2003	Present	First		
Syria	Damascus Growth Market	2009	Present	Second	Subsidiary	
Taiwan	Taiwan OTC	1994	Present	Second	Independent	
Thailand	Thailand MAI	1998	Present	Second	Independent	
United Arab Emirates	Abu Dhabi Securities Exchange	2000	Present	First		
United Arab Emirates	Dubai Financial Market PJSC	2000	Present	First		
United Arab Emirates	Dubai Stock Exchange	2000	Present	First		
United Arab Emirates	NASDAQ Dubai Limited	2005	Present	Second	Independent	
Vietnam	Ho Chi Minh Stock Exchange	2000	Present	First		
Vietnam	Hanoi Stock Exchange	2005	Present	First		
Vietnam	Unlisted Public Company Market	2009	Present	Second	Subsidiary	

Europe

Country	Exchange	Entry Year	Exit Year	Tier	Status (if 2 nd -Tier)	Consolidated Exchanges
Belarus	Belarusian Currency and Stock Exchange	1998	Present	First		
Belgium	EASDAQ	1996	Present	Second	Independent	
Belgium	Alternext Brussels	2005	Present	Second	Subsidiary	
Bulgaria	Bulgaria Stock Exchange	1991	Present	First		
Czech Republic	The Stock Exchange Prague Co. Ltd.	1993	Present	First		
Denmark	Copenhagen Share Market II	1990	2005	Second	Subsidiary	
Denmark	GXG Markets	1998	2015	Second	Independent	
Denmark	First North Copenhagen	2006	Present	Second	Subsidiary	
Estonia	OMX Nordic Exchange Tallinn	1996	Present	First		
Estonia	First North Tallin	2007	Present	Second	Subsidiary	
Finland	Finnish First North	2007	Present	Second	Subsidiary	
France	Paris Reglement Mensuel	1991	1998	First		
France	Euronext Paris Premier Marche	1996	2005	First		Paris Premier Marche (1996-2000)
France	Euronext Paris Nouveau Marche	1996	2000	Second	Subsidiary	
France	Euronext Paris Second Marche	2005	Present	Second	Subsidiary	
Germany	Frankfurt Neuer Market	1996	2003	Second	Subsidiary	
Germany	XETRA Trading Platform	1997	Present	First		
Germany	Smax	1999	2003	Second	Subsidiary	
Greece	Athens Alt	2007	Present	Second	Subsidiary	
Iceland	First North Iceland	2006	Present	Second	Subsidiary	
Ireland	Irish Enterprise Securities Market	1995	Present	Second	Subsidiary	
Italy	Mercato Alternativo del Capitale	2012	Present	Second	Subsidiary	
Italy	Milan Star	1999	Present	Second	Subsidiary	Milan Expandi (2002-2009)
Italy	Nuovo Mercato	1999	2008	Second	Subsidiary	Italian Second Market (1993-2003)
Latvia	OMX Nordic Exchange Riga	1993	Present	First		Riga (1993-2014)
Lithuania	OMX Nordic Exchange Vilnius	1993	Present	First		Vilnius (1993-2003)
Malta	Malta Stock Exchange	1992	Present	First		

Norway	Oslo Axess	2002	Present	Second	Subsidiary	Oslo SMB List (2002-2007)
Poland	Warsaw Stock Exchange	1991	Present	First		
Poland	NewConnect	2007	Present	Second	Subsidiary	
Poland	Warsaw Parallel Market	1991	Present	Second	Subsidiary	
Portugal	Alternext Lisbon	2005	Present	Second	Subsidiary	
Portugal	Euronext Lisbon Second Market	1990	Present	Second	Subsidiary	Lisbon Second Market (1990-2002)
Russia	Moscow Exchange MICEX-RTS	1992	Present	First		Russian Trading System (1995-2011), Moscow Interbank Currency Exchange (1992-2011)
Slovakia	Bratislava Stock Exchange	1993	Present	First		
Slovakia	Bratislava Junior Market	1993	Present	Second	Subsidiary	
Spain	Mercado Alternativo Bursatil	2008	Present	Second	Subsidiary	
Sweden	Aktietorget	1997	Present	Second	Independent	
Sweden	First North Stockholm	1997	Present	Second	Subsidiary	
Sweden	NASDAQ OMX Stockholm OTC Market	1996	Present	Second	Subsidiary	Stockholm OTC-List (1996-1998), OMX Stockholm OTC (1998-2008)
Switzerland	Switzerland New market	1999	2002	Second	Subsidiary	
Ukraine	PFTS Stock Exchange	1996	Present	First		
Ukraine	Kiev Stock Exchange	2008	Present	First		
United Kingdom	Seaq International	1991	Present	Second	Subsidiary	
United Kingdom	London Stock Exchange AIM Market	1995	Present	Second	Subsidiary	
United Kingdom	International Stock Exchange	1998	Present	First		Channel (1998-2013)
United Kingdom	Chi-X Europe	2007	Present	First		

Oceania

Country	Exchange	Entry Year	Exit year	Tier	Status (if 2 nd -Tier)	Consolidated Exchanges
Australia	SIM VSE	2010	Present	Second	Independent	
New Zealand	New Zealand Alternative Market	2007	Present	Second	Subsidiary	
Papua New Guinea	Port Moresby (Papua New Guinea)	1999	Present	First		

Table A2: Description of the Requirements for Companies to List on Exchanges.

Listing requirement	Units	Description
Number of listing requirements	Count	An index of 16 listing requirements described below. Each requirement was weighted equally and the index ranges from 0 (no requirement across categories) to 16 (having an explicit requirement for all categories). If a requirement is not specified, we assumed that the exchange did not have that requirement and assigned it a value of zero.
Market capitalization	USD 2010 millions	The minimum global market capitalization required for listing on the exchange. If an exchange had no explicit market capitalization requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Paid-up capital	USD 2010 Millions	The minimum amount of money a company must have received from shareholders in exchange for shares of stock to be listed on the exchange. If an exchange had no explicit paid-up capital requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Free float	Fraction	The minimum fraction of the company's total common shares outstanding that must be freely floated on the stock exchange to be listed on the exchange. If an exchange had no explicit such requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Shareholders' equity	USD 2010 Millions	The minimum net worth of the company to be listed on the exchange. If an exchange had no explicit minimum shareholder's equity requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Number of shareholders	Count	The minimum number of shareholders that the company must have before being listed on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Profitable years	No. of years	The minimum number of years that the company should be profitable before being listed on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assign it a value of zero.
Years in Operation	No. of years	The minimum number of years the company should be operational for before being listed on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Value of shares traded	USD 2010 Millions	The minimum value of shares that must be traded after being listing on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Listing Fee	USD 2010 Millions	The listing fee charged by the exchange to list a company. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.

Asset size	USD 2010 Millions	The minimum value of total assets that a company must have before being listed on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Annual income	USD 2010 Millions	The minimum annual income that the company must have earned in the latest fiscal year before being listed on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Annual profit	USD 2010 Millions	The minimum annual profit that the company must have earned in the latest fiscal year before being listed on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Owner's capital	USD 2010 Millions	The minimum value of total shares owned by the owner's promoters, company officers, or controlling-interest investors before the company can be listed on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Board members	Count	The minimum number of board members that a company must have before it can be listed on the exchange. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Publicly traded shares outstanding elsewhere	USD 2010 Millions	The minimum market value of publicly traded shares of a company outstanding in a different exchange before it can be listed on the exchange. This requirement is generally applicable when companies cross-list shares. If an exchange had no such explicit requirement, we assumed that the exchange did not have this requirement and assigned it a value of zero.
Disclosure	Count	Encodes whether the exchange had a requirement to disclose financial statements.

Table A3: Construction of the IPO Sample.

This table describes the specifics of the construction of the sample of IPOs used in the analysis using SDC, Bloomberg, and Capital IQ databases.

