

SMEs and Public Equity Financing: A New Dataset of SME Boards in Emerging-Market and Developing Economies

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Introduction

In recent years, a number of stock exchanges in emerging-market and developing economies have established dedicated market segments for small and medium-sized enterprises (SMEs). The main purpose of these SME boards, as they are often called, is to expand access to equity finance for relatively small but growing firms with the potential, as a group, to significantly contribute to economic growth and employment. In some cases, SME boards also serve as feeder exchanges, incubating firms for later graduation to a stock exchange's main board. Today, there are around 30 dedicated SME boards in emerging-market and developing economies, the majority of which have been established in the last decade or so.

Due to the role these firms can play in creating jobs and diversifying economies, improving access to finance for SMEs is a long-standing policy goal in developed and developing countries alike. As banks have curbed their lending to SMEs in the wake of the global financial crisis, policymakers and industry bodies are now increasingly emphasizing non-bank financing alternatives for SMEs. Public equity financing is one option that may be suitable for fast-growing SMEs with the capacity to meet the listing requirements. SME boards may contribute to expanding financial access for SMEs both directly, by facilitating access to public equity financing, and indirectly, by incentivizing listing firms to improve their financial reporting and corporate governance practices, which may, in turn, make them more appealing to credit-based lenders.

What follows is a brief stocktaking of SME boards in emerging-market and developing countries. The analysis is based on a unique dataset created jointly by the Milken Institute Center for Financial Markets and the World Federation of Exchanges. The dataset covers 26 SME boards over the period 2002-2015.

As far as we know, this will be the first time this kind of time-series, composite dataset on multiple indicators for SME boards has been published. Below, we examine whether these SME boards have managed to maintain or grow their listings over time, how much capital listed firms have raised, and how common it is for firms to delist. Additionally, we offer an initial assessment of how well these boards have performed as incubators for graduating firms to senior markets. We expect that the data presented in the appendix at the end of this paper will be of interest and of use to policymakers and researchers who want to further investigate and evaluate the role of SME boards in expanding access to capital.

About the Data

The analysis draws on a newly aggregated collection of data from SME boards located in emerging-market and developing economies, as defined by the International Monetary Fund (IMF).¹ Overall, the set includes 26 exchanges from a geographically diverse set of 22 countries (see Table 1).² The dataset includes data collected by the World Federation of Exchanges (WFE) from its members and shared with the Milken Institute, as well as data collected by the Milken Institute Center for Financial Markets on non-WFE-member exchanges. Nearly all of the data was obtained directly from the exchanges themselves.³

TABLE 1. SME market segments in emerging-market and developing countries

Country	SME market segment	Affiliated main exchange	Year launched	Number of listed companies (end- 2015)	Market capitalization (US\$ millions, end-2015)
Botswana	Venture Capital Market	Botswana Stock Exchange	2004	8	747
China	ChiNext	Shenzhen Stock Exchange	2009	492	861,176
China	SME Board	Shenzhen Stock Exchange	2004	776	1,600,960
Egypt	NILEX	Egyptian Exchange	2007	31	131
Ghana	Ghana Alternative Market (GAX)	Ghana Stock Exchange	2013	4	n.a.
India	SME Platform	Bombay Stock Exchange	2012	119	1,311
India	Emerge	National Stock Exchange	2012	10	78
Jamaica	Junior Market	Jamaica Stock Exchange	2009	23	581
Kenya	Growth Enterprise Market Segment	Nairobi Securities Exchange	2013	4	n/a
Malaysia	ACE Market (formerly MESDAQ)	Bursa Malaysia	1997	109	2,754

¹ The IMF's World Economic Outlook (WEO) classifies economies as either "advanced" or "emerging market and developing" based on three criteria: per capita income level; export diversification; and integration into the global financial system. For the current list of economies classified as "emerging market and developing," see IMF, *World Economic Outlook: Subdued Demand: Symptoms and Remedies*, 2016, pp. 210-211.

² The dataset does not include SME boards in Peru, where mostly foreign mining companies are listed; Chile, where the Santiago Stock Exchange, Venture was established in May 2015; Cambodia, where the Growth Board was established in September 2015; and Morocco, due to lack of accessible data. The dataset also excludes over-the-counter (OTC) markets, including the Hanoi Stock Exchange's Unlisted Public Company Market (UPCoM) in Vietnam and Bovespa Mais in Brazil.

³ Independent efforts have been made to verify the data submitted by the exchanges to the WFE and to the Milken Institute, but given that available information on developing-country exchanges is often incomplete and can be inconsistent, full accuracy cannot be guaranteed in all instances.

Country	SME market segment	Affiliated main exchange	Year launched	Number of listed companies (end- 2015)	Market capitalization (US\$ millions, end-2015)
Malaysia	Second Board*	Bursa Malaysia	1988	*Merged with main market in 2009	
Malawi	MSE AltX	Malawi Stock Exchange	2007	0	0
Mauritius	Development & Enterprise Market	Mauritius Stock Exchange	2006	44	1,377
Nigeria	Alternative Securities Market	Nigeria Stock Exchange	2013	11	43
Philippines	SME Board	Philippine Stock Exchange	2001	4	608
Poland	NewConnect	Warsaw Stock Exchange	2007	418	2,233
Russia	Innovations and Investment Market	Moscow Exchange	2009	17	1,638
Rwanda	Alternative Market Segment	Rwanda Stock Exchange	2013	0	0
South Africa	AltX	Johannesburg Stock Exchange	2003	52	905
Tanzania	Enterprise Growth Market (EGM)	Dar es Salaam Stock Exchange	2013	4	n/a
Thailand	Market for Alternative Investment (MAI)	Stock Exchange of Thailand	1999	122	8,981
Tunisia	Alternative Market	Tunisia Stock Exchange	2007	12	7
Turkey	Emerging Companies Market	Borsa Istanbul	2011	20	244
Turkey	Second National Market**	Borsa Istanbul	2003	**Merged with main market in 2015	
Uganda	Growth Enterprise Market Segment	Uganda Securities Exchange	2013	0	0
Zambia	Alternative Market	Lusaka Stock Exchange	2014	0	0

Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Market Capitalization and Total Listings

In 2002, SME boards in emerging-market and developing countries had a market capitalization of US\$4.8 billion. By 2015, market capitalization on SME boards in these economies, excluding China, had grown to US\$21.6 billion, an 80 percent increase. The two Chinese SME boards on the Shenzhen Stock Exchange (SZSE), though, are in a league of their own. Launched in 2004 and 2009, respectively, the SZSE SME Board and the ChiNext grew from nothing to a combined market capitalization of \$2.5 trillion by the end of 2015.