Steps	Sample	SDC		Bloomberg		Capital IQ	
		Dropped	Remaining	Dropped	Remaining	Dropped	Remaining
	Offerings (1960-2018)		255,312	-	54,928		30,485
1	Secondary offerings	187,249	68,063	11,098	43,830	-	30,485
2	IPOs that were withdrawn/rejected/postponed/pending/rumored/mandated/unknown	-	68,063	6,871	36,959	-	30,485
3	ADRs	1,008	67,055	506	36,453	1,400	29,085
4	Offers with warrants	805	66,250	-	36,453	4,841	24,244
5	Unit offerings	1,720	64,530	2,620	33,833	-	24,244
6	Closed-end (including REIT)	1,494	63,036	1,857	31,976	4,522	19,722
7	Limited partnership	284	62,752	-	31,976	-	19,722
8	Special acquisition	10	62,742	-	31,976	-	19,722
9	Spin offs	6,763	55,979	-	31,976	-	19,722
10	ETFs	-	55,979	98	31,878	2,200	17,522
11	Investment trusts	5,396	50,583	13	31,865	1,759	15,763
12	Private placements	42	50,541	-	31,865	-	15,763
13	Financial firms	7,922	42,619	4,912	26,953	2,407	13,356
14	Non-common shares	1,187	41,432	560	26,393	-	13,356
15	Missing ISIN/CUSIP/Issuer	10	41,422	25	26,368	-	13,356
16	Dropping IPOs from same firm after 30 days from initial IPO	-	41,422	-	26,368	-	13,356
17	Consolidating domestic tranche proceeds when the date is within 30 days	7,461	33,961	230	26,138	-	13,356
18	Missing or zero proceeds	346	33,615	6,523	19,615	-	13,356
	Sample for merging		33,615		19,615		13,356

Merging Databases	Sample
<i>Matching Bloomberg & Capital IQ data</i>	
Capital IQ sample	13,356
Bloomberg sample	19,615
Unmatched Capital IQ	2,700
Unmatched Bloomberg	8,959
Matched	10,656
Bloomberg + Capital IQ sample	22,315
<i>Matching Bloomberg + Capital IQ & SDC</i>	
Bloomberg + Capital IQ	22,315
SDC Sample	33,615
Unmatched Bloomberg + Capital IQ	10,015
Unmatched SDC	20,965
Matched	12,650
Bloomberg + Capital IQ + SDC	43,630
Bloomberg + Capital IQ + SDC (1990-2017)	40,090

Table A4: Comparing the IPO Sample (1990-2011) with Doidge et al. (2013).

This table explores the differences between the sample in this paper and the sample of Doidge, Karolyi, and Stulz (2013). The table compares the number of IPOs in both samples in each country and reports the differences. Since the Doidge et al. (2013) sample uses SDC data for 1990 and 2011, we compare it to our SDC sample over the same time period. We also list our final sample from SDC, Bloomberg, and Capital IQ for the same time period. The two samples are quite similar in size, but there are important differences in methodologies. First, Doidge et al. (2013) rely on SDC alone to collect information about IPOs around the world, while we combine information from SDC, Capital IQ, and Bloomberg. Second, we have 10,026 fewer IPOs from SDC for the period from 1990 to 2011 because of our focus on entrepreneurial companies. For these reasons, unlike Doidge et al. (2013), we further omit ADRs (796), spin-offs (2,914), financial firms (5,816), offers with warrants (475), unit offerings (1,237), limited partnerships (217), special purpose acquisitions (10), and IPOs with missing CUSIPs (10) for the period from 1990 to 2011, which are all included in Doidge et al. (2013) sample. Note that Doidge et al. (2013) exclude 219 IPOs with missing SIC codes and companies from tax havens. While we do not make these 219 deletions, Doidge et al. (2013) include most of the firms that we exclude.

Country (from Doidge et al. (2013))	Doidge et al. (2013) – SDC	Our Sample – SDC	Difference	Our Sample – SDC+Bloomberg+Capital IQ
United States	6,446	4,478	1,968	6,786
India	5,024	3,514	1,510	3,548
China	2,799	2,322	477	2,340
Canada	2,444	1,655	789	2,687
Japan	2,354	868	1,486	1,929
Australia	1,841	897	944	915
United Kingdom	1,688	1,414	274	1,658
South Korea	1,007	910	97	1,093
Taiwan	992	917	75	1,127
Hong Kong	929	790	139	1,264
France	826	402	424	414
Malaysia	796	713	83	817
Germany	606	502	104	506
Singapore	560	505	55	606
Thailand	456	353	103	438
Indonesia	346	133	213	147
Poland	308	219	89	620
Italy	256	57	199	57
Pakistan	254	200	54	201
Greece	195	168	27	171
Norway	194	160	34	164
Sweden	177	147	30	173
Israel	166	62	104	66
Brazil	159	83	76	115
Philippines	130	91	39	121
Rest of the world	2,108	1,475	633	1,702
Total	33,061	23,035	10,026	29,665

Table A5: Construction of Venture Capital Activity by Nation and Year.

This table describes the specifics of the construction of the sample of venture capital activity from Thomson Reuters used in the analysis, which is used in conjunction with the data from national and regional venture capital associations., Columns (1) and (2) characterize the number of deal-investor pairs, while Column (3) reports the number of associated deals.

	(1)	(2)	(3)
	Deal-Investor Pairs		Associated Deals
	Dropped	Remaining	
Starting Sample		679,740	315,310
Missing investment	97,610	582,130	
Zero investment	227	581,903	
Buyouts	132,666	449,237	
Fund of Funds	4,882	444,355	
Generalist Private Equity	32,479	411,876	
Mezzanine	2,144	409,732	
Other Investor (Non-Private Equity)	632	409,100	
Other Private Equity	1,177	407,923	
Real Estate	1,850	406,073	
Final Sample (VC)		406,073	156,165

Table A6: Number of IPOs, Country Characteristics, and Shareholder Protection Index.

This table lists the number of IPOs in old (that is, exchanges established before 1990) and new (exchanges established between 1990 and 2013) second-tier exchanges from 1990-2017 for the 115 countries with at least one active exchange between 1990 and 2013. GDP per capita in 1990 and 2000 is in thousands of 2010 U.S. Dollars. Population in 1990 and 2000 is in millions. The index for the years 2007, 2011, 2015, and 2017 is the protecting minority investor index for the years 2007, 2011, 2015 and 2017. The index ranges from a score of 0 to 100, from lowest to highest economy on this measure. The index was taken from the World Bank's Doing Business database for the respective years. Note that because the methodology of measuring the index by the World Bank was changed in 2014, comparing index scores before and after 2014 is not informative.

Country	IPO count		GDP per capita		Population		Protecting Minority Investor Index			
	Old Second-tier	New Second-tier	1990	2000	1990	2000	2007	2011	2015	2017
Algeria	0	0	10.3	10.2	25.3	30.5	30	30	35	35
Argentina	0	0	9.1	13.2	32.7	37.1	50	50	60	62
Armenia	0	0	1.8	3.1	3.5	3.1	50	50	58	58
Australia	2	0	27.0	34.0	17.0	19.1	57	57	60	60
Austria	0	0	29.5	36.4	7.7	8.0	53	53	68	68
Azerbaijan	0	0	6.1	4.3	7.4	8.1	43	67	62	67
Bahrain	0	0	36.5	45.9	0.5	0.6		50	50	50
Bangladesh	0	0	1.3	1.6	106.2	131.6	70	70	55	55
Barbados	0	0	13.0	14.1	0.3	0.3			35	35
Belarus	0	0	7.9	7.3	10.3	10.0	40	43	58	63
Belgium	0	9	27.5	34.5	10.0	10.3	70	70	62	62
Bermuda	0	0	39.7	50.1	0.1	0.1				
Bolivia	0	0	3.6	4.3	6.9	8.3	40	40	40	40
Botswana	0	1	7.8	9.9	1.4	1.7	43	60	57	57
Brazil	0	2	8.0	11.3	150.1	173.4	53	53	65	65
Bulgaria	0	0	4.2	8.1	8.7	7.9	63	63	68	68
Cambodia	0	0	0.2	1.3	9.0	12.2	67	67	50	50
Canada	1,777	83	30.6	36.1	27.7	30.7	83	83	78	78
Chile	0	0	6.9	11.9	13.2	15.3	63	67	60	60
China	0	1,029	1.5	3.6	1,145.2	1,266.0	50	50	55	55
Colombia	1	0	8.8	8.1	34.3	40.4	63	80	75	75
Costa Rica	0	0	6.5	9.7	3.1	3.9	30	30	38	38
Cote d'Ivoire	0	0	3.1	2.9	12.3	16.7	33	33	40	40
Croatia	0	0	3.5	13.3	4.8	4.4	40	47	63	67
Cyprus	0	8	21.2	26.2	0.6	0.7		47	63	63
Czech Republic	0	0	14.0	19.9	10.3	10.3	50	50	58	58
Denmark	0	3	27.6	35.4	5.1	5.3	63	63	67	67
Dominican Republic	0	0	2.7	8.3	7.2	8.6	40	57	52	52
Ecuador	0	0	7.4	7.3	10.2	12.5	40	40	47	47
Egypt	0	1	6.7	8.3	51.7	64.0	33	37	45	52
Estonia	0	1	3.6	11.6	1.6	1.4	57	57	57	57
Finland	0	4	27.5	33.0	5.0	5.2	57	57	58	58
France	0	67	27.5	33.1	57.0	59.6	53	53	65	65

Germany	11	72	27.2	33.7	79.8	82.3	50	50	58	58
Ghana	0	4	3.4	3.4	14.6	18.9	63	63	52	52
Greece	0	4	20.1	23.4	10.2	11.1	30	33	63	63
Guatemala	0	0	5.0	5.9	9.3	11.7	33	33	32	32
Hong Kong	0	238	26.1	33.3	5.8	6.7	90	90	78	78
Hungary	0	0	3.6	14.6	10.4	10.2	43	43	50	50
Iceland	0	0	33.6	36.5	0.3	0.3	53	53	70	70
India	0	48	1.8	2.5	870.1	1,053.1	57	60	77	77
Indonesia	0	0	5.5	5.8	181.8	213.8	57	60	57	58
Iran	0	0	11.0	12.8	56.2	66.1	30	30	33	33
Iraq	0	0	11.3	11.9	17.5	23.6	43	43	47	47
Ireland	0	6	20.4	36.9	3.6	3.8	87	87	70	75
Israel	0	0	21.1	30.4	4.9	6.4	80	80	73	73
Italy	0	2	27.9	33.3	57.1	57.3	57	57	58	58
Jamaica	0	7	7.3	8.0	2.4	2.6	53	53	55	55
Japan ⁴	39	20	29.2	33.0	124.5	127.5	70	70	60	60
Jordan	0	5	6.3	7.4	3.5	4.9	30	30	40	40
Kazakhstan	0	0	5.9	9.6	16.5	15.1	40	43	55	78
Kenya	0	0	0.9	2.4	23.4	31.5	47	50	47	58
Kuwait	0	0	8.8	63.0	2.1	2.2	50	50	55	55
Kyrgyz Republic	0	0	3.5	2.0	4.4	4.9	53	67	62	62
Laos	0	0	1.6	2.3	4.3	5.3	17	17	32	32
Latvia	0	0	3.6	6.0	2.7	2.4	60	60	63	63
Lebanon	0	0	7.7	12.3	2.7	3.2	50	50	42	42
Libya	0	0	7.0	19.3	4.4	5.4			25	25
Lithuania	0	0	2.8	10.4	3.7	3.5	50	50	60	63
Luxembourg	0	0	46.9	68.4	0.4	0.4	43	43	45	45
Malawi	0	0	0.7	0.9	9.4	11.2	53	53	43	50
Malaysia	78	2	10.7	16.5	18.0	23.2	87	87	80	80
Malta	0	0	12.0	24.4	0.3	0.4			62	62
Mauritius	0	0	7.2	10.9	1.1	1.2	83	83	68	70
Mexico	0	0	10.2	13.3	85.4	101.7	57	57	58	58
Mongolia	0	0	5.0	4.6	2.2	2.4	67	67	68	68
Morocco	0	14	3.9	4.4	24.9	28.9	27	30	52	60
Myanmar	0	0	0.7	1.3	40.6	46.1			25	25
Namibia	0	0	5.1	6.0	1.4	1.9	53	53	52	52
Nepal	0	0	1.2	1.5	18.8	23.7	53	53	57	57
Netherlands	0	0	28.9	39.2	14.9	15.9	43	43	58	58
New Zealand	0	1	21.9	26.2	3.5	3.9	97	97	82	82
Nigeria	0	0	5.3	4.1	95.3	122.4	53	53	62	67
Norway	12	7	27.8	45.6	4.2	4.5	63	63	75	75

⁴ The IPO counts for Japan in the second-tier exchanges may be undercounted. There are ambiguities about on which of the many boards operated by the Japan Exchange Group the companies went public. Japan Exchange Group operates 1st Section, 2nd Section, Mothers JASDAQ, Standard JASDAQ Growth, and Tokyo Pro Market.

Oman	0	0	38.3	40.7	1.6	2.4	50	50	47	47
Pakistan	0	0	3.9	3.8	107.7	138.5	63	63	70	70
Palestine	0	0	0.9	3.9	2.1	3.2				
Panama	0	0	6.5	9.7	2.5	3.0	50	50	52	52
Papua New Guinea	0	0	2.4	2.7	4.3	5.6	57	57	53	53
Peru	0	0	4.8	5.8	21.8	26.0	60	60	62	63
Philippines	0	0	4.3	4.1	61.9	78.0	43	43	40	40
Poland	0	9	9.4	13.1	38.1	38.3	60	60	62	62
Portugal	0	4	17.8	23.4	10.0	10.2	60	60	60	60
Qatar	0	0	15.4	104.9	0.5	0.6		43	42	28
Romania	0	0	8.0	7.4	23.5	22.1	57	57	60	60
Russia	0	0	9.5	9.0	147.6	146.4	47	47	60	62
Rwanda	0	0	0.8	0.8	7.2	8.0	27	63	50	58
Saudi Arabia	0	0	44.7	42.8	15.2	20.5	57	67	52	58
Singapore	0	4	33.6	50.7	3.0	4.0	93	93	80	80
Slovak Republic	0	4	3.2	14.0	5.3	5.4	47	47	53	53
Slovenia	0	0	9.0	22.3	2.0	2.0	63	67	70	70
South Africa	0	0	9.5	9.3	37.6	45.7	80	80	73	73
South Korea	0	1,109	12.5	22.2	42.9	47.4	60	60	73	73
Spain	0	11	20.0	26.4	39.3	40.9	53	53	67	70
Sri Lanka	0	0	3.4	6.4	17.3	18.8	53	53	63	67
Sweden	20	129	30.3	36.1	8.6	8.9	57	63	68	68
Switzerland	4	4	42.1	44.3	6.7	7.2	30	30	50	50
Syria	0	0	3.8	4.9	12.5	16.4	43	47	53	53
Taiwan	0	682	15.2	26.7	20.4	22.3	53	53	73	73
Tanzania	0	2	1.4	1.4	25.5	34.2	53	53	45	45
Thailand	0	5	6.7	9.0	56.6	63.0	60	77	67	67
Trinidad and Tobago	0	0	12.0	17.9	1.2	1.3	67	67	62	62
Tunisia	0	0	5.5	7.4	8.2	9.7	33	57	52	52
Turkey	0	0	13.1	11.8	53.9	63.2	53	57	72	72
Uganda	0	0	0.3	1.4	17.4	24.0	47	47	50	50
Ukraine	0	0	4.0	4.7	51.6	48.7	33	40	47	55
United Arab Emirates	0	0	110.2	102.6	1.9	3.2	40	40	58	75
United Kingdom	4	705	27.9	32.5	57.1	58.9	80	80	75	75
United States	4,365	14	36.3	45.1	249.6	282.2	83	83	63	63
Uruguay	0	0	9.6	12.7	3.1	3.3	50	50	43	43
Venezuela	0	0	15.0	14.4	19.3	24.1	23	23	27	27
Vietnam	0	34	1.4	2.5	68.2	80.3	20	30	45	55
Yugoslavia	0	0	4.2	6.9	8.0	7.7	47	47	57	57
Zambia	0	0	2.2	2.0	8.1	10.6	57	57	50	50
Zimbabwe	0	0	2.6	2.5	10.2	12.2	47	47	52	53
Total	6,313	4,354								

Table A7: Breakdown of Countries by Region.

This table summarizes the assignment to regions of the 115 countries with at least one active exchange between 1990 and 2013. The Income Group is defined based on the World Bank's *Global Financial Development Database*. The income groupings are measured using gross national income per capita in U.S. dollars. The countries are divided into four income groups: low, lower-middle, upper-middle, and high.