The aggregate number of listed companies on the SME boards in this dataset has increased more than six-fold from 2002 to 2015. As indicated above, though, this increase is driven largely by listing activity in China (see Figure 1). Other Asian SME market segments only saw listings grow by 25 percent—from 314 to 391 companies—during the period covered in the dataset, though the 2007 merger of the Malaysian SME-dedicated Second Board with the main board of Bursa Malaysia affects this figure. Before the

launch of the AltX in South Africa in 2003, there were no SME boards in Sub-Saharan Africa. By the end of 2015, though, there were 127 listings across seven active SME boards in this region.⁴

Four exchanges in the dataset—most of them newer—did not report a single listing as of end-2015. These included the Malawi Stock Exchange's AltX (founded in 2007), the Rwanda Stock Exchange's Alternative Market Segment (founded in 2013), the Uganda Securities Exchanges Growth Enterprise Market Segment (founded in 2013), and the Lusaka Stock Exchange's Alternative Market (founded in 2014). Addressing the lack of listings in Rwanda, the Rwanda Capital Markets Authority noted that most SMEs in the country were family-run and "are not used to having outsiders examine their businesses."⁵ Similarly, the CEO of the Malawi Stock Exchange attributed the lack of listings "to issues of control of their entities... [and] issues of corporate governance."⁶

One reason the number of listed companies is of interest is that it may give some indication of the sustainability of an SME board's business model. In a study of capital-market financing for SMEs across developed and developing countries, Peterhoff, Romeo, and Calvey (2014) estimated that, based on the costs of setting up SME platforms, making SME market segments sustainable requires having a critical mass of 100-150 listings in place after five years.⁷ Overall, only six—less than a third—of the examined SME boards now exceed 100 listings (see Table 2). However, many SME boards are subsidized by the main exchange; in such cases, it may not be necessary for these boards to become financially self-sufficient. SME boards necessarily adopt their business models to suit the local context and the particular SME population they serve, though, in many smaller markets, even the main boards may struggle to attract a regular stream of new listings.

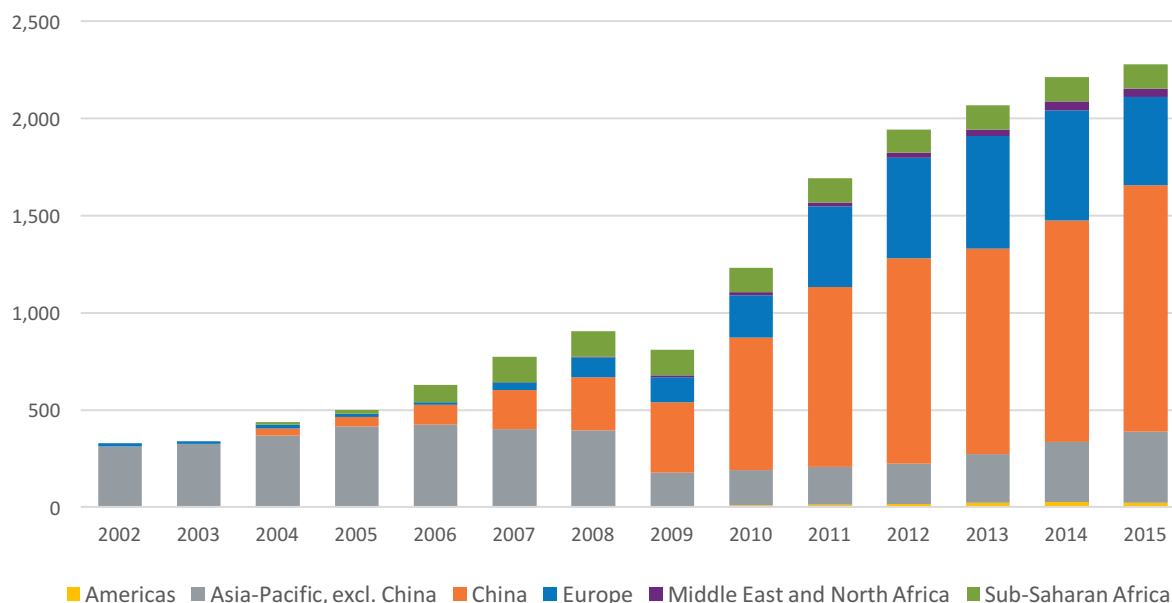
⁴ Eleven countries in Sub-Saharan Africa have established SME boards, but four of these boards have not listed a single company.

⁵ Gasore, "SMEs Shy Away from Listing on the Bourse," *The New Times*, April 17, 2014

⁶ Chinamulungu, "MSE Urges SMEs to List on AltX Market," *The Nation*, September 17, 2016.

⁷ Peterhoff, Romeo, and Calvey, "Towards Better Capital Markets Solutions for SME Financing," Oliver Wyman, 2014, p. 6

FIGURE 1. Total listings on SME boards in emerging-market and developing economies, 2002-2015
Number of firms



Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

TABLE 2. SME boards with more or less than 100 listings, as of end-2015

More than 100 listings	Less than 100 listings	No listings
<ul style="list-style-type: none"> ▪ SME Platform, Bombay Stock Exchange ▪ ACE Market, Bursa Malaysia ▪ ChiNext, Shenzhen Stock Exchange ▪ SME Board, Shenzhen Stock Exchange ▪ Market for Alternative Investment (MAI), Stock Exchange of Thailand ▪ NewConnect, Warsaw Stock Exchange 	<ul style="list-style-type: none"> ▪ Emerging Companies Market, Borsa Istanbul ▪ Venture Capital Market, Botswana Stock Exchange ▪ Enterprise Growth Market, Dar es Salaam Stock Exchange ▪ NILEX, Egyptian Exchange ▪ Ghana Alternative Market (GAX), Ghana Stock Exchange ▪ Junior Market, Jamaica Stock Exchange ▪ AltX, Johannesburg Stock Exchange ▪ Innovations and Investment Market, Moscow Exchange ▪ Growth Enterprise Market Segment, Nairobi Securities Exchange ▪ Emerge, National Stock Exchange (India) ▪ Alternative Securities Market, Nigeria Stock Exchange ▪ SME Board, Philippine Stock Exchange ▪ Development & Enterprise Market, Stock Exchange of Mauritius ▪ Alternative Market, Tunisia Stock Exchange 	<ul style="list-style-type: none"> ▪ AltX, Malawi Stock Exchange ▪ Alternative Market, Lusaka Stock Exchange ▪ Alternative Market Segment, Rwanda Stock Exchange ▪ Growth Enterprise Market Segment, Uganda Stock Exchange