Country	ISO3C	Continent	Region	Income Group
United States	USA	Americas	USA	High income
China	CHN	Asia	China	Upper middle income
Armenia	ARM	Asia	Other Asia	Lower middle income
Azerbaijan	AZE	Asia	Other Asia	Upper middle income
Bahrain	BHR	Asia	Other Asia	High income
Bangladesh	BGD	Asia	Other Asia	Lower middle income
Cambodia	KHM	Asia	Other Asia	Lower middle income
Cyprus	CYP	Asia	Other Asia	High income
Hong Kong	HKG	Asia	Other Asia	High income
India	IND	Asia	Other Asia	Lower middle income
Indonesia	IDN	Asia	Other Asia	Lower middle income
Iran	IRN	Asia	Other Asia	Upper middle income
Iraq	IRQ	Asia	Other Asia	Upper middle income
Israel	ISR	Asia	Other Asia	High income
Japan	JPN	Asia	Other Asia	High income
Jordan	JOR	Asia	Other Asia	Lower middle income
Kazakhstan	KAZ	Asia	Other Asia	Upper middle income
Kuwait	KWT	Asia	Other Asia	High income
Kyrgyz Republic	KGZ	Asia	Other Asia	Lower middle income
Laos	LAO	Asia	Other Asia	Lower middle income
Lebanon	LBN	Asia	Other Asia	Upper middle income
Malaysia	MYS	Asia	Other Asia	Upper middle income
Mongolia	MNG	Asia	Other Asia	Lower middle income
Myanmar	MMR	Asia	Other Asia	Lower middle income
Nepal	NPL	Asia	Other Asia	Low income
Oman	OMN	Asia	Other Asia	High income
Pakistan	PAK	Asia	Other Asia	Lower middle income
Palestine	PSE	Asia	Other Asia	Lower middle income
Philippines	PHL	Asia	Other Asia	Lower middle income
Qatar	QAT	Asia	Other Asia	High income
Saudi Arabia	SAU	Asia	Other Asia	High income
Singapore	SGP	Asia	Other Asia	High income
South Korea	KOR	Asia	Other Asia	High income
Sri Lanka	LKA	Asia	Other Asia	Lower middle income
Syria	SYR	Asia	Other Asia	Lower middle income
Taiwan	TWN	Asia	Other Asia	High income
Thailand	THA	Asia	Other Asia	Upper middle income
Turkey	TUR	Asia	Other Asia	Upper middle income

United Arab Emirates	ARE	Asia	Other Asia	High income
Vietnam	VNM	Asia	Other Asia	Lower middle income
Austria	AUT	Europe	Europe	High income
Belarus	BLR	Europe	Europe	Upper middle income
Belgium	BEL	Europe	Europe	High income
Bulgaria	BGR	Europe	Europe	Upper middle income
Croatia	HRV	Europe	Europe	Upper middle income
Czech Republic	CZE	Europe	Europe	High income
Denmark	DNK	Europe	Europe	High income
Estonia	EST	Europe	Europe	High income
Finland	FIN	Europe	Europe	High income
France	FRA	Europe	Europe	High income
Germany	DEU	Europe	Europe	High income
Greece	GRC	Europe	Europe	High income
Hungary	HUN	Europe	Europe	High income
Iceland	ISL	Europe	Europe	High income
Ireland	IRL	Europe	Europe	High income
Italy	ITA	Europe	Europe	High income
Latvia	LVA	Europe	Europe	High income
Lithuania	LTU	Europe	Europe	High income
Luxembourg	LUX	Europe	Europe	High income
Malta	MLT	Europe	Europe	High income
Netherlands	NLD	Europe	Europe	High income
Norway	NOR	Europe	Europe	High income
Poland	POL	Europe	Europe	High income
Portugal	PRT	Europe	Europe	High income
Romania	ROU	Europe	Europe	Upper middle income
Russia	RUS	Europe	Europe	Upper middle income
Slovak Republic	SVK	Europe	Europe	High income
Slovenia	SVN	Europe	Europe	High income
Spain	ESP	Europe	Europe	High income
Sweden	SWE	Europe	Europe	High income
Switzerland	CHE	Europe	Europe	High income
Ukraine	UKR	Europe	Europe	Lower middle income
United Kingdom	GBR	Europe	Europe	High income
Yugoslavia	SRB	Europe	Europe	Upper middle income
Algeria	DZA	Africa	Rest of the World	Upper middle income
Argentina	ARG	Americas	Rest of the World	Upper middle income
Australia	AUS	Oceania	Rest of the World	High income
Barbados	BRB	Americas	Rest of the World	High income
Bermuda	BMU	Americas	Rest of the World	High income
Bolivia	BOL	Americas	Rest of the World	Lower middle income
Botswana	BWA	Africa	Rest of the World	Upper middle income
Brazil	BRA	Americas	Rest of the World	Upper middle income
Canada	CAN	Americas	Rest of the World	High income

Chile	CHL	Americas	Rest of the World	High income
Colombia	COL	Americas	Rest of the World	Upper middle income
Costa Rica	CRI	Americas	Rest of the World	Upper middle income
Cote d'Ivoire	CIV	Africa	Rest of the World	Lower middle income
Dominican Republic	DOM	Americas	Rest of the World	Upper middle income
Ecuador	ECU	Americas	Rest of the World	Upper middle income
Egypt	EGY	Africa	Rest of the World	Lower middle income
Ghana	GHA	Africa	Rest of the World	Lower middle income
Guatemala	GTM	Americas	Rest of the World	Lower middle income
Jamaica	JAM	Americas	Rest of the World	Upper middle income
Kenya	KEN	Africa	Rest of the World	Lower middle income
Libya	LBY	Africa	Rest of the World	Upper middle income
Malawi	MWI	Africa	Rest of the World	Low income
Mauritius	MUS	Africa	Rest of the World	Upper middle income
Mexico	MEX	Americas	Rest of the World	Upper middle income
Morocco	MAR	Africa	Rest of the World	Lower middle income
Namibia	NAM	Africa	Rest of the World	Upper middle income
New Zealand	NZL	Oceania	Rest of the World	High income
Nigeria	NGA	Africa	Rest of the World	Lower middle income
Panama	PAN	Americas	Rest of the World	Upper middle income
Papua New Guinea	PNG	Oceania	Rest of the World	Lower middle income
Peru	PER	Americas	Rest of the World	Upper middle income
Rwanda	RWA	Africa	Rest of the World	Low income
South Africa	ZAF	Africa	Rest of the World	Upper middle income
Tanzania	TZA	Africa	Rest of the World	Low income
Trinidad and Tobago	TTO	Americas	Rest of the World	High income
Tunisia	TUN	Africa	Rest of the World	Lower middle income
Uganda	UGA	Africa	Rest of the World	Low income
Uruguay	URY	Americas	Rest of the World	High income
Venezuela	VEN	Americas	Rest of the World	Upper middle income
Zambia	ZMB	Africa	Rest of the World	Lower middle income
Zimbabwe	ZWE	Africa	Rest of the World	Low income

Table A8: Shareholder Protection (Continuous Measure) and Introduction of New Second-Tier Exchanges.

This table explores the association between minority shareholder protection index and the probability of introducing a new second-tier exchange (that is, exchanges established between 1990 and 2013). The coefficients are estimated using Ordinary Least Squares (OLS) regressions with robust standard errors in parentheses. The sample is a country-level cross-section. The dependent variable *Second-tier* equals one if the country introduced a new second-tier exchange between 1990 and 2013. The *Protecting Minority Investor Index* ranges from a score of 0 to 100, from lowest to highest economy on this measure. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables *ln(GDP)* and *ln(Population)* are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in 1990. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in the Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. Table A7 in the Internet Appendix lists the income group and the regions of the countries. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1)	(2)	(3)	(4)
	Second-tier	Second-tier	Second-tier	Second-tier
Protecting Minority Investor Index	0.012*** (0.003)	0.009*** (0.003)	0.009*** (0.003)	0.008** (0.003)
Pre-1990 Second-tier exchange	0.140 (0.121)	0.020 (0.109)	0.042 (0.117)	0.020 (0.115)
ln(Population)		-0.037 (0.045)	-0.052 (0.049)	0.010 (0.069)
ln(GDP)		0.110*** (0.038)	0.123*** (0.043)	0.084 (0.059)
Region FE	No	No	Yes	Yes
Income Group FE	No	No	No	Yes
Observations	115	115	115	115
R-squared	0.107	0.186	0.199	0.252

Table A9: Legal Origins and the Introduction of New Second-Tier Exchanges.

This table explores the association between legal origins and the probability of introducing a new second-tier exchange (that is, exchanges established between 1990 and 2013). The coefficients are estimated using Ordinary Least Squares (OLS) regressions with robust standard errors in parentheses. The sample is a country-level cross-section. The dependent variable *Second-tier* equals one if the country introduced a new second-tier exchange between 1990 and 2013. The *Common Law* and *Civil Law* dummies equal one if the country's legal origin is in one of these two categories according to LLSV (1999). *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables $\ln(GDP)$ and $\ln(Population)$ are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in 1990. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in the Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. Table A7 in the Internet Appendix lists the income group and the regions of the countries. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1)	(2)	(3)	(4)
	Second-tier	Second-tier	Second-tier	Second-tier
Common Law	0.040 (0.117)	0.067 (0.113)	0.088 (0.133)	-0.019 (0.135)
Civil Law	-0.122 (0.109)	-0.155 (0.103)	-0.129 (0.129)	-0.150 (0.126)
Pre-1990 Second-tier Exchange	0.136 (0.137)	-0.041 (0.126)	-0.020 (0.136)	-0.026 (0.132)
$\ln(Population)$		-0.055 (0.047)	-0.059 (0.052)	0.010 (0.067)
$\ln(GDP)$		0.145*** (0.038)	0.148*** (0.045)	0.101* (0.058)
Region FE	No	No	Yes	Yes
Income Group FE	No	No	No	Yes
Observations	115	115	115	115
R-squared	0.034	0.168	0.177	0.228

Table A10: Innovation (Continuous Measures) and Introduction of New Second-Tier Exchanges.

This table explores the association between innovation measures and the probability of introducing a new second-tier exchange (that is, exchanges established between 1990 and 2013). The coefficients are estimated using Ordinary Least Squares (OLS) regressions with robust standard errors in parentheses. The sample is a country-level cross-section. The dependent variable *Second-tier* equals one if the country introduced a new second-tier exchange between 1990 and 2013. $\ln(1 + Patents)$ is the natural logarithm of one plus the number of patent applications filed by nationals in 1990. $\ln(1 + Venture Capital)$ is the natural logarithm of one plus the total Venture Capital funding in 1990. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables $\ln(GDP)$ and $\ln(Population)$ are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in 1990. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in the Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. Table A7 in the Internet Appendix lists the income group and the regions of the countries. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Second-tier	Second-tier	Second-tier	Second-tier	Second-tier	Second-tier	Second-tier
$\ln(1 + Patents)$	0.058*** (0.012)	0.044** (0.017)	0.042** (0.019)				0.039** (0.019)
$\ln(1 + Venture Capital)$				0.128*** (0.034)	0.095** (0.038)	0.078** (0.038)	0.070** (0.035)
Pre-1990 Secondary Exchange	-0.006 (0.114)	-0.054 (0.117)	-0.022 (0.123)	-0.001 (0.119)	-0.048 (0.112)	-0.026 (0.117)	-0.074 (0.123)
$\ln(Population)$		-0.054 (0.045)	-0.026 (0.069)		-0.022 (0.047)	0.020 (0.067)	-0.026 (0.069)
$\ln(GDP)$		0.084* (0.043)	0.072 (0.056)		0.078* (0.042)	0.057 (0.058)	0.049 (0.056)
Region FE	No	No	Yes	No	No	Yes	Yes
Income Group FE	No	No	Yes	No	No	Yes	Yes
Observations	115	115	115	115	115	115	115
R-squared	0.160	0.188	0.255	0.162	0.196	0.249	0.283

Table A11: Financial Development (Continuous Measures) and Introduction of New Second-Tier Exchanges.

This table explores the association between financial development measures and the probability of introducing a new second-tier exchange (that is, exchanges established between 1990 and 2013). The coefficients are estimated using Ordinary Least Squares (OLS) regressions with robust standard errors (in parentheses). The sample is a country-level cross-section. The dependent variable *Second-tier* equals one if the country introduced a new second-tier exchange between 1990 and 2013. *Credit / GDP* is the ratio of private credit to GDP. *Market Cap / GDP* is the ratio of Market Capitalization to GDP. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables *ln(GDP)* and *ln(Population)* are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in 1990. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in the Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. Table A7 in the Internet Appendix lists the income group and the region of the countries. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Second-tier	Second-tier	Second-tier	Second-tier	Second-tier	Second-tier	Second-tier
Credit/GDP	0.005*** (0.001)	0.005*** (0.001)	0.004*** (0.001)				0.004** (0.002)
Market cap/GDP				0.009*** (0.003)	0.006*** (0.002)	0.005** (0.002)	0.002 (0.002)
Pre-1990 Secondary Exchange	-0.011 (0.126)	-0.067 (0.116)	-0.068 (0.129)	0.035 (0.127)	-0.048 (0.118)	-0.023 (0.123)	-0.084 (0.133)
ln(Population)		0.004 (0.049)	0.004 (0.073)		-0.030 (0.046)	0.027 (0.068)	0.010 (0.075)
ln(GDP)		0.070 (0.043)	0.081 (0.062)		0.104*** (0.040)	0.071 (0.059)	0.073 (0.065)
Region FE	No	No	Yes	No	No	Yes	Yes
Income Group FE	No	No	Yes	No	No	Yes	Yes
Observations	115	115	115	115	115	115	115
R-squared	0.179	0.232	0.275	0.105	0.175	0.235	0.279

Table A12: Relationship between Incumbent First-Tier and New Second-Tier Exchanges; Performance – Interaction with Shareholder Protection.

This table explores the association between the performance of new second-tier (that is, exchanges established between 1990 and 2013) and incumbent first-tier exchange(s) in the same country. The coefficients are estimated using Ordinary Least Squares (OLS) regressions. Standard errors are clustered at the country level and are in parentheses. The sample includes pairwise observations of all new second-tier exchanges with each first-tier exchange operating in the country in the year of the introduction of the new second-tier exchange. In columns (1) and (2), the dependent variable is the natural logarithm of one plus the total number of IPOs in a first-tier exchange in the first five years after the introduction of a new second-tier exchange. In columns (3) and (4), the dependent variable is the natural logarithm of one plus the total proceeds (in millions of 2010 U.S. dollars) in a first-tier exchange in the first five years after the introduction of a new second-tier exchange in the country. $\ln(1 + \# \text{ IPOs}) - \text{Second-tier}$ and $\ln(1 + \text{ IPO Proceeds}) - \text{Second-tier}$ are the logs of one plus the total number of IPOs and one plus the total proceeds (again in millions of 2010 U.S. dollars) raised across all IPOs in a second-tier exchange in its first five years of operation. $\ln(1 + \# \text{ IPOs}) - \text{First-tier} - \text{pre-period}$ and $\ln(1 + \text{ IPO Proceeds}) - \text{First-tier} - \text{pre-period}$ are the logs of one plus the total number of IPOs and one plus the total proceeds (again in millions of 2010 U.S. dollars) raised across all IPOs in a first-tier exchange in the five years before the introduction of a new second-tier exchange in the country. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. *High Shareholder Protection* equals one if the country's protecting minority investor index is in the top quartile among all the countries in the sample. The index ranges from a score of 0 to 100, from lowest to highest economy on this measure. The variables $\ln(\text{GDP})$ and $\ln(\text{Population})$ are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in a given year. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. Table A7 in the Internet Appendix lists the income group and the regions of the countries. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1) ln(1 + # IPOs) First-tier	(2) ln(1 + # IPOs) First-tier	(3) ln(1 + IPO Proceeds) First-tier	(4) ln(1 + IPO Proceeds) First-tier
ln(1 + # IPOs) – Second-tier	0.147 (0.089)	0.179* (0.090)		
ln(1 + # IPOs) – First-tier – pre-period	1.039*** (0.038)	1.050*** (0.036)		
ln(1 + IPO Proceeds) – Second-tier			0.148 (0.100)	0.128 (0.100)
ln(1 + IPO Proceeds) – First-tier – pre-period			0.946*** (0.084)	0.946*** (0.088)
Pre-1990 Secondary Exchange	-0.505* (0.282)	-0.616** (0.249)	-1.087 (0.691)	-1.757*** (0.587)
High Shareholder Protection (top quartile)	-0.117 (0.474)	-0.037 (0.423)	-0.212 (0.789)	-0.218 (0.724)
High Shareholder Protection × ln(1 + # IPOs) – Second-tier	-0.100 (0.191)	-0.151 (0.180)		
High Shareholder Protection × ln(1 + IPO Proceeds) – Second-tier			0.211 (0.238)	0.279 (0.240)
ln(Population)	0.271 (0.183)	0.245 (0.232)	-0.520 (0.391)	-0.174 (0.392)
ln(GDP)	-0.305 (0.187)	-0.305 (0.223)	-0.057 (0.483)	-0.295 (0.456)
Entry Year FE	Y	Y	Y	Y
Income Group FE	N	Y	N	Y
Region FE	N	Y	N	Y
Observations	184	184	184	184

R-squared	0.751	0.759	0.663	0.674
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Table A13: Listing Characteristics in the First-Tier Exchanges after the Introduction of a New Second-Tier Exchange.