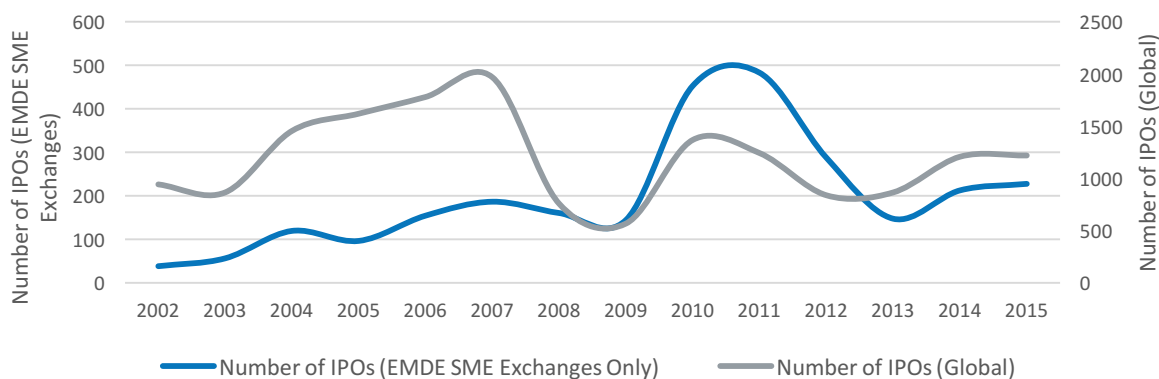
Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Comparing IPO Trends

In recent years, new listing trends on SME boards in this dataset have broadly reflected global IPO trends. New listings on SME boards in emerging-market and developing economies fell in 2008 and 2009, though not as drastically as new listings worldwide. New listings on the examined SME exchanges then spiked in 2010 and 2011, only to fall again in 2012 and 2013.⁸ The pattern is similar for all stock markets globally, in that worldwide listing activity increased sharply in 2010 before falling back in 2011 (see Figure 2).⁹ The large number of IPOs in 2010 may have been due to pent-up demand following the crisis.¹⁰ IPOs were likely put on hold in 2008 and 2009, due to market volatility and falling stock prices that made the prospect of raising money on public markets highly uncertain. After the crisis subsided, companies may have been more willing to proceed with their planned listings, which would account for the high number of new listings in 2010 and 2011.

Disaggregating the data reveals how different regions and specific exchanges contributed to these trends in new listings (see Figure 3). Regional trends were sometimes at variance with each other, in that not all exchanges matched the global pattern described above. Local conditions appear to be an important factor in how SME boards perform, as discussed in the next section.

FIGURE 2. Comparing global IPO trends to SME boards in emerging-market and developing economies
Number of firms



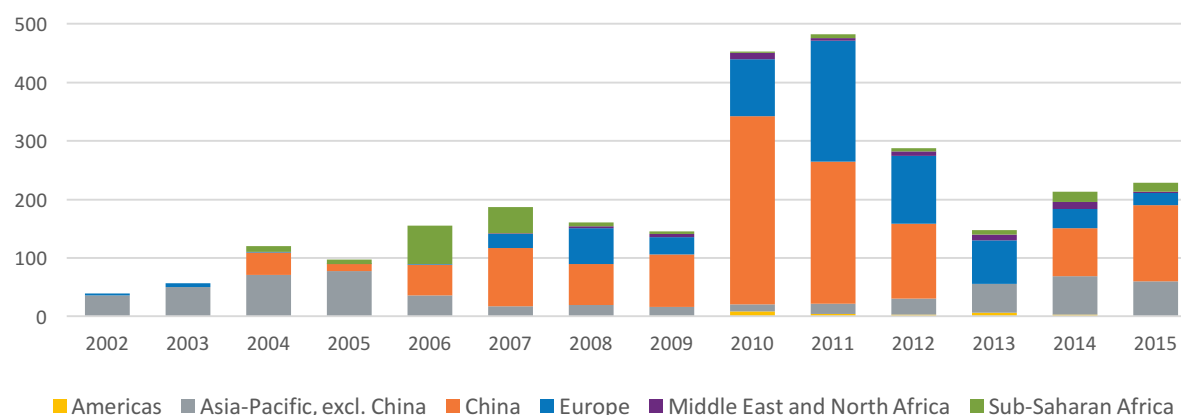
Source: Milken Institute Center for Financial Markets and World Federation of Exchanges. For global IPO trends, EY “IPO Trend” quarterly reports.

⁸ This pattern has broadly coincided with the amount of capital raised over the same period, though the comparisons are not exact, partly due to a lack of data. For example, data on capital raised were not available for the Shenzhen Stock Exchange’s SME Board.

⁹ EY, “2012 Global IPO Update (January – November),” 2012, p. 15.

¹⁰ Johnson, “IPOs Set to Take Off in 2010 After Dire Year,” *Financial Times*, December 21, 2009.

FIGURE 3. New listings on SME boards in emerging-market and developing economies, 2002-2015
Number of firms



Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Three Growth Patterns for SME Boards

The dataset allows us to see three typical growth patterns for SME boards in emerging-market and developing economies: 1) sharp increase in new listings, a slowdown, and then a rebound; 2) a high number of early listings and low subsequent IPO activity; and 3) steady growth (see Figure 4). Local conditions, as might be expected, appear to drive these patterns in most cases.

Listing activity on the Shenzhen Stock Exchange’s two SME platforms, ChiNext and the SZSE SME Board, and, to a lesser extent, on the Warsaw Stock Exchange’s NewConnect, exemplify the first pattern. These three boards went through periods of increased listing activity following aggressive outreach programs only to see fewer listings once it became clear that listing requirements needed to be tightened. Afterwards, each continued to attract new listings at a diminished, but steady, rate.

Since the launch of the SME Board in 2004, the SZSE has contacted more than 5,000 SMEs as part of an extensive outreach campaign that included establishing regional Company Listing Promotion Offices throughout China.¹¹ But the SZSE’s SME segments saw zero IPOs in 2013 because mainland China’s exchanges were closed to new listings from October 2012 through the end of 2013, while the China Securities Regulatory Commission sought to reform the IPO process.¹² Once the mainland exchanges re-opened, both ChiNext and the SME Board saw a steady stream of new listings, though the total amount was fewer compared to the period before the freeze. Likewise, Poland’s NewConnect was, for a brief time, “one of the most aggressive IPO hunters among European bourses.”¹³ In 2011 alone, it had 172 new listings, thereby doubling the number of companies listed on the board in a single year. However, in the rush to expand, problems in listing quality emerged. In response, the exchange tightened listing requirements, which, in turn, resulted in a decreased flow of IPOs.¹⁴

¹¹ See: World Bank, “SME Exchanges in Emerging-Market Economies,” p. 37; and WFE, “Report on SME Exchanges,” p. 29.