This table explores the change in characteristics of companies listing on first-tier exchanges after the introduction of a new second-tier exchange (that is, exchanges established between 1990 and 2013) in the country. Appendix Table A1 in the Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. The coefficients are estimated using Ordinary Least Squares (OLS) regressions. Standard errors are clustered at the country level and are in parentheses. The sample includes pairwise observations of all new second-tier exchanges with each first-tier exchange operating in the country in the year of the introduction of the new second-tier exchange. The dependent variables are the mean characteristics of companies at the time of the IPO in the first-tier exchanges in the first five years after the introduction of the second-tier exchange in the country. These include the mean age of companies at the time of IPO in columns (1) and (2), total assets of the companies in columns (3) and (4), and the ratio of EBITDA to assets of companies in columns (5) and (6). We require that there be at least one non-missing observation of each characteristic in the first-tier exchange before the introduction of the second-tier exchange and at least one after for the first-tier exchange to be included in the sample. *Dep Var – First-tier – pre-period* control for the respective characteristics of firms in the first-tier exchange in the 5 years before the introduction of the second-tier exchange in the country. $\ln(1 + \# \text{ IPOs}) - \text{Second-tier}$ and $\ln(1 + \text{ IPO Proceeds}) - \text{Second-tier}$ are the logs of one plus the total number of IPOs and one plus the total proceeds (in millions of 2010 U.S. dollars) raised across all IPOs in a second-tier exchange in its first five years of operation. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables $\ln(\text{GDP})$ and $\ln(\text{Population})$ are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in a given year. More information on the variables is available in the table *Definition of Variables* in the *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(Age) First-tier	ln(Age) First-tier	ln(Assets) First-tier	ln(Assets) First-tier	EBITDA / Assets First-tier	EBITDA / Assets First-tier
$\ln(1 + \# \text{ IPOs}) - \text{Second-tier}$	0.122 (0.084)		0.231 (0.242)		-0.001 (0.010)	
$\ln(1 + \text{ IPO Proceeds}) - \text{Second-tier}$		0.042 (0.031)		0.098 (0.108)		0.000 (0.006)
<i>Dep Var – First-tier – pre-period</i>	0.282 (0.216)	0.260 (0.162)	0.918** (0.389)	0.952** (0.359)	0.988 (0.600)	0.977 (0.616)
<i>Pre-1990 Second-tier Exchange</i>	1.307*** (0.285)	0.756** (0.293)	0.106 (0.856)	0.012 (0.874)	-0.042 (0.050)	-0.041 (0.050)
$\ln(\text{Population})$	0.777** (0.310)	0.520 (0.305)	0.919 (0.675)	1.059 (0.631)	0.002 (0.054)	0.003 (0.059)
$\ln(\text{GDP})$	-0.892** (0.328)	-0.605* (0.302)	-1.060 (0.626)	-1.164* (0.612)	-0.004 (0.053)	-0.005 (0.059)
Entry Year FE	Y	Y	Y	Y	Y	Y
Observations	46	46	43	43	41	41
R-squared	0.761	0.658	0.717	0.713	0.755	0.755

Table A14: Legal Origins and the Performance of New Second-Tier Exchanges.

This table explores the association between legal origins and the performance of new second-tier exchanges (that is, exchanges established between 1990 and 2013). The coefficients are estimated using Ordinary Least Squares (OLS) regressions. Standard errors are clustered at the country level and are in parentheses. The sample has a panel structure, with observations for each country-year pair. Only years from the introduction of a second-tier exchange onward are included. In columns (1) and (2), the dependent variable is the natural logarithm of one plus the number of IPOs in new second-tier exchanges in a given year. In columns (3) and (4), the dependent variable is the natural logarithm of one plus the total proceeds (in millions of 2010 U.S. dollars) of all IPOs in new second-tier exchanges in a given year. The *Common Law* and *Civil Law* dummies equal one if the country's legal origin is in one of these two categories according to LLSV (1999). *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables $\ln(\text{GDP})$ and $\ln(\text{Population})$ are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in a given year. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in the Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. Table A7 in the Internet Appendix lists the region of the countries. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1)	(2)	(3)	(4)
	$\ln(1 + \#$ IPOs)	$\ln(1 + \#$ IPOs)	$\ln(1 + \text{IPO}$ Proceeds)	$\ln(1 + \text{IPO}$ Proceeds)
Common Law	0.161*** (0.052)	0.139* (0.072)	0.331*** (0.112)	0.505*** (0.155)
Civil Law	-0.216*** (0.059)	-0.044 (0.073)	-0.429*** (0.126)	-0.039 (0.157)
Pre-1990 Second-tier Exchange	-0.079 (0.059)	-0.146** (0.070)	-0.240* (0.127)	-0.236 (0.150)
$\ln(\text{GDP})$	0.183*** (0.030)	0.201*** (0.037)	0.508*** (0.065)	0.607*** (0.080)
$\ln(\text{Population})$	-0.127*** (0.031)	-0.126*** (0.039)	-0.358*** (0.066)	-0.415*** (0.083)
Observations	1,451	1,451	1,451	1,451
R-squared	0.077	0.234	0.100	0.256
Year FE	Yes	Yes	Yes	Yes
Entry Year FE	Yes	Yes	Yes	Yes
Region FE	No	Yes	No	Yes

Table A15: Shareholder Protection and the Performance of New Second-Tier Exchanges for Domestic and Foreign Companies.

These tables explore the association between shareholder protection and the performance of new second-tier exchanges (that is, exchanges established between 1990 and 2013) for domestic and foreign companies. The coefficients are estimated using Ordinary Least Squares (OLS) regressions. Standard errors are clustered at the country level and are in parentheses. If a company's country of incorporation is different from the country where it had its IPO, we regard that company to be foreign from the perspective of the exchange, and domestic otherwise. If a country does not have country-of-incorporation information, we use the country of headquarters to determine this. Panel A tabulates the performance of the exchange for domestic incorporated companies and Panel B tabulates the performance for foreign incorporated. In both panels, the sample has a panel structure, with observations for each country-year pair. Only years from the introduction of a second-tier exchange onward are included. In columns (1) and (2), the dependent variable is the natural logarithm of one plus the number of IPOs in new second-tier exchanges in a given year. In columns (3) and (4), the dependent variable is the natural logarithm of one plus the total proceeds (in millions of 2010 U.S. dollars) of all IPOs in new second-tier exchanges in a given year. *High Shareholder Protection* equals one if the country's protecting minority investor index is in the top quartile among all the countries in the sample. The index ranges from a score of 0 to 100, from lowest to highest economy on this measure. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables $\ln(\text{GDP})$ and $\ln(\text{Population})$ are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in a given year. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. Table A7 in the Internet Appendix lists the regions of the countries. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

Panel A: Domestic companies.