¹² “China Sets IPO Reform Plan Signaling End of Freeze on Listings,” *Bloomberg News*, November 30, 2013.

¹³ Cienski, “Warsaw Talks Tough on IPOs,” *Financial Times*, February 13, 2012. See also: Mason, “Trends in IPO Listings by SMEs in the EU,” City of London, 2011, p. 17.

¹⁴ Cienski, “WSE Gets Tough with New Connect,” *Financial Times*, May 21, 2013.

In contrast to the experience of the Shenzhen and Warsaw exchanges, a number of boards followed a second pattern: a large number of listings immediately after launching, followed by dwindling numbers of new listings over time. SME boards that fall into this category include Bursa Malaysia's ACE market (previously called the MESDAQ), the Johannesburg Stock Exchange's AltX, and the Mauritius Stock Exchange's Development and Enterprise Market. Malaysia's ACE Market saw a sharp increase in new listings following a corporate merger with Bursa Malaysia in 2002,¹⁵ but afterwards the number of IPOs trailed off. The JSE AltX saw a steady number of new listings during its first four years of business, but new listings came to a sudden halt during the global financial crisis. Delistings followed. Market capitalization on the AltX also peaked in 2007 and has not recovered since. Even if this plateau is due to the steady number of graduations that AltX has facilitated, as discussed below, the exchange does not appear to be attracting new SMEs to join the board. In Mauritius, the creation of the Development and Enterprise Market in 2006 led to the transfer of companies previously listed on the private over-the-counter (OTC) market. Few firms have listed since then.

Finally, in a third pattern, a few exchanges, such as the MAI in Thailand, were able to achieve steady or accelerated growth. The MAI, interestingly, used attractive corporate tax incentives for listing firms to build up a critical mass of companies early on.¹⁶ After the SME board had established itself as a venue for successful SME capital raises, new companies continued to join.¹⁷ The Second National Market in Turkey followed a similar growth pattern before eventually merging with Borsa Istanbul's main board in mid-2014. In India, the BSE SME Platform has also performed strikingly well in its early years, attracting a steady flow of new listings. In this regard, the SME Platform benefits from a vibrant environment of intermediaries financially incentivized to bring new companies to the exchange, a large target population of SMEs with high-growth potential, and a variety of government initiatives aimed at expanding SME access to finance.

¹⁵ While the ACE Market maintained its own listing standards and a distinct branding, the legal and corporate linkages with the main market gave the SME boards access to a wider network of brokers and investors, as well as to greater financial and institutional support for further development.

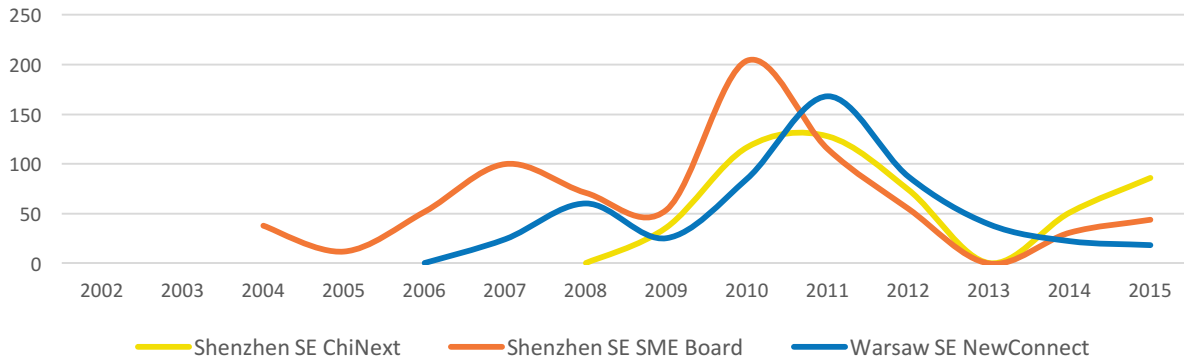
¹⁶ From 2001 to 2009, firms listing on MAI saw their corporate income tax rate lowered from 30 percent to 20 percent for a set period of years following their IPO.

¹⁷ Management team at the Stock Exchange of Thailand, in correspondence with the Milken Institute.

FIGURE 4. New domestic-company listings on selected SME boards, 2002-2015

4a. Sharp increase in new listings, slowdown, and rebound

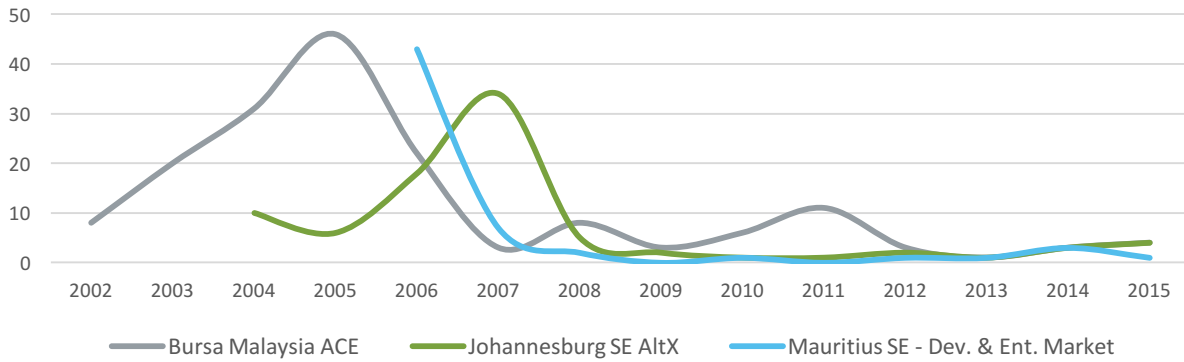
Number of new domestic listings per year



Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

4b. A large number of new listings early on followed by very few new IPOs

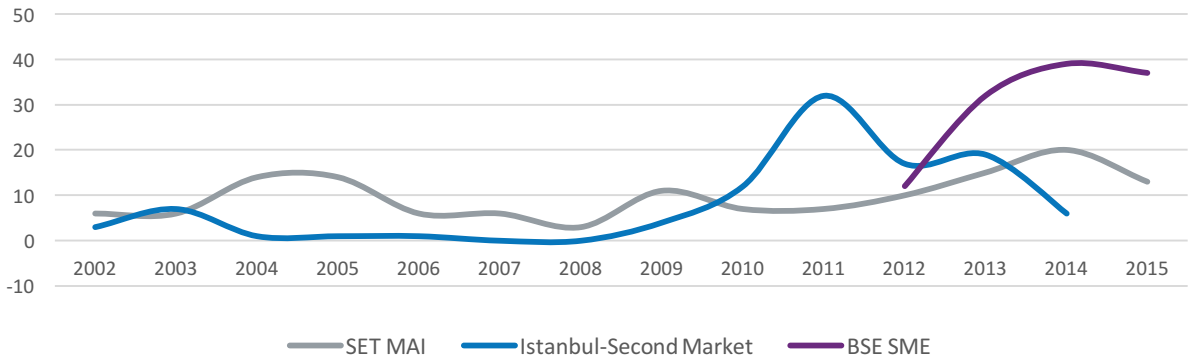
Number of new domestic listings per year



Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

4c. Steady growth

Number of new domestic listings per year



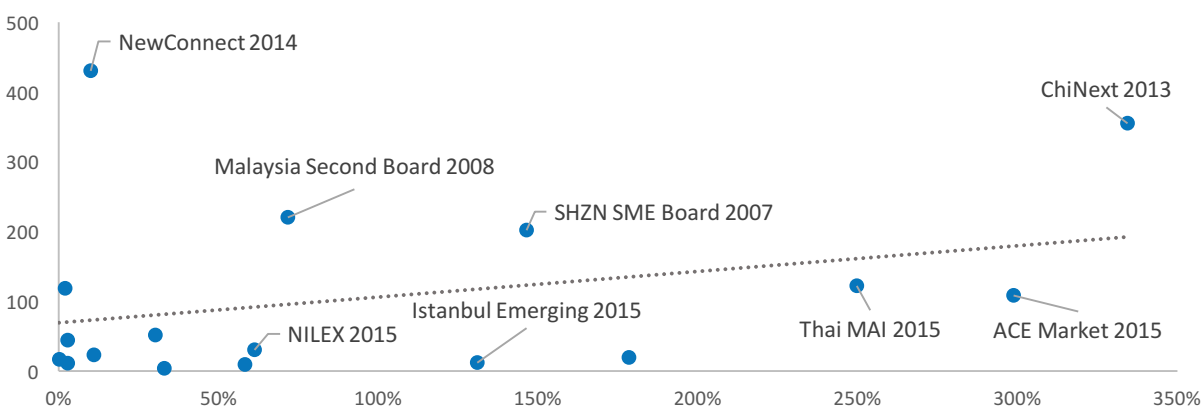
Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Liquidity Remains a Challenge

The ability to transact shares easily and without causing prices to shift is an important feature of all successful stock exchanges. Most fundamentally, stock markets provide real-time information on the value of a firm, and this information value is undermined if shares do not trade. Second, lack of liquidity makes it more difficult for investors to exit their positions, and therefore, more unlikely to invest in the first place. Unfortunately, many stock exchanges in emerging-market and developing economies struggle with low levels of liquidity, particularly those serving small economies with few public companies. Many SME boards face even greater difficulties in this regard, owing to the low number of listings and the small float size, meaning few shares are available for trading.

As the dataset compiled by the Milken Institute and the WFE shows, liquidity remains a challenge to market development for most SME boards. The NASDAQ in the United States sees more value traded on a daily – and even hourly – basis than many SME boards do in a year. A handful of the larger SME exchanges, mostly in Asia, have managed to achieve annual turnover ratios of greater than 100 percent of market capitalization (see Figure 5). Notably, all of the exchanges that have achieved these relatively high turnover ratios have more than 100 listed companies. In contrast, exchanges with very few listed companies have experienced turnover rates of 50 percent or lower. Those with the fewest companies, such as the Philippine Stock Exchange’s SME Board, have barely any liquidity at all, with turnover ratios of less than 10 percent.

Figure 5. Liquidity on SME boards in emerging-market and developing economies
Turnover ratios versus number of listed companies (latest year available)



Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Delistings

The occasional departure of listed companies is a normal occurrence in stock exchanges in advanced and developing markets, as companies may delist for a number of reasons. First, they may be forcibly delisted if they go bankrupt or fail to meet the stock exchange’s listing requirements. They may also delist as a result of a merger or a leveraged buyout.

According to IOSCO (2015), with few exceptions, involuntary delistings were typically lower on SME boards than on main boards worldwide.¹⁸ The precise reason for this difference is unclear, though it may result from lower listing requirements, lack of enforcement of those listing requirements, a willingness of exchanges and/or intermediaries to work with companies to avoid delisting, or some combination of these factors. There are exceptions, of course. In Malaysia, a number of firms on the Second Board (which later merged with the main board) delisted due to bankruptcy in the early 2000s. Likewise, bankruptcy and violations of compliance standards accounted for about 80 percent of delistings from the Polish NewConnect board since 2008.¹⁹ In South Africa, on the other hand, the main factor behind the 27 AltX delistings between 2008 and 2015 was M&A activity.²⁰

Surprisingly, given the large number of firms listed on these market segments, the Shenzhen Stock Exchange's ChiNext and SME Board did not delist a single firm through 2015. A lack of enforcement is perhaps the most persuasive explanation. More recently, though, the China Securities Regulatory Commission has signaled its intent to more strictly enforce securities regulations by forcibly delisting a ChiNext company in August 2016 for securities fraud.²¹ The degree to which this newfound concern about listing quality will persist remains to be seen.

Graduations

For many SME boards, listed firms are allowed, and sometimes even encouraged, to graduate to the stock exchange's main board once they reach certain criteria. Graduations are often considered a marker of success for these SME boards. This is true in a narrow sense for boards that were designed to feed new listings to their senior board as part of the stock exchange's business model. It is also true in a broader sense, as it validates the role of SME boards as incubators of companies that might not have otherwise received the financing needed to realize their growth potential.²²

Criteria for graduation may include time spent listed on the SME board, as well as the attainment of specified thresholds for profitability, size, or number of shareholders.²³ Beyond encouragement or compulsion from the exchange, firms listed on an SME board may choose to graduate for a number of reasons. According to recent, survey-based work from the Milken Institute, common motivations to graduate include greater liquidity, access to a broader and more stable investor base, and an enhanced reputation, as firms often believe a listing on the senior board will lead to greater visibility and a stronger brand.

Graduation data are not collected systematically for all emerging-market and developing country exchanges, so a comprehensive view of graduation trends is not yet available. That said, a handful of

¹⁸ IOSCO, "SME Financing through Capital Markets," 2015, p. 39.

¹⁹ *NewConnect Report 2015*, Warsaw Stock Exchange; calculations by Milken Institute staff.

²⁰ JSE staff, in correspondence with the Milken Institute.

²¹ "China's First Small-Cap Stock Delisting Spurs Speculative Frenzy," *Bloomberg News*, August 4, 2016.

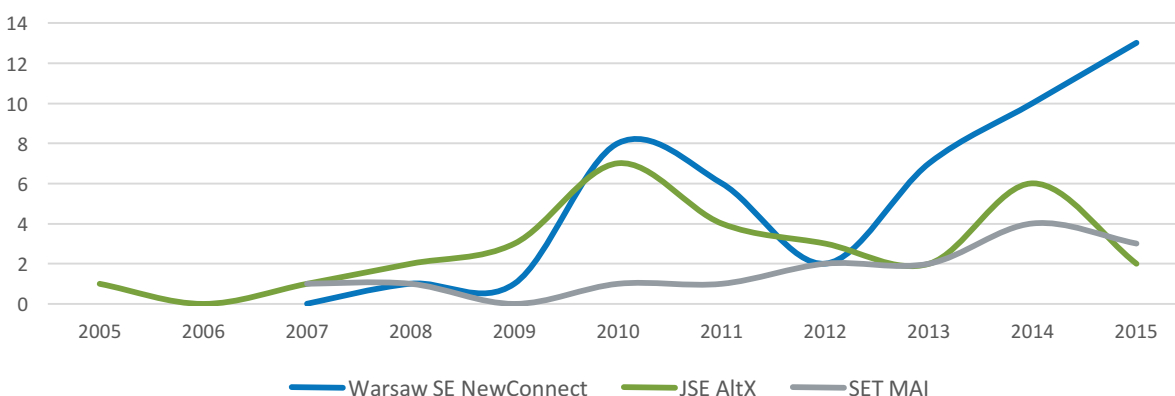
²² Most boards allow for graduation, though not all. Importantly, China's Shenzhen Stock Exchange does not have a process for companies to graduate from ChiNext or the SME Board to the main board. This may change, though.

²³ A few very SME boards allow firms to migrate down from the main board to the SME board. The purpose behind such migration is to allow the firm to remain listed at a lower cost and, perhaps, thereby to avoid delisting or firm closure. The only downward migrations ("demotions"?) of this sort in the WFE-Milken Institute dataset have occurred on the Stock Exchange of Thailand, where six firms have moved down from the senior board to the MAI.

boards have seen significant graduation activity. The Warsaw Stock Exchange’s NewConnect, for example, reported 38 graduations from 2011 to 2015. Another is the JSE AltX, which reported 17 graduations over the same period, and 31 since its inception (see Figure 6). AltX graduates represent about 10 percent of all listings on the JSE’s main board, a significant number and a sign that SME segments can serve as effective incubators. Likewise, the Stock Exchange of Thailand’s MAI has facilitated 15 graduations from its inception in 2007 to 2015, earning a reputation as “a preparatory venue for SMEs to tap the regular market of the stock exchange.”²⁴

Many newer exchanges have seen only a handful—if any—graduations. The former includes the Mauritius Stock Exchange’s Development and Enterprise Market (1 graduation in 2014) and the Philippine Stock Exchange’s SME Board (3 since 2003). Meanwhile, several new boards that encourage graduation but have not facilitated any to-date are likely to do so in the future as they mature. This is especially true of Jamaica’s Junior Market, as well as the BSE SME platform and the NSE Emerge in India—all of which require graduation once companies meet certain criteria. The Jamaica Stock Exchange’s Junior Market, for example, requires graduation after listed SMEs complete two tiers, each of which lasts five years. The NSE Emerge segment requires graduation to the main board once a company’s equity capital reaches \$400 million.²⁵

FIGURE 6. Annual graduations from SME boards to senior boards in Poland, South Africa, and Thailand
Number of firms



Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Conclusion

Public equity financing is not a solution for all, or even most, SMEs, but it may be appropriate for a certain subset of SMEs with specific characteristics—namely, SMEs that are young, have strong growth prospects, and limited collateral.²⁶ Such SMEs are the minority, but they make a disproportionate contribution to employment and productivity growth; in developing countries, they represent an estimated 16 percent of SMEs but account for 38 percent of net job creation.²⁷ Therefore, even if public

²⁴ ADB, *Asia SME Finance Monitor 2014*, p. 231

²⁵ World Bank, “SME Exchanges in Emerging-Market Economies,” p. 17.

²⁶ OECD, “Opportunities and Constraints of Market-Based Financing for SMEs,” 2015, p. 12.

²⁷ IFC, “Small and Medium Enterprise Finance: New Findings, Trends, and G-20/Global Partnership for Financial Inclusion Progress,” 2013, p. 7.

equity financing does not represent a broad solution to the SME financing gap, SME boards can potentially make an outsized contribution to economic growth and employment.

To advance the current understanding of whether SME boards can expand access to finance in emerging-market and developing countries, the Milken Institute, in partnership with the World Federation of Exchanges, collected and organized data for a variety of indicators for 26 SME boards across a number of countries. This dataset has allowed us to conduct an initial stocktaking of market activity on these boards during the period of 2002 to 2015, a time period that includes the global financial crisis and the establishment of a number of new SME-dedicated market segments.

Overall, this initial review of available data shows that over two-thousand companies in emerging-market and developing economies have turned to SME boards for financing over the past decade, with a peak of activity occurring around 2010-2011, in the immediate aftermath of the global financial crisis. Total listings on the examined exchanges have increased steadily since 2002, though the track records of individual exchanges have varied dramatically. Some exchanges have seen a steady increase in new listings, while others experienced an initial burst of activity followed by very low subsequent IPO activity. Delistings data are more fragmentary, but the available data show that heightened periods of delistings are more often associated with a tightening of listing requirements by the exchanges themselves, as was the case, for instance, for Poland's NewConnect. Finally, while graduation data are also incomplete, the available data suggest that at least for older, more established SME boards in middle-income countries—such as Poland, South Africa, and Thailand—such boards have indeed served as incubators for firms to eventually list on the main boards of their exchanges.

Early evidence, though, also underlines the reality that establishing an SME exchange does not guarantee new market activity. Though some exchanges have done well, others have floundered. Policymakers must consider the opportunity costs of the political and financial capital required to establish an SME board and the subsequent work required to attract listings and incubate companies for graduation. The question of whether it is economically rational to establish and then subsidize SME-dedicated market segments if they are not able to become self-sustaining is therefore worth examining in further research. Future research may also usefully explore how the performance of SME boards relates to local macroeconomic conditions, financial sector development, industry composition, and SMEs' access to other forms of finance.

Appendix: Key Metrics for SME Boards in Emerging-Market and Developing Countries, 2002-2015

Market capitalization (US\$ millions)

Exchange	Name of SME Board	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Botswana SE	Venture Capital Market			235.8	257.5	900.5	1329.5	332.0	461.8	784.3	1285.9	1469.8	858.3	998.7	746.5
Shenzhen SE	ChiNext								23584.0	111768.7	118109.2	140141.0	249293.5	352357.4	861,176.1
Shenzhen SE	SME Board			4995.2	5967.0	25820.3	145765.3	91872.1	247163.3	533745.7	435780.0	461769.8	612941.7	823338.8	1600960.1
Egyptian Exchange	NILEX							109.8	116.9	175.4	167.5	164.2	205.7	151.7	131.5
Ghana SE	Ghana Alternative Market (GAX)												0.0	0.0	n.a.
Bombay SE	SME Platform											52.4	487.5	1435.4	1310.7
NSE India	Emerge											27.2	44.4	67.9	78.2
Jamaica SE	Junior Market									97.1	274.7	249.0	273.3	235.2	581.3
Nairobi SE	Growth Enterprise Market Segment												n.a.	73.7	n.a.
Bursa Malaysia	ACE Market (formerly MESDAQ)	203.3	1018.2	1762.8	2068.6	3751.2	3329.2	4014.5	1530.2	1868.3	2023.8	2267.8	3011.7	2762.3	2753.7
Bursa Malaysia	Second Board	4208.1	6386.8	5414.6	3829.9	4140.8	4418.1	2567.7							
Malawi SE	MSE AltX						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stock Exchange of Mauritius	Development & Enterprise Market					933.1	1090.8	744.7	993.0	1122.7	1178.2	765.3	1856.5	1510.3	1377.1
Nigeria Stock Exchange	Alternative Securities Market (ASeM)												25.1	43.1	43.4
Philippine SE	SME Board	1.1	5.1	4.7	5.5	6.6	109.3	46.8	7.3	12.5	16.3	14.3	19.6	769.8	607.6
Warsaw SE	NewConnect						482.4	485.2	896.0	1733.4	2483.8	3589.2	3654.1	2572.6	2232.9
Moscow Exchange	Innovations and Investments Market												1357.6	562.8	1638.1
Rwanda Stock Exchange	Alternative Market Segment												0.0	0.0	0.0
Johannesburg SE	AltX			177.6	305.6	1233.8	4571.1	1841.9	1376.8	1402.3	1416.5	958.8	1914.6	664.7	904.6
Dar es Salaam Stock Exchange	Enterprise Growth Market (EGM)												n.a.	n.a.	n.a.
Stock Exchange of Thailand	Market for Alternative Investment (MAI)	89.4	224.9	260.0	346.1	597.8	1083.2	620.4	1115.9	1774.7	2354.3	4097.9	5206.9	11651.6	8980.5
Bourse de Tunis	Tunis Alternative Market						18.0	0.0	5.8	188.5	0.0	30.4	122.2	92.7	6.8
Borsa Istanbul	Emerging Companies Market										58.1	216.9	271.3	401.5	244.0
Borsa Istanbul	Second National Market	309.8	345.6	607.3	989.3	1127.4	1434.8	486.3	1779.2	4123.5	4405.4	5241.2	8256.5	10324.7	
Uganda Securities Exchange	Growth Enterprise Market Segment												0.0	0.0	0.0
Lusaka SE	LuSE Alternative Market													0.0	0.0

Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Number of listed companies (total)

Exchange	Name of SME Board	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Botswana SE	Venture Capital Market				0	1	0	0	0	0	0	0	0	0	1
Shenzhen SE	ChiNext							-	36	117	128	74	0	51	86
Shenzhen SE	SME Board			38	12	52	100	71	54	204	115	55	0	31	44
Egyptian Exchange	NILEX							3	4	10	5	5	5	9	1
Ghana SE	Ghana Alternative Market (GAX)												0	0	4
Bombay SE	SME Platform											12	32	39	37
NSE India	Emerge											2	2	2	5
Jamaica SE	Junior Market								1	8	4	3	6	3	2
Nairobi SE	Growth Enterprise Market Segment												0	3	0
Bursa Malaysia	ACE Market (formerly MESDAQ)						0	0	0	0	0	0	0	0	0
Bursa Malaysia	Second Board	8	20	31	46	22	3	8	3	6	11	3	1	3	4
Malawi SE	MSE AltX	22	22	26	17	8	8	8							
Stock Exchange of Mauritius	Development & Enterprise Market					43	7	2	0	1	0	1	1	3	1
Nigeria Stock Exchange	Alternative Securities Market (ASeM)												n.a.	1	0
Philippine SE	SME Board	0	2	0	0	0	0	0	1	0	0	0	0	2	1
Warsaw SE	NewConnect					-	24	60	25	85	168	87	39	22	18
Moscow Exchange	Innovations and Investments Market												3	1	0
Rwanda Stock Exchange	Alternative Market Segment												0	0	0
Johannesburg SE	AltX			10	6	18	34	5	2	1	1	2	1	3	4
Dar es Salaam Stock Exchange	Enterprise Growth Market (EGM)												1	2	1
Stock Exchange of Thailand	Market for Alternative Investment (MAI)	6	6	14	14	6	6	3	11	7	7	10	15	20	13
Bourse de Tunis	Tunis Alternative Market						1	0	1	1	0	2	5	3	1
Borsa Istanbul	Emerging Companies Market										2	10	9	4	2
Borsa Istanbul	Second National Market	3	7	1	1	1	0	0	4	12	32	17	19	6	
Uganda Securities Exchange	Growth Enterprise Market Segment												0	0	0
Lusaka SE	LuSE Alternative Market													0	0

Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Number of new listings of domestic companies per year

Exchange	Name of SME Board	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Botswana SE	Venture Capital Market			5	6	8	8	8	8	6	10	10	9	9	8
Shenzhen SE	ChiNext							n.a.	36	153	281	355	355	406	492
Shenzhen SE	SME Board			38	50	102	202	273	327	531	646	701	701	732	776
Egyptian Exchange	NILEX							3	7	16	19	22	24	33	31
Ghana SE	Ghana Alternative Market (GAX)												0	0	4
Bombay SE	SME Platform											12	43	82	119
NSE India	Emerge											2	4	6	10
Jamaica SE	Junior Market									8	12	16	21	26	23
Nairobi SE	Growth Enterprise Market Segment												0	4	4
Bursa Malaysia	ACE Market (formerly MESDAQ)						0	0	0	0	0	0	0	0	0
Bursa Malaysia	Second Board	12	32	63	107	128	124	122	116	113	119	112	109	107	109
Malawi SE	MSE AltX	292	276	278	268	250	227	221							
Stock Exchange of Mauritius	Development & Enterprise Market					43	50	49	49	50	49	47	48	44	44
Nigeria Stock Exchange	Alternative Securities Market (ASeM)												10	11	11
Philippine SE	SME Board	1	3	3	3	3	2	2	2	2	2	2	2	4	4
Warsaw SE	NewConnect					-	24	84	107	185	351	429	445	431	418
Moscow Exchange	Innovations and Investments Market												25	21	17
Rwanda Stock Exchange	Alternative Market Segment												0	0	0
Johannesburg SE	AltX			10	15	37	75	75	76	68	66	63	59	54	52
Dar es Salaam Stock Exchange	Enterprise Growth Market (EGM)												1	3	4
Stock Exchange of Thailand	Market for Alternative Investment (MAI)	9	13	24	36	42	48	49	60	66	73	81	95	111	122
Bourse de Tunis	Tunis Alternative Market						1	1	2	2	2	4	9	12	12
Borsa Istanbul	Emerging Companies Market										2	11	20	22	20
Borsa Istanbul	Second National Market	14	16	17	16	15	14	18	20	31	61	77	89	94	
Uganda Securities Exchange	Growth Enterprise Market Segment												0	0	0
Lusaka SE	LuSE Alternative Market													0	0

Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Annual turnover ratio

Exchange	Name of SME Board	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Botswana SE	Venture Capital Market			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shenzhen SE	ChiNext								1.13	2.09	2.50	2.64	3.34	n.a.	n.a.
Shenzhen SE	SME Board			1.99	2.47	1.49	1.46	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Egyptian Exchange	NILEX							n.a.	n.a.	0.20	0.19	0.25	0.53	0.73	0.61
Ghana SE	Ghana Alternative Market (GAX)												0.00	0.00	n.a.
Bombay SE	SME Platform											0.12	0.06	0.03	0.02
NSE India	Emerge											0.12	0.06	0.17	0.58
Jamaica SE	Junior Market									0.02	0.05	0.23	0.05	0.08	0.11
Nairobi SE	Growth Enterprise Market Segment												0.00	n.a.	n.a.
Bursa Malaysia	ACE Market (formerly MESDAQ)						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bursa Malaysia	Second Board	0.34	1.56	1.32	0.11	1.99	2.04	0.29	0.64	0.63	1.22	1.43	1.37	3.00	2.99
Malawi SE	MSE AltX	0.92	1.54	1.37	0.04	1.14	1.47	0.72							
Stock Exchange of Mauritius	Development & Enterprise Market					0.02	0.03	0.04	0.02	0.04	0.02	0.04	0.02	0.03	0.03
Nigeria Stock Exchange	Alternative Securities Market (ASem)													n.a.	0.03
Philippine SE	SME Board	0.27	0.00	0.01	0.35	0.15	0.06	0.01	0.06	0.00	0.01	0.02	0.01	0.32	0.33
Warsaw SE	NewConnect						0.06	0.17	0.11	0.20	0.14	0.07	0.06	0.10	n.a.
Moscow Exchange	Innovations and Investments Market												0.00	0.01	0.00
Rwanda Stock Exchange	Alternative Market Segment												0.00	0.00	0.00
Johannesburg SE	AltX			0.04	0.15	0.10	0.19	0.33	0.20	0.12	0.13	0.30	0.27	0.51	0.30
Dar es Salaam Stock Exchange	Enterprise Growth Market (EGM)												n.a.	n.a.	n.a.
Stock Exchange of Thailand	Market for Alternative Investment (MAI)	3.27	2.91	3.25	2.57	1.16	2.24	2.28	1.86	1.62	1.94	2.05	3.15	2.50	2.50
Bourse de Tunis	Tunis Alternative Market							n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Borsa Istanbul	Emerging Companies Market										n.a.	n.a.	n.a.	2.21	1.31
Borsa Istanbul	Second National Market	1.74	1.93	1.55	2.24	2.95	2.38	3.72	3.38	2.78	2.85	2.90	1.78	n.a.	
Uganda Securities Exchange	Growth Enterprise Market Segment												0.00	0.00	0.00
Lusaka SE	LuSE Alternative Market													0.00	0.00

Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

Graduations from the SME board to the senior board

Exchange	Name of SME Board	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Botswana SE	Venture Capital Market			0	1	0	1	0	0	0	0	0	0	0	0
Shenzhen SE	ChiNext							0	0	0	0	0	0	0	0
Shenzhen SE	SME Board	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	0	0	0	0	0	0
Egyptian Exchange	NILEX							n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ghana SE	Ghana Alternative Market (GAX)												0	0	0
Bombay SE	SME Platform										n.a.	n.a.	n.a.	n.a.	n.a.
NSE India	Emerge										n.a.	0	0	0	n.a.
Jamaica SE	Junior Market								0	0	0	0	0	0	0
Nairobi SE	Growth Enterprise Market Segment												0	0	0
Bursa Malaysia	ACE Market (formerly MESDAQ)						0	0	0	0	0	0	0	0	0
Bursa Malaysia	Second Board	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malawi SE	MSE AltX	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.								
Stock Exchange of Mauritius	Development & Enterprise Market							0	0	0	0	0	0	1	0
Nigeria Stock Exchange	Alternative Securities Market (ASeM)												n.a.	n.a.	n.a.
Philippine SE	SME Board	n.a.	0	0	0	0	1	0	1	0	0	0	0	0	1
Warsaw SE	NewConnect						0	1	1	8	6	2	7	10	13
Moscow Exchange	Innovations and Investments Market								n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Rwanda Stock Exchange	Alternative Market Segment												0	0	0
Johannesburg SE	AltX		n.a.	n.a.	1	0	1	2	3	7	4	3	2	6	2
Dar es Salaam Stock Exchange	Enterprise Growth Market (EGM)												0	0	0
Stock Exchange of Thailand	Market for Alternative Investment (MAI)						1	1	0	1	1	2	2	4	3
Bourse de Tunis	Tunis Alternative Market						0	0	0	1	0	0	0	0	0
Borsa Istanbul	Emerging Companies Market										0	1	0	2	2
Borsa Istanbul	Second National Market	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Uganda Securities Exchange	Growth Enterprise Market Segment												0	0	0
Lusaka SE	LuSE Alternative Market													0	0

Source: Milken Institute Center for Financial Markets and World Federation of Exchanges

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