	(1)	(2)	(3)	(4)
	$\ln(1 + \#$ IPOs)	$\ln(1 + \#$ IPOs)	$\ln(1 +$ IPO Proceeds)	$\ln(1 +$ IPO Proceeds)
High Shareholder Protection (top quartile)	0.387** (0.179)	0.356** (0.144)	0.467 (0.306)	0.433 (0.264)
Pre-1990 Second-tier Exchange	-0.040 (0.250)	-0.045 (0.279)	-0.133 (0.445)	-0.138 (0.491)
$\ln(\text{GDP})$	-0.002 (0.074)	-0.003 (0.102)	0.122 (0.130)	0.134 (0.186)
$\ln(\text{Population})$	0.102 (0.067)	0.110 (0.092)	0.087 (0.119)	0.088 (0.169)
Observations	1,408	1,408	1,408	1,408
R-squared	0.265	0.272	0.292	0.297
Year FE	Yes	Yes	Yes	Yes
Entry Year FE	Yes	Yes	Yes	Yes
Region FE	No	Yes	No	Yes

Panel B: Foreign companies.

	(1)	(2)	(3)	(4)
	ln(1 + # IPOs)	ln(1 + # IPOs)	ln(1 + IPO Proceeds)	ln(1 + IPO Proceeds)
High Shareholder Protection (top quartile)	0.145** (0.071)	0.129* (0.064)	0.284 (0.205)	0.227 (0.182)
Pre-1990 Second-tier Exchange	-0.003 (0.114)	-0.005 (0.126)	-0.103 (0.306)	-0.120 (0.337)
ln(GDP)	-0.006 (0.032)	-0.011 (0.044)	0.063 (0.089)	0.070 (0.125)
ln(Population)	0.055 (0.036)	0.063 (0.049)	0.069 (0.100)	0.072 (0.135)
Observations	1,408	1,408	1,408	1,408
R-squared	0.302	0.306	0.288	0.293
Year FE	Yes	Yes	Yes	Yes
Entry Year FE	Yes	Yes	Yes	Yes
Region FE	No	Yes	No	Yes

Table A16: Innovation and the Performance of New Second-Tier Exchanges for Domestic and Foreign Companies.

These tables explore the association between innovation measures and the performance of new second-tier exchanges (that is, exchanges established between 1990 and 2013) for domestic and foreign companies. The coefficients are estimated using Ordinary Least Squares (OLS) regressions. Standard errors are clustered at the country level and are in parentheses. If a company’s country of incorporation is different from the country where it had its IPO, we regard that company to be foreign from the perspective of the exchange, and domestic otherwise. If a country does not have country-of-incorporation information, we use the country of headquarters to determine this. Panel A tabulates the performance of the exchange for domestic incorporated companies and Panel B tabulates the performance for foreign incorporated. In both panels, the sample has a panel structure, with observations for each country-year pair. Only years from the introduction of a second-tier exchange onward are included. In columns (1) through (3) the dependent variable is the natural logarithm of one plus the number of IPOs in new second-tier exchanges in a given year. In columns (4) through (6), the dependent variable is the natural logarithm of one plus the total proceeds (in millions of 2010 U.S. dollars) of all IPOs in new second-tier exchanges in a given year. *High Shareholder Protection* equals one if the country’s protecting minority investor index is in the top quartile among all the countries in the sample. The index ranges from a score of 0 to 100, from lowest to highest economy on this measure. *High Venture Capital* equals one if the country level of VC funding is in the top quartile in the year. *High Patents* equals one if the number of patent applications filed by nationals is in the top quartile in the year. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables *ln(GDP)* and *ln(Population)* are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in a given year. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in the Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

Panel A: Domestic companies.

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(1 + # IPOs)	ln(1 + # IPOs)	ln(1 + # IPOs)	ln(1 + IPO Proceeds)	ln(1 + IPO Proceeds)	ln(1 + IPO Proceeds)
High Shareholder Protection (top quartile)	0.361** (0.170)	0.441*** (0.042)	0.429*** (0.043)	0.423 (0.292)	0.567*** (0.089)	0.549*** (0.090)
High Venture Capital (top quartile)	0.199** (0.091)		0.075 (0.048)	0.339** (0.164)		0.107 (0.102)
High Patents (top quartile)		0.551*** (0.057)	0.523*** (0.060)		1.015*** (0.120)	0.976*** (0.126)
Pre-1990 Second-tier Exchange	-0.041 (0.238)	-0.192*** (0.053)	-0.185*** (0.053)	-0.134 (0.426)	-0.414*** (0.112)	-0.403*** (0.113)
ln(GDP)	-0.026 (0.075)	-0.077*** (0.026)	-0.082*** (0.027)	0.081 (0.134)	-0.016 (0.056)	-0.024 (0.056)
ln(Population)	0.101 (0.067)	0.127*** (0.027)	0.126*** (0.027)	0.087 (0.119)	0.134** (0.056)	0.133** (0.056)
Observations	1,408	1,408	1,408	1,408	1,408	1,408
R-squared	0.274	0.312	0.313	0.298	0.327	0.328
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Entry Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Foreign companies.

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(1 + # IPOs)	ln(1 + # IPOs)	ln(1 + # IPOs)	ln(1 + IPO Proceeds)	ln(1 + IPO Proceeds)	ln(1 + IPO Proceeds)
High Shareholder Protection (top quartile)	0.130* (0.067)	0.171*** (0.022)	0.161*** (0.022)	0.245 (0.197)	0.361*** (0.061)	0.340*** (0.062)
High Venture Capital (top quartile)	0.115** (0.048)		0.058** (0.025)	0.297** (0.131)		0.122* (0.070)
High Patents (top quartile)		0.260*** (0.030)	0.238*** (0.031)		0.782*** (0.083)	0.737*** (0.086)
Pre-1990 Second-tier Exchange	-0.003 (0.108)	-0.075*** (0.028)	-0.069** (0.028)	-0.103 (0.294)	-0.319*** (0.077)	-0.306*** (0.077)
ln(GDP)	-0.019 (0.035)	-0.041*** (0.014)	-0.045*** (0.014)	0.027 (0.096)	-0.044 (0.038)	-0.052 (0.039)
ln(Population)	0.055 (0.036)	0.067*** (0.014)	0.066*** (0.014)	0.069 (0.100)	0.106*** (0.038)	0.104*** (0.038)
Observations	1,408	1,408	1,408	1,408	1,408	1,408
R-squared	0.313	0.339	0.342	0.298	0.332	0.334
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Entry Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A17: Financial Development and the Performance of New Second-Tier Exchanges for Foreign and Domestic Companies.

These tables explore the association between financial development measures and the performance of new second-tier exchanges (that is, exchanges established between 1990 and 2013) for domestic and foreign companies. The coefficients are estimated using Ordinary Least Squares (OLS) regressions. Standard errors are clustered at the country level and are in parentheses. If a company's country of incorporation is different from the country where it had its IPO, we regard that company to be foreign from the perspective of the exchange, and domestic otherwise. If a country does not have country-of-incorporation information, we use the country of headquarters to determine this. Panel A tabulates the performance of the exchange for domestic incorporated companies and Panel B tabulates the performance for foreign incorporated. In both panels, the sample has a panel structure, with observations for each exchange-year pair. Only years from the introduction of a second-tier exchange onward are included. In columns (1) through (3), the dependent variable is the natural logarithm of one plus the number of IPOs in new second-tier exchanges in a given year. In columns (4) through (6), the dependent variable is the natural logarithm of one plus the total proceeds (in millions of 2010 U.S. dollars) of all IPOs in new second-tier exchanges in a given year. High Shareholder Protection equals one if the country's protecting minority investor index is in the top quartile among all the countries in the sample. The index ranges from a score of 0 to 100, from lowest to highest economy on this measure. *Credit / GDP* is the ratio of private credit to GDP. *Market Cap / GDP* is the ratio of Market Capitalization to GDP. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables $\ln(\text{GDP})$ and $\ln(\text{Population})$ are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in a given year. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in the Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

Panel A: Domestic companies.

	(1)	(2)	(3)	(4)	(5)	(6)
	$\ln(1 + \#$ IPOs)	$\ln(1 + \#$ IPOs)	$\ln(1 + \#$ IPOs)	$\ln(1 + \text{IPO}$ Proceeds)	$\ln(1 + \text{IPO}$ Proceeds)	$\ln(1 + \text{IPO}$ Proceeds)
High Shareholder Protection (top quartile)	0.448** (0.188)	0.390*** (0.059)	0.448 (0.266)	0.610* (0.331)	0.583*** (0.128)	0.744 (0.445)
Credit/GDP	0.002 (0.002)		0.003 (0.003)	0.003 (0.003)		0.005 (0.004)
Market Cap/GDP		0.001* (0.001)	0.001 (0.001)		0.002* (0.001)	0.002 (0.002)
Pre-1990 Second-tier Exchange	-0.140 (0.322)	-0.173** (0.069)	-0.395 (0.370)	-0.261 (0.561)	-0.349** (0.148)	-0.639 (0.632)
$\ln(\text{GDP})$	-0.074 (0.071)	0.004 (0.045)	-0.082 (0.119)	-0.013 (0.146)	0.071 (0.097)	-0.131 (0.201)
$\ln(\text{Population})$	0.183* (0.099)	0.109*** (0.042)	0.221 (0.173)	0.236 (0.189)	0.138 (0.090)	0.371 (0.287)
Observations	1,204	1,013	927	1,204	1,013	927
R-squared	0.294	0.277	0.307	0.315	0.293	0.312
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Entry Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Foreign companies.

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(1 + # IPOs)	ln(1 + # IPOs)	ln(1 + # IPOs)	ln(1 + IPO Proceeds)	ln(1 + IPO Proceeds)	ln(1 + IPO Proceeds)
High Shareholder Protection (top quartile)	0.159** (0.072)	0.174*** (0.033)	0.188* (0.108)	0.323 (0.209)	0.432*** (0.093)	0.457 (0.287)
Credit/GDP	0.001 (0.001)		0.001 (0.001)	0.003* (0.002)		0.005* (0.003)
Market Cap/GDP		0.001*** (0.000)	0.188* (0.108)		0.002** (0.001)	0.457 (0.287)
Pre-1990 Second-tier Exchange	-0.083 (0.137)	-0.038 (0.038)	0.001 (0.001)	-0.341 (0.366)	-0.196* (0.107)	0.005* (0.003)
ln(GDP)	-0.044 (0.031)	-0.016 (0.025)	0.188* (0.108)	-0.045 (0.095)	0.048 (0.070)	0.457 (0.287)
ln(Population)	0.098** (0.045)	0.078*** (0.023)	0.001 (0.001)	0.191 (0.134)	0.147** (0.066)	0.005* (0.003)
Observations	1,204	1,013	927	1,204	1,013	927
R-squared	0.352	0.304	0.340	0.343	0.305	0.348
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Entry Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A18: Listing Characteristics in New Second-Tier Exchanges (Excluding ChiNext).

This table explores the association between the characteristics of newly listed firms on new second-tier exchanges (that is, exchanges established between 1990 and 2013) at the time of the IPO and investor protection, after excluding the ChiNext exchange. The coefficients are estimated using Ordinary Least Squares (OLS) regressions. Standard errors are clustered at the exchange level and are in parentheses. Each IPO in a new second-tier exchange between 1990 and 2017 is an observation. In column (1), the dependent variable is the natural logarithm of firm age at the time of the IPO. In column (2), the dependent variable is the natural logarithm of total assets (in millions of 2010 U.S. dollars) at the time of the IPO. In column (3), the dependent variable is the ratio of EBITDA to assets at the time of the IPO. In column (4), the dependent variable is a dummy that equals one if the firm has positive profitability (positive EBITDA) at the time of the IPO. In column (5), the dependent variable is the ratio of total IPO proceeds divided by the firm assets at the time of the IPO. In column (6), the dependent variable is the annualized growth of firm assets in the 7 years around the IPO event (starting 3 years before and ending 3 years after the IPO). Finally, column (7) uses the annualized revenue growth of firms in the 7 years around the IPO. *High Shareholder Protection* equals one if the country's protecting minority investor index is in the top quartile among all the countries in the sample. The index ranges from a score of 0 to 100, from lowest to highest economy on this measure. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if the country already had a second-tier exchange as of 1990. The variables *ln(GDP)* and *ln(Population)* are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in a given year. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ln Age	ln Total Assets	EBITDA / Assets	Profitable at IPO	IPO Proceeds / Assets	Annualized Assets Growth	Annualized Revenue Growth
High Shareholder Protection (top quartile)	-0.500*** (0.104)	-0.927*** (0.174)	-0.245*** (0.018)	-0.430*** (0.036)	0.623*** (0.055)	0.050*** (0.008)	0.051*** (0.005)
Pre-1990 Second-tier Exchange	-0.426* (0.222)	-1.539*** (0.314)	-0.284*** (0.053)	-0.517*** (0.098)	0.481*** (0.086)	0.052*** (0.013)	0.059*** (0.013)
ln(GDP)	-0.210 (0.153)	0.583** (0.236)	0.062* (0.035)	0.032 (0.060)	0.051 (0.098)	0.010 (0.008)	0.002 (0.007)
ln(Population)	0.229** (0.095)	-0.018 (0.151)	-0.040* (0.023)	0.013 (0.040)	-0.027 (0.066)	-0.004 (0.006)	-0.003 (0.004)
Observations	2,620	2,278	2,017	2,024	2,278	2,375	2,184
R-squared	0.159	0.464	0.317	0.386	0.063	0.167	0.142
Issuance Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange Entry Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A19: Missing Observations of Firm Characteristics at the Time of the IPO.

This table explores the association between investor protection and the likelihood of having a missing observation for various firm characteristics at the time of the IPO. The coefficients are estimated using Ordinary Least Squares (OLS) regressions. Standard errors are clustered at the exchange level and are in parentheses. Each observation is an IPO on a new second-tier exchange (that is, exchanges established between 1990 and 2013) between 1990 and 2017. Only companies with information about firm age are included in the sample. Columns (1) through (7) are dummy variables that equal zero if information is missing, and one otherwise. In column (2), the dependent variable is a dummy that equals zero if the logarithm of total assets (in millions of 2010 U.S. dollars) at the time of the IPO is missing, and one otherwise. In column (3), the dependent variable is a dummy that equals zero if the ratio of EBITDA to assets at the time of the IPO is missing, and one otherwise. In column (4), the dependent variable is a dummy that equals zero if the profitability (EBITDA greater than 0) at the time of the IPO is missing, and one otherwise. In column (5), the dependent variable is a dummy that equals zero if the ratio of total IPO proceeds divided by the firm assets at the time of the IPO is missing, and one otherwise. In column (6), the dependent variable is a dummy that equals zero if the annualized growth of firm assets in the 7 years around the IPO event (starting 3 years before and ending 3 years after the IPO) is missing, and one otherwise. Finally, column (7) is a dummy that equals zero if the annualized revenue growth of firms in the 7 years around the IPO is missing, and one otherwise. *High Shareholder Protection* equals one if the country's protecting minority investor index is in the top quartile among all the countries in the sample. The index ranges from a score of 0 to 100, from lowest to highest economy on this measure. *Pre-1990 Second-tier Exchange* is a dummy variable that equals one if a country already had a second-tier exchange as of 1990. The variables $\ln(\text{GDP})$ and $\ln(\text{Population})$ are the natural logarithms of GDP (in billions of 2010 U.S. dollars) and population (in millions) respectively in a given year. More information on the variables is available in the table *Definition of Variables* in the Appendix. Table A1 in Internet Appendix lists the names of the exchanges, their entry and exit years, and their tiers. *** denotes significance at the 1% level, ** at the 5%, and * at the 10%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ln Age	ln Total Assets	EBITDA / Assets	Profitable at IPO	IPO Proceeds / Assets	Annualized Assets Growth	Annualized Revenue Growth
High Shareholder Protection (top quartile)		-0.041 (0.044)	0.065 (0.071)	0.065 (0.071)	-0.041 (0.044)	-0.019 (0.042)	0.127 (0.090)
Pre-1990 Second-tier Exchange		-0.079 (0.075)	0.044 (0.142)	0.039 (0.144)	-0.079 (0.075)	-0.067 (0.072)	0.134 (0.182)
ln(GDP)		-0.026 (0.081)	-0.093 (0.084)	-0.092 (0.085)	-0.026 (0.081)	0.003 (0.081)	-0.035 (0.087)
ln(Population)		-0.008 (0.058)	0.013 (0.058)	0.011 (0.059)	-0.008 (0.058)	-0.026 (0.057)	-0.012 (0.058)
Observations	2,972	2,972	2,972	2,972	2,972	2,972	2,972
R-squared		0.404	0.337	0.338	0.404	0.317	0.253
Issuance Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange Entry Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes