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The role of SMEs in Asia and their difficulties in accessing finance

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ADB Working Paper Series

THE ROLE OF SMES IN ASIA AND THEIR DIFFICULTIES IN ACCESSING FINANCE

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Abstract

Small and medium-sized enterprises (SMEs) are the backbone of the Asian economy. They make up more than 96% of all Asian businesses, providing two out of three private-sector jobs on the continent. Therefore, it is vital for Asian economies' economic success that they have fully functioning support measures for SMEs. However, SMEs face major challenges in accessing cheap finance, mainly because of the asymmetric information problem between suppliers and demanders of funds and the high transaction costs. These lead to more collateral requirements for lending to SMEs with higher lending interest rates, which hinder their growth. As most Asian countries are bank-dominant economies, capital market financing is not a realistic option for SMEs. Therefore, we need to look for solutions that make the bank lending to SMEs easier. This study will highlight the difficulties of SMEs in accessing finance and provide measures for mitigating them. The remedies proposed in this paper are the development of credit information infrastructures for SMEs and the utilization of credit-rating techniques for SMEs to address the asymmetric information problem and the development of a sustainable credit guarantee scheme to solve the collateral issue of the SMEs and ease their access to finance.

Keywords: SME, credit rating, credit risk database, credit guarantee scheme

JEL Classification: G21, G24, G32

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1. INTRODUCTION

Asia has been growing continuously since the Asian financial crisis, and this growth has alleviated poverty and increased the number of middle-income countries in the region. However, several factors caused the recent regional and global economic slowdown, including the limited access of small and medium-sized enterprises (SMEs) to bank credit. New and sustainable models are necessary to ease the access of SMEs to finance and boost the economic growth and job creation in the region.

A survey that the Asian Development Bank (Asia SME Finance Monitor (ASM)) carried out on 20 countries from 5 ADB regions¹ showed that SMEs accounted for an average of 96% of all enterprises and 62% of the national labor forces across the ASM countries. These countries cover Central Asia, East Asia, South Asia, Southeast Asia, and the Pacific. Meanwhile, the latest data reveal that SMEs contributed an average of 42% of the gross domestic product (GDP) or manufacturing value added in ASM countries (ADB 2015).

SMEs have continued to influence trade. The latest data indicate that SMEs in the People's Republic of China (PRC) and India accounted for more than 40% of the total export values, followed by 26% in Thailand, 19% in the Republic of Korea, and 16% in Indonesia (ADB 2015).

Definitions of SMEs differ between countries, not only as a common indicator, such as employment, but also in the types of indicators used. Along with employment, the common criteria are assets or capital and revenue, the definition being sales or turnover. Many economies set two criteria, one being employment and the other being assets or capital and revenue. For example, Malaysia considers manufacturing firms to be SMEs if they have fewer than 200 workers or revenue of less than RM50 million (about \$12 million). There may also be different criteria for different sectors. The PRC has 15 sector definitions, Japan has 4, and Singapore has 1. To make matters even more complicated, government agencies within the same country may use different definitions. A ministry may use one definition while the national statistics office uses another, and a priority lending policy may adopt yet another (Yoshino and Taghizadeh-Hesary 2018a).

Four indicators commonly gauge the importance of SMEs. They specify the SME share of the total for (i) the number of enterprises, (ii) employment, (iii) the domestic output, and (iv) exports. Not all economies compile data on all four indicators, with the first two being the most common. Tables 1 and 2 present recent available data on 15 Asian economies, including the region's three largest—the PRC, Japan, and India. The share of the total number of enterprises is the most consistently used indicator across countries, both in Asia and around the globe. The share for our Asian group is in the narrow range between 97% and over 99%. Both Bangladesh, which until recently was a low-income country, and the Republic of Korea, a high-income one, have shares of 99% or more (Vandenberg, Chantapacdepong, and Yoshino 2016).

¹ (i) Kazakhstan, the Kyrgyz Republic, and Tajikistan in Central Asia; (ii) the People's Republic of China, the Republic of Korea, and Mongolia in East Asia; (iii) Bangladesh, India, and Sri Lanka in South Asia; (iv) Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam in Southeast Asia; and (v) Papua New Guinea, Fiji, and the Solomon Islands in the Pacific.

**Table 1: SME Share of Enterprises, Exports, and Output:
Selected Asian Economies**

	Share of All Enterprises (%)	Share of Exports (%)	Share of Output (%)	Indicators for Output	Data Year*
High Income					
Japan	99.7	...	43.7	Sales	2012
Rep. of Korea	99.9	18.8	47.6	MVA	2012
Singapore	99.4	...	45.0	GDP	2012
Upper Middle Income					
PRC	97.3	41.5	60.0	GDP	2013, 2011, 2013
Kazakhstan	96.1	...	23.1	GDP	2016
Malaysia	97.3	...	35.9	GDP	2014
Philippines	99.6	...	35.7	GVA	2013, 2006
Thailand	99.7	26.3	39.6	GDP	2014
Lower Middle Income					
Bangladesh	99.0	...	25.0	GDP	2013, 2014
India	...	42.4	37.5	MVA	2013
Indonesia	99.9	15.7	60.3	GDP	2013
Sri Lanka	99.5	20.0	30.0	GDP	2013
Uzbekistan	...	26.5	56.9	GDP	2016
Viet Nam	97.7		2012
Low Income					
Cambodia	99.8		2014

GDP = gross domestic product, GVA = gross value added, MVA = manufacturing value added, PRC = People's Republic of China, SME = small and medium-sized enterprise.

Note: For the PRC, the definition of SME that we used for the share of enterprises is those with fewer than 1,000 workers, and the share of exports refers to the share of industrial exports.

* When more than one year is indicated, the first year refers to the share of the enterprises, the second to exports, and the third to output.

Sources: Damu (2017); Vandenberg, Chantapacdepong, and Yoshino (2016); and the State Committee of the Republic of Uzbekistan on Statistics. Accessed 3 November 2018. <https://www.stat.uz/en/435-analiticheskie-materialy-en1/2073-development-of-small-business-and-private-entrepreneurship-in-the-republic-of-uzbekistan>.

The ASM results show that limited access to bank credit is a structural problem in the ASM region. Bank loans to SMEs make up averages of 11.6% of the GDP and 18.7% of the total bank lending in the region, with a decreasing trend of the latter since the 2008/09 global financial crisis. Comparing SME access to bank credit relative to the income level of the countries in which they operate, bank credit reaches out to a larger number of SMEs (with a relatively low ratio of nonperforming loans) as the country's economy becomes more advanced (ADB 2015).

Recently, some concerns have arisen about the impact of Basel III (an international regulatory framework for banks) on SME lending. There may be a negative effect on banks' lending attitudes toward SMEs in countries that have decided to introduce Basel III. These countries include the PRC, India, Indonesia, and the Republic of Korea² (ADB 2015).

² Even Japanese SMEs have suffered from the implementation of the Basel capital accord, which has limited their access to bank loans (Yoshino and Hirano 2011; Yoshino and Taghizadeh-Hesary 2016a).

Table 2: SME Employment Share, Selected Asian Economies

	SME Employment as a Share of:	SME Share (%)	Year
Rep. of Korea	Enterprise employment	87.7	2012
Thailand	Enterprise employment	80.3	2014
Uzbekistan	Total employment	78.2	2016
Bangladesh	Nonagricultural employment	75.0	2014
Cambodia	Enterprise employment	71.8	2014
Japan	Enterprise employment	69.7	2012
PRC	Industry employment	64.7	2011
Philippines	Enterprise employment	63.7	2013
Singapore	Total employment	68.0	2012
Malaysia	Total employment	65.0	2014
Viet Nam	Total employment	46.8	2012
Kazakhstan	Total employment	35.9	2016
Sri Lanka	Total employment	35.0	2013

PRC = People's Republic of China, SME = small and medium-sized enterprise.

Note: For Bangladesh, the figure is 70%–80%; we have taken the average.

Source: Vandenberg, Chantapacdepong, and Yoshino (2016); Damu (2017) and The state committee of the republic of Uzbekistan on statistics, Link: <https://www.stat.uz/en/435-analiticheskie-materialy-en1/2073-development-of-small-business-and-private-entrepreneurship-in-the-republic-of-uzbekistan> (accessed: Nov 03, 2018)

If SMEs, which are the backbone of the Asian economy, find it more difficult to access finance, this might endanger the economic growth and employment in Asia, especially in developing Asian countries, which are more vulnerable. This suggests that further policy support for SME finance is needed in low-income and lower-middle-income Asian economies. In particular, it is necessary to develop a set of financial infrastructures—such as a credit risk database and a credit guarantee corporation. In addition, the establishment and development of SME specialized banks is a required policy. These are the remedies that this study will highlight and define by providing operational examples from developed and developing Asian economies to offer policy recommendations for the developing Asian economies, especially the lower-income countries.

2. SMES' DIFFICULTIES IN ACCESSING FINANCE

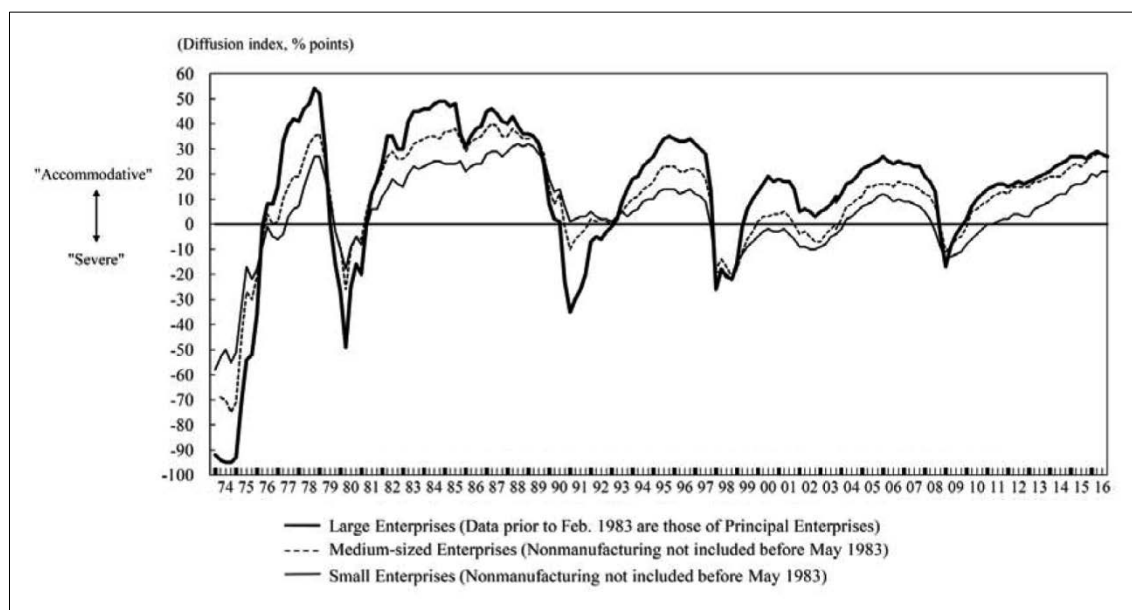
Almost 70% of the Indian, 80% of the Chinese, and 90% of the Malaysian financial system consists of bank loans (Yoshino and Taghizadeh-Hesary 2015). Researchers often characterize Asian economies as having bank-dominated financial markets and underdeveloped capital markets, in particular venture capital. This is even true for Japan and the Republic of Korea, where the venture capital market is not developed. This means that banks are the main source of financing. Although the soundness of the banking system has improved significantly since the Asian crisis, banks have been cautious about lending to SMEs, even though such enterprises account for a large share of the economic activity. Start-up companies, in particular, are finding it increasingly difficult to borrow money from banks because of strict Basel capital requirements. Riskier SMEs also face difficulty in borrowing money from banks. It is difficult for banks to evaluate SMEs, since they often do not have solid accounting systems. Many SMEs in Asia borrow money by paying high rates of interest or offering costly collateral. Many banks prefer to lend to large enterprises rather than SMEs.

The reason for this is that, for large enterprises, the financial statements are clearer and audited.

Every quarter, the Bank of Japan (BOJ) performs a survey, which is called the *Tankan* in accordance with the Statistics Law (Law No. 53 of 2007), with the aim of providing an accurate picture of the business trends of enterprises in Japan. One of the outputs of this survey is a comparison of the access to finance of small and medium-sized enterprises with that of large enterprises.³

Figure 1, which is taken from the *Tankan* in December 2016 (BOJ 2016), compares the lending attitude of financial institutions toward small and medium enterprises with that toward large enterprises. The thick line shows the large enterprises, the thin line is for small enterprises, and the dashed line exhibits the lending attitude of financial institutions toward medium-sized enterprises in Japan.

Figure 1: Lending Attitude of Financial Institutions in Japan



CY = calendar year, DI = diffusion index.

Note: The diffusion index is a method of summarizing the common tendency of a group of statistical series.

Source: Bank of Japan (BOJ) (2016).

The value on the vertical axis shows the diffusion index (% points). If the value is higher, then the borrowing of enterprises from financial institutions is more accommodative, and, if the vertical value reduces, it means that borrowing becomes severe (more difficult). It is clear, except for those periods when the economy was in

³ The BOJ provides survey forms to sample enterprises by mail or online. It conducts the survey quarterly, in March, June, September, and December. It releases the survey results at the beginning of April, July, October, and mid-December in principle. The Statistics Law obliges the BOJ to keep confidential information obtained from respondents under strict security. The population of the survey consists of approximately 210,000 private enterprises (excluding financial institutions) in Japan with capital of 20 million yen or more, based on the *Economic Census for Business Activity*, which the Ministry of Internal Affairs and Communications and the Ministry of Economy, Trade and Industry conducted jointly in February 2012. The bank selects sample enterprises from the population based on industry and size classifications to satisfy established criteria, such as that of statistical accuracy.

crisis, that the borrowing situation for large enterprises compared with SMEs is more accommodative and that SMEs have comparatively more difficulty in raising money.

To see the reality of access to finance for SMEs and to compare it with that of large enterprises and evaluate the money raising of enterprises in terms of economic trends and the adoption of the right policies, it is important for other Asian central banks to carry out surveys similar to the *Tankan* periodically.

In addition to the prevalent difficulties that SMEs face in fundraising from banks, more recently, the Basel capital accord has made the environment more difficult. Basel III has adopted new rules—liquidity frameworks and leverage ratio frameworks—to strengthen the risk management of banks, as well as introducing strengthened capital requirements. These new measures may restrict banks in providing long-term credit for enterprises and may limit the financing options for SMEs, including the availability of trade finance (ADB 2015).

2.1 Lack of Information Infrastructure for SMEs

There is an asymmetric information problem between suppliers and demanders of funds in general. Information infrastructures are necessary to remedy this problem. Many big enterprises list their shares on stock markets and issue securities in bond markets. They publish financial statements and accounts, and accountants and auditing companies certify them. Therefore, institutional information-sharing schemes of capital markets can facilitate access to a wide range of information necessary to estimate the creditworthiness of big enterprises.

However, most SMEs have no connection with capital markets. Financial institutions can observe borrowers closely and continuously, but it is costly to do so for borrowers of small loans.

The lack of information infrastructure for SMEs exacerbates the information asymmetry problem.

In collateral-based lending, the provision of collateral is the simplest way for SMEs and financial institutions to reduce the risk premium in loan formulations. However, with the introduction of the Basel capital accord, many governments have expanded the policy-based finance for SMEs to mitigate the constraints on SME finance as an urgent countermeasure. In this situation, efficient and lower-cost credit risk evaluation tools have been necessary for financing SMEs, especially for transaction-based lending. Addressing the serious credit constraints on SMEs after conforming to the Basel requirements for risk management requires a comprehensive information infrastructure. Section 3.2 of this study explains this soft infrastructure.

2.2 Insufficient Collateral and a High Interest Rate

The insufficient collateral of SMEs and as a result the higher interest rates for lending to them present a major hindrance to the expansion of SME credit. In 2010, the Japan International Cooperation Agency (JICA) and the Indonesian Capital Market and Financial Institution Supervisory Agency (Bapepam-LK), in cooperation with the Ministry of Industry, the Ministry of Cooperatives and SMEs, the Central Java Provincial Government, and leading Indonesian venture capital firm PT Bahana Artha Ventura, conducted a survey on a sample of 622 micro, small, and medium enterprises (MSMEs) across Indonesia. The findings from the survey show that around half of the samples (54.2%) accessed banks for finance, while just under half relied on their own capital and a quarter (25.1%) borrowed funds from family, relatives, and friends for

future funding. The SMEs surveyed desired further access to formal financial institutions, such as banks (64.5%), non-banks (33.8%), and venture capital companies (31.4%). SMEs also wished to reduce their dependence on both their own capital (20.9%) and informal individual borrowing (7.2%) (Shinozaki 2012).

The surveyed SMEs identified collateral and guarantees and high lending rates as the most serious barriers to accessing bank loans. The findings suggest that excessive requirements exist for collateral and guarantees, while banks impose prohibitively high lending rates on SME borrowers, resulting in supply-side barriers that are likely to affect the growth of SMEs negatively.

3. REMEDIES FOR TACKLING SMES' DIFFICULTY IN ACCESSING FINANCE

The previous section defined the challenges that Asian SMEs are facing in raising money. In this section, we present some efficient remedies and the soft infrastructures necessary for easing SMEs' access to finance. These solutions have been successful in some Asian countries, and it is necessary to expand them to the rest of Asia.

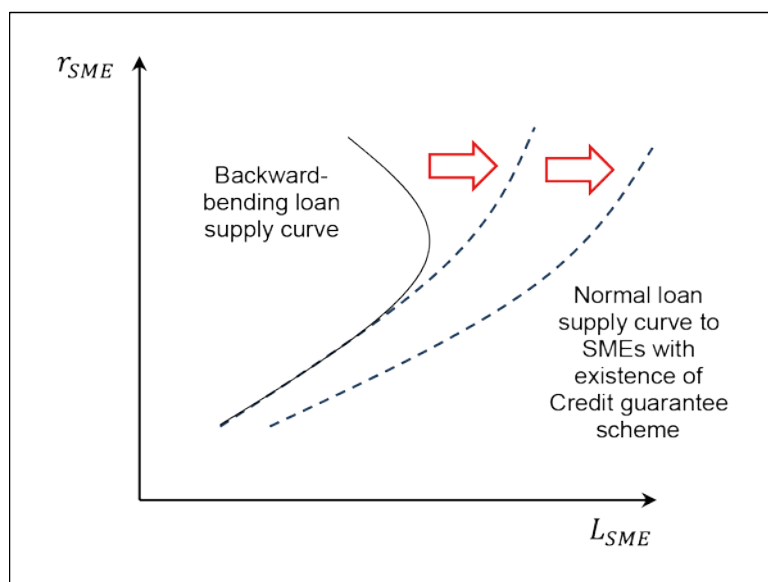
We present three different methods for easing SME financing: governments' development of credit guarantee schemes, the development of SME credit risk databases, credit bureaus, and SME credit rating, and specialized banks for SMEs.

3.1 Governments' Development of Credit Guarantee Schemes

Owing to the significance of SMEs to Asian economies, it is important to find ways to provide them with stable finance. To remedy the undersupply of credit to SMEs, various government and donor initiatives have emerged in both developed and developing and emerging economies, including so-called credit guarantee schemes (CGSs). A public guarantee scheme is a tool that aims to reduce the gap between supply and demand in SME finance (Yoshino and Taghizadeh-Hesary 2016b).

Many countries have used CGSs for decades, in various forms, as a way to increase the flow of funds into targeted sectors and groups. The purpose of the creation of such a scheme is to contribute to the flow of funding into sectors that have difficulty raising funds, including the SME sector. A CGS makes lending more attractive by absorbing or sharing the risks associated with lending to the targeted sector. Such schemes can also increase the amount of loan funds available to an enterprise beyond its own collateral limits, because the guarantee is a form of loan collateral. The guarantee manager can assume the additional role of loan assessor and monitor, which can improve the quality of the loans (Zander, Miller, and Mhlanga 2013). However, guarantee funds have a cost, which borrowers pay through the fees that lenders charge and/or the government or a third-party institution subsidizes.

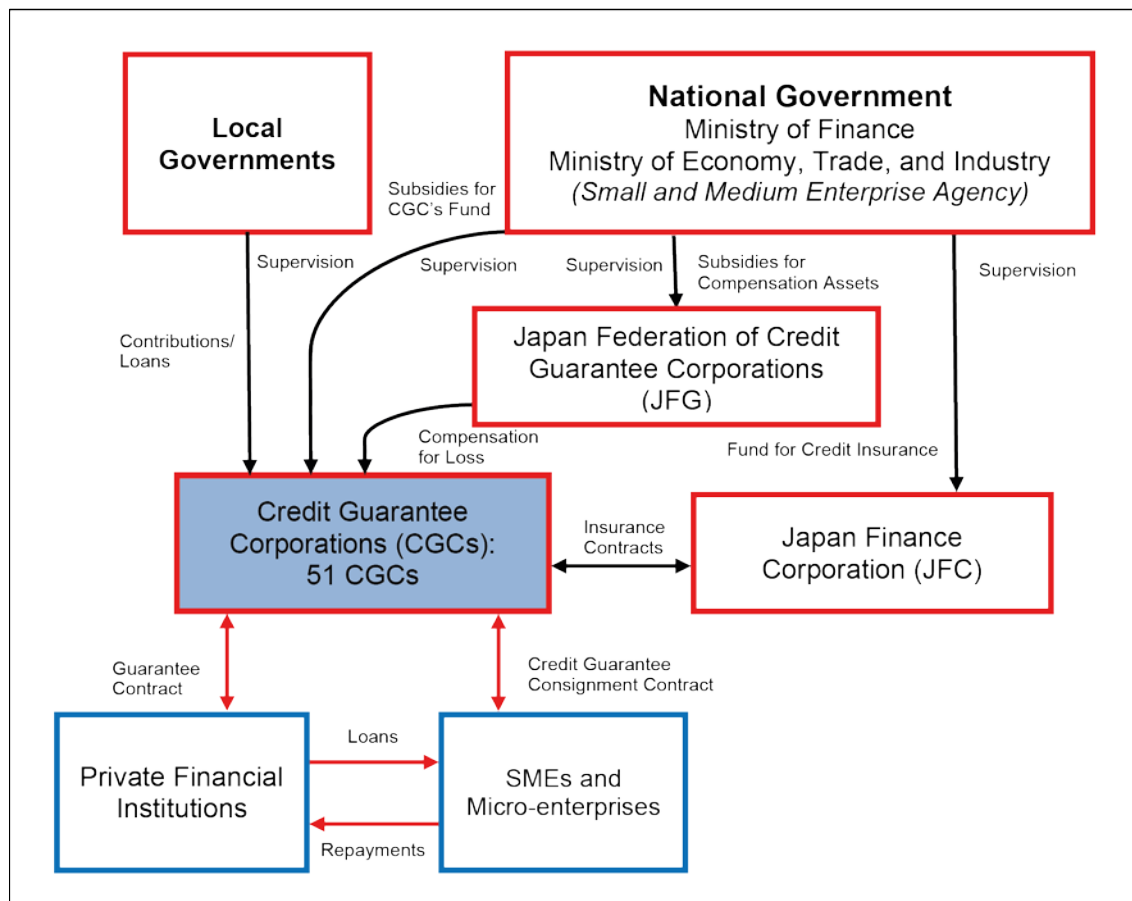
A CGS consists of at least three parties: a borrower, a lender, and a guarantor. The borrower is often an SME or a micro-enterprise, seeking debt capital. This borrower typically approaches a private financial institution (a bank, the lender) for a business loan. For reasons of asymmetry of information, the private lender will frequently turn down the loan request, at which point the guarantor intervenes. The guarantor (credit guarantee corporation), usually a government or trade association, seeks to facilitate access to debt capital by providing lenders with the comfort of a guarantee for a substantial portion of the debt (Riding and Haines 2001).

Figure 2: Credit Guarantee Scheme and SME Loan Supply

Note: r_{SME} = lending interest rate to SMEs, L_{SME} = amount of loan to SMEs, SME = small and medium-sized enterprises.
 Source: Yoshino and Taghizadeh-Hesary (2018b).

CGSs make banks' lending to SMEs easy, because, in the case of an SME defaulting, the credit guarantee corporation will cover a certain percentage of the lenders' losses. In the usual cases of lending to SMEs, an adverse loan supply is observable, as the backward-bending loan supply curve in Figure 2 shows. Because of the asymmetry of information between SMEs and banks, banks set the interest rate much higher when lending to SMEs than when lending to large enterprises; moreover, they are not interested in lending much money to risky SMEs. This explains the backward-bending SME loan supply curve. However, a CGS reduces the asymmetry of information and hence the expected default losses, as the credit guarantee corporation (government) guarantees a portion of the loan default, so banks would like to lend money to those guaranteed SMEs. The dashed line in Figure 2 shows the loan supply curve if there is a credit guarantee scheme, and, if the guarantee ratio increases, the dashed line will be flatter, which means easier access to finance for SMEs, because banks will be more interested in lending to them.

As Figure 3 shows, using the example of Japan, CGC money comes from the national government (from the Ministry of Finance to the Ministry of Economy, Trade, and Industry; METI) and from local governments, while private financial institutions provide (guaranteed) loans. The national government provides direct subsidies to CGCs and subsidies for compensation assets to the Japan Federation of Credit Guarantee Corporations (JFG), and the JFG provides them as compensation in the case of losses to CGCs. In addition, the national government provides funds for credit insurance to the Japan Finance Corporation (JFC), and the JFC uses this budget to insure the contracts. On the other hand, local governments are also supporters of CGCs and provide them with contributions and loans. In Japan, in the fiscal year (FY) 2014, almost 3.852 million SMEs were operating, among which 36.6% or 1.412 million received CGS guarantees. There are 51 CGCs in Japan, one for each prefecture and one in each of the cities of Nagoya, Yokohama, Kawasaki, and Gifu. At the end of FY2014, their total liabilities stood at approximately 27.7 trillion yen (JFG 2015).

Figure 3: Credit Guarantee Scheme (Japan)

Note: The authors have reproduced the above figure.

Source: Japan Federation of Credit Guarantee Corporations (JFG) (2014).

Asia has relatively widely established CGSs. Indonesia started a public credit guarantee scheme for MSMEs—People's Business Credit (KUR)—in 2007; it guarantees 70%–80% of the credit applied. Kazakhstan has a partial credit guarantee scheme for SMEs (up to 70%) under the Damu Entrepreneurship Development Fund. In Malaysia, the Credit Guarantee Corporation provides guarantees for SMEs. In Papua New Guinea, a regional bank (Bank of South Pacific) provides partial credit guarantees for SMEs (50% of the credit applied).

There are three public credit guarantee institutions in the Republic of Korea: (i) the Korea Credit Guarantee Fund (KODIT), (ii) the Korea Technology Credit Guarantee Fund (KOTEC), and (iii) the Korean Federation of Credit Guarantee Foundations (KOREG). KODIT provides guarantees mostly for start-ups that are not oriented toward information technology and for export-oriented SMEs. The main objective of the fund is to lead balanced development of the economy by extending credit guarantees for the liabilities of promising SMEs that lack tangible collateral.

In Kazakhstan, the “Damu” Fund is the financial agent of the Unified program and implements the subsidization of interest rates for loans to entrepreneurs as well as providing entrepreneurs with guarantees to banks when obtaining loans. During the seven years of the implementation of the Unified program, it signed contracts for subsidizing the interest rate for 8,899 projects with a total loan value of KZT1,693.1 bln. The amount of subsidies was KZT 145.6 bln. Among them, in 2016, it provided support

for 2,121 projects by subsidizing the interest rate on loans for a total loan value of KZT331.9 bln (Damu 2017). In 2017, through the implementation of new tools to support entrepreneurship, the “Damu” Fund increased the extra-budgetary funding programs for concessional financing to SMEs. Along with this, participants in the program became able to obtain a guarantee from the “Damu” Fund of up to 85% of the amount of microcredit. In addition, the maximum nominal interest rate of microcredit for the final borrower became 6% per annum (Damu 2017).

There are two major credit guarantee programs for MSMEs in the Philippines. The SBC provides one, and the other is the BSP Credit Surety Fund Program. The SBC basically covers 70% of MSME loans. The BSP Credit Surety Fund Program, from the time of its inception in 2008 to 31 October 2014, approved cumulative loans for 10,515 beneficiaries. To extend its cooperation with the BSP, the Development Bank of the Philippines (DBP) also offers a CSF credit facility, through which qualified cooperatives and nongovernment organizations (NGOs) may apply for loans, either for relending to their members who need funding for their business (wholesale) or directly for a cooperative's or NGO's own entrepreneurial business activities (retail). The DBP has launched the Sustainable Entrepreneurship Enhancement and Development (SEED) program, Retail Lending for Micro and Small Enterprises, and the Credit Surety Fund Facility to maximize the banks' lending reach to MSMEs (ADB 2015).

Meanwhile, to increase the effectiveness of CGSs, one important issue that requires clarification is the coverage ratio. Japan used to have a full credit guarantee scheme that covered 100% of the default cost that borrowers in Japan incurred (Uesugi, Sakai, and Yamashiro 2006). Recently, the Japanese Government revised the credit guarantee policy and implemented a partial credit guarantee (PCG) as the full guarantee involved moral hazard. If the government covers 100% of SMEs' default costs and absorbs the full risk, then lending institutions will not monitor and analyze the healthiness of the borrowers, because the government covers their risk. Thus, it will increase the nonperforming loans in the banking sector and reduce the productivity of the public reserves. Hence, a partial credit guarantee scheme may be the optimal scenario.

In Japan, after the tsunami and earthquake disaster at Fukushima in March 2011, the government decided to make credit guarantee ratios 100% (full guarantee), because it became much more difficult for many SMEs to borrow money from banks (Yoshino and Taghizadeh-Hesary 2014a). However, almost 5 years after the earthquake and tsunami, when the government found that most businesses that had suffered from this disaster could recover their business, it adjusted this to a partial guarantee. The Japanese CGS provides the same guarantee coverage ratio (80%) to all banks for their lending to SMEs regardless of the creditworthiness of the banks. This is the case in many other Asian economies. However, the optimal case would be to differentiate banks based on their creditworthiness, with those banks that show a healthier status receiving a higher guarantee ratio and riskier banks that have accumulated nonperforming loans receiving a lower guarantee, hence providing them with an incentive to improve their creditworthiness.

To increase the effectiveness of CGSs, there are three questions to answer. First, what is the optimal credit guarantee ratio (i.e., the share of the loan that the guarantee covers) to achieve the government's goal of minimizing banks' nonperforming loans to SMEs and at the same time realize its objective of supporting SMEs? Second, will the ratio be constant regardless of the macroeconomic conditions? Third, should the ratio be the same for all banks or should it vary depending on a bank's financial soundness? Yoshino and Taghizadeh-Hesary (2018b) answered these questions. Their work provided a theoretical model and an empirical analysis of the factors that determine an

optimal credit guarantee ratio. The ratio should be at such a level that it achieves the government's goal of minimizing banks' nonperforming loans to SMEs and at the same realizes the government policy objective of supporting SMEs by reducing information asymmetry. Their results show that three factors determine the optimal credit guarantee ratio: (i) government policy, (ii) macroeconomic conditions, and (iii) banks' behavior. To avoid moral hazard and ensure the stability of lending to SMEs, it is crucial for governments to set the optimal credit guarantee ratio based on the macroeconomic conditions and vary it for each bank or each group of banks based on their soundness.

3.2 Development of SME Credit Risk Databases, Credit Bureaus, and SME Credit Rating

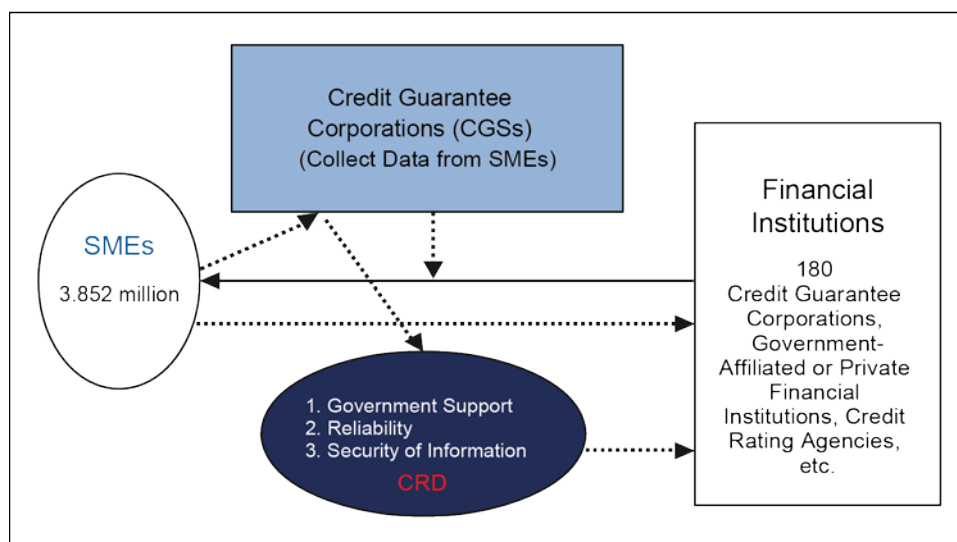
Given the importance of SMEs to many dimensions of Asian economic activity, further efforts are necessary to offer them access to finance. Their financial and nonfinancial accounts are often difficult to assess, but the Credit Risk Database (CRD) in Japan shows that it is possible to collect and assess SME data and to rate SMEs based on them.

3.2.1 Credit Risk Database (CRD) (Japanese Experience)

The Japanese Ministry of Economy, Trade, and Industry and the Small and Medium Enterprise Agency established the CRD Association in 2001. Its aim was to facilitate fundraising for SMEs and to improve their operational efficiency. The association's membership increased from 73 institutions at the end of March 2002 to 181 by 1 April 2016 (Kuwahara et al. 2016).

The CRD covers SMEs exclusively (Figure 4). As of 31 March 2015, it included 2,210,000 incorporated SMEs and 1,099,000 sole-proprietor SMEs, and it is by far the largest SME database in Japan. The database for enterprises in default covers 500,000 incorporated and sole-proprietor SMEs (Yoshino and Taghizadeh-Hesary 2014b). The CRD Association receives active support from both the private and the public sector, which has contributed to its success. For example, the Small and Medium Enterprise Agency nominates representatives of the CRD Association for government councils, which gives the association an opportunity to promote its activities and increase its membership. Credit guarantee corporations and private financial institutions use the CRD when they create a joint guarantee scheme.⁴ Before the formal establishment of the CRD, the government invested ¥1.3 billion from supplementary budgets for the fiscal years 1999 and 2000 to finance the setting up of the CRD's computer system and other operational costs. The association provides sample data and statistical information as well as scoring services.

⁴ A credit guarantee system would make it easier for banks to lend money to SMEs. For example, in the case of an SME defaulting, the credit guarantee corporation, which is a governmental organization, would meet a percentage of the losses. For example, assuming that a credit guarantee corporation sets 80% as the guarantee ratio, if an SME entered bankruptcy, a bank could recover 80% of its loan. If an SME became bankrupt without a credit guarantee system in place, the bank would lose its entire loan. Arráiz, Meléndez, and Stucchi (2014) provided a framework for a partial credit guarantee system.

Figure 4: Credit Risk Database of Small and Medium-Sized Enterprises

CRD = Credit Risk Database; SME = small and medium-sized enterprise.

Note: The numbers of financial institutions are as of 1 April 2016. The number of SMEs includes all SMEs in Japan at the end of FY2014.

Source: Authors, CRD website,⁵ source of number of SMEs: JFG (2015).

Member financial institutions use scoring models to evaluate creditworthiness, check the validity of internal rating systems, and align loan pricing with credit risk. In addition, the CRD Association provides consulting services to support the management of SMEs on the assumption that, if SMEs have better management, this will reduce the credit risk for member financial institutions and strengthen SMEs' business operations. It also offers consulting services to member financial institutions to help them promote the implementation of Basel III.

If other parts of Asia could establish such systems to accumulate and analyze credit risk data and to measure each SME's credit risk accurately, SMEs would be able to raise funds from the banking sector.

3.2.2 National Credit Bureau (Thai Experience)

The National Credit Bureau (NCB) is well known among debtors, businessmen, and SMEs in Thailand as the organization that collects and processes the credit information of financial institutions' clients. However, not many people know exactly what the responsibilities and duties of the NCB are. Some people believe that the credit bureau can place people on a blacklist or that it sells credit information to telesales businesses, and most people believe that the credit bureau is responsible for credit rejections.

The Thai Government established the NCB in 1998. The government realized that a significant cause of the economic crisis in Thailand was the financial sector's lack of an organization to collect credit information thoroughly and systematically. Financial institutions thus performed inaccurate analyses of credit, because they did not know the overall obligations or payment histories of borrowers.

⁵ <http://www.crd-office.net/CRD/en/index.html>.

Firstly, the government supported the establishment of two credit bureaus for collecting and assembling credit information and the payment history of financial institutions' clients as well as undertaking credit inquiries with financial institutions with clients' consent. Later, in 2005, the two credit bureaus merged and became the National Credit Bureau, running under the Credit Information Business Act B.E. 2545.

The NCB is a private credit bureau company that operates under a good governance policy and does not seek profit maximization. The shareholders are customers or members, and the board of directors consists of experts and executives from the Ministry of Finance, financial institutions, and insurance companies. It treats credit information impeccably to meet the international standards of credit bureaus in other countries (Yoshino et al. 2016).

3.2.3 SME Credit Rating

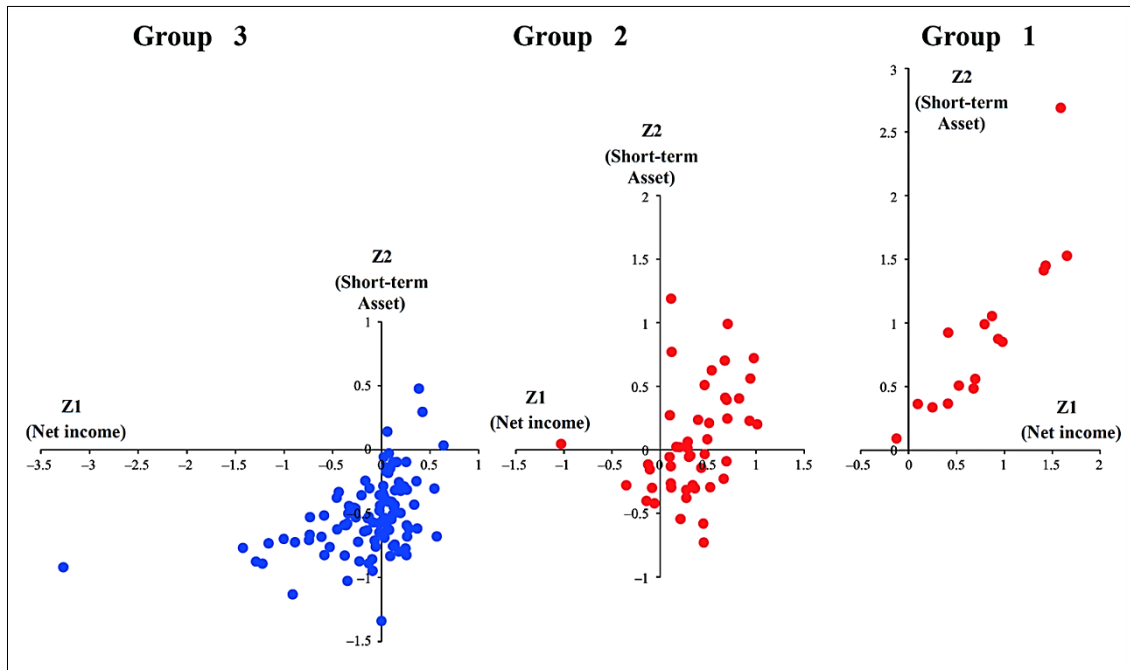
Credit ratings are opinions expressed in terms of ordinal measures reflecting the current financial creditworthiness of issuers, such as governments, firms, and financial institutions. Rating agencies—such as Fitch Ratings, Moody's, and S&P—confer these ratings, which we may regard as a comprehensive evaluation of an issuer's ability to meet their financial obligations in full and on time. Hence, they play a crucial role by providing participants in financial markets with useful information for financial planning. To conduct rating assessments of large corporates, agencies resort to a broad range of financial and nonfinancial pieces of information, including domain experts' expectations. Rating agencies usually provide general guidelines on their rating decision-making process, but they generally do not issue detailed descriptions of the rating criteria and the determinants of banks' ratings (Orsenigo and Vercellis 2013). In the search for more objective assessments of the creditworthiness of large corporate and financial institutions, a growing body of research into the development of reliable quantitative methods for automatic classification according to their financial strength has emerged.

Extensive empirical research devoted to analyzing the stability and soundness of large corporations dates back to the 1960s. Ravi Kumar and Ravi (2007) provided a comprehensive survey of the application of statistical and intelligent techniques to predicting the likelihood of default among banks and firms. Despite their obvious relevance, however, the development of reliable quantitative methods for the prediction of large corporations' credit ratings has only recently begun to attract strong interest. These studies have mainly consisted of two broad research strands focusing on statistical and machine learning techniques and may address both feature selection and classification. Poon, Firth, and Fung (1999) developed logistic regression models for predicting Moody's financial strength ratings using bank-specific accounting variables and financial data. They applied factor analysis to reduce the number of independent variables and retain the most relevant explanatory factors. The authors showed that loan provision information and risk and profitability indicators added the greatest predictive value in explaining Moody's ratings.

As mentioned earlier, the main purpose of developing the CRD was to create the infrastructure for improved credit rating of SMEs, which could be the medium-term target for Asian economies to solve the asymmetric information problem of SMEs. However, in the short run, it is possible to implement various methods for the performance of credit risk analysis and credit rating of SMEs by lending institutions, credit guarantee corporations, or independent local rating agencies, using data on SMEs. A comprehensive credit rating method that Yoshino and Taghizadeh-Hesary (2014b) developed employed statistical analysis techniques for various financial variables of a group of 1363 SME customers of an Iranian bank by utilizing

two statistical techniques (principal component analysis and cluster analysis) on various financial ratios of the sample of SMEs. These financial ratios cover all the characteristics of SMEs, including activity, profitability, coverage, leverage, and liquidity. Figure 5 shows random samples from the 1363 SMEs, each dot representing one SME. The analysis classifies SMEs into three groups: financially healthy SMEs, medium-risk SMEs, and financially risky SMEs. Yoshino and Taghizadeh-Hesary (2014b) explained the detailed analytical framework.⁶

Figure 5: Classification of Small and Medium-Sized Enterprises



SME = small and medium-sized enterprise.

Note: Group 1 = financially healthy SMEs; Group 2 = medium-risk SMEs; Group 3 = financially risky SMEs.

Source: Yoshino and Taghizadeh-Hesary (2014b).

Banks can lend more money to SMEs in the financially healthy group by charging low rates of interest with no required collateral, while credit guarantee corporations can charge them lower premiums when guaranteeing the allocated credit. On the other hand, for SMEs in the high-risk group, banks can charge higher rates of interest with greater collateral requirements. If an SME's performance improves and it moves into a lower-risk group, banks can change their interest rates from high to low, accordingly.

⁶ For start-up businesses, as they do not have any financial background and hence have quite a different risk profile, they might appear to be risky and need different types of support and instruments. For the credit assessment of start-up businesses, it is more important to look at the management skills of the CEO and top directors, the credit history of the directors (their past loan history from banks), the marketability and competitiveness of their products and services, the business model, and several other qualitative factors.

A similar SME data analysis used NCB data for Thai SMEs (Yoshino et al. 2016). Yoshino et al. (2016) showed that it is possible to develop a credit rating scheme for SMEs, when lacking access to other financial and nonfinancial ratios, by using data on banks' lending to SMEs. They employed statistical techniques on five variables from a sample of Thai SMEs from the NCB database and classified them into subgroups based on their financial health.

By employing these techniques in Asian economies, banks could reduce the information asymmetry and consequently set interest rates and lending ceilings for SMEs. This would ease the financing of healthy SMEs and reduce the amount of nonperforming loans to this important sector.

3.3 Specialized Banks for SME Financing (SME Bank)

In this subsection, we provide two successful examples of SME banks from Japan and the Republic of Korea.

In Japan, there is a good example of specialized private banks for SME financing, called "Shinkin banks." Shinkin banks are deposit-taking cooperative banks that specialize in financing SMEs within a region. Just like city banks and regional banks, deposit insurance protects Shinkin banks, and they must adhere to capital adequacy requirements and other banking regulations and supervisions. Unlike city banks or regional banks, however, Shinkin banks provide loans mainly to member SMEs that capitalize the Shinkin banks. They can make loans to nonmember SMEs, but they have to restrict the share of the loans to nonmember SMEs to 20%. On the other hand, they can accept deposits from anyone.

Shinkin banks are regional financial institutions in the sense that they can provide loans only to SMEs that operate within the same region as the Shinkin banks. Shinkin banks are generally smaller than city banks and tier-1 and tier-2 regional banks and larger than credit cooperatives (*shinyokumiai*). Shinkin banks have played a significant role in the development of SMEs in different regions and in achieving comprehensive growth throughout Japan (Hosono, Sakai, and Tsuru 2006). They provide 14.7% of the total loans to SMEs, having a total of ¥128 trillion (equivalent to \$1,244 billion) in funds (SCB 2015).

In the Republic of Korea, since the establishment of the Industrial Bank of Korea (IBK) on 1 August 1961, it has acted as the SME bank of the country and constantly expanded the corporate lending bases, especially to SMEs, and the number of clients reached 1.2 million corporations as of 14 December 2015. The IBK retained the leadership role in financing competitive SMEs in financial distress over the past year.

In 2015 alone, the IBK extended new loans worth KRW 10.3 trillion, claiming 20% of the annual KRW 52.8 trillion net increase in SME loans that all Korean banks extended. The IBK's SME loan balance stood at KRW 126.1 trillion in 2015 and accounted for 77.3% of the bank's KRW 163.2 trillion total loan balance by the end of the year. Claiming 22.34% of the SME loan balance market share, this makes the IBK the sole Korean financial institution, with a market share of 20% or greater for SMEs. As a policy bank that specializes in SME lending, the IBK contributed to upholding the government's finance policy to help lift the nation's economy out of its current quagmire and to stimulate the Republic of Korea's creative economy by rolling out various new products aimed specifically at financing SMEs, especially start-ups, in 2015.⁷

⁷ Accessed 9 July 2017. <http://eng.ibk.co.kr/lang/en/au/corporateBanking.jsp>.

At the end of March 2017, the shareholder status of the IBK was: Ministry of Strategy and Finance (50.9%), Korean Development Bank (8.7%), Export–Import Bank of Korea (2.3%), foreigners (16%), and others (22.1%).⁸

4. CONCLUSIONS

SMEs play a significant role in Asian economies, as they are responsible for very large shares of employment and output in all Asian countries. However, in the bank-dominated financial systems in Asia, SMEs have difficulty accessing cheap finance.

Banks are cautious about lending to SMEs, even though such enterprises account for a large share of economic activity. Start-up companies, in particular, are finding it increasingly difficult to borrow money from banks, and the strict Basel III capital requirements have made the situation more challenging. Riskier SMEs also face problems in borrowing money from banks. It is difficult for banks to evaluate SMEs, since they often do not have solid accounting systems and their credit risk is not obvious to lending institutions. Many SMEs in Asia borrow money by paying high rates of interest or offering costly collateral, which hinders their growth.

Many banks prefer to allocate their resources to large enterprises rather than SMEs. The reason for this is that, for large enterprises, the financial statements are clearer. SMEs are mainly riskier from the point of view of lenders, as they do not have clear accounting information and have a limited credit history.

This study highlighted SMEs' difficulty in accessing finance and, with a view to easing the financing of SMEs, provided three methods to ease SMEs' access to finance. These three methods are i) the development of credit information infrastructures for SMEs and the utilization of credit-rating techniques for SMEs to solve the asymmetric information problem; ii) the development of a sustainable credit guarantee scheme to remedy the collateral issue of the SMEs and make their assessment of finance easier; and iii) the development of specialized banks for SMEs.

One of the major requirements for making SMEs' credit risk transparent to lending institutions and for credit guarantee corporations is a nationwide credit risk database. This study presented a unique example of such a database from Japan (CRD). The CRD provides credit risk analysis and credit-scoring services and examines the probability of SMEs defaulting for banks and credit guarantee corporations that are members of the CRD (presently 180 members).

If other parts of Asia could establish such systems to accumulate and analyze credit risk data and to measure each SME's credit risk accurately, SMEs would not only be able to raise funds from the banking sector but could also gain access to the debt market by securitizing their claims. The establishment of a CRD could be a medium-term infrastructure target in Asian economies.

In the short run, it is possible to implement various methods for measuring the credit risk and assessing the credit rating of SMEs. Lending institutions, credit guarantee corporations, or independent local rating agencies could use these methods with data regarding SMEs. Financial institutions and credit guarantee corporations in Asian companies that want to lend to, or guarantee finance for, SMEs could adopt the comprehensive SME credit-rating method that Yoshino and Taghizadeh-Hesary (2014b) developed.

⁸ Accessed 9 July 2017. <http://eng.ibk.co.kr/lang/en/ir/shareholderStatus.jsp>.

Finally, it is important for Asian economies, especially for lower-income Asian countries, where SMEs represent the main parts of their economies, to diversify SMEs' channels of financing. It is also necessary for Asian economies to accumulate SME data in a nationwide database for categorizing SMEs based on their creditworthiness. Those that are ranked higher will receive higher credit guarantees from the government at lower costs so that they can be successful. They will have a significant role in job creation and in production. In addition, those that are risky should avoid borrowing from banks, because their use of bank loans will cause nonperforming loans.

REFERENCES

- Arráiz, I., M. Meléndez, and R. Stucchi. 2014. "Partial Credit Guarantees and Firm Performance: Evidence from Colombia." *Small Business Economics* 43 (3): 711–24.
- Asian Development Bank (ADB). 2015. *Asia SME Finance Monitor 2014*. Manila.
- Bank of Japan (BOJ). 2016. *Tankan Summary (December 2016)*. 171st Short-Term Economic Survey of Enterprises in Japan. Tokyo: Research and Statistics Department, Bank of Japan.
- Damu. 2017. *Report on the State of Development of Small and Medium Entrepreneurship in Kazakhstan and its Regions*. Almaty: Damu "Entrepreneurship Development Fund" JSC.
- Hosono, K., K. Sakai, and K. Tsuru. 2006. *Consolidation of Cooperative Banks (Shinkin) in Japan: Motives and Consequences*. RIETI Discussion Paper Series 06-E-034. Tokyo: The Research Institute of Economy, Trade and Industry.
- JFG. 2014. *Credit Guarantee System in Japan*. Tokyo: Japan Federation of Credit Guarantee Corporations.
- . 2015. *Credit Guarantee System in Japan*. Tokyo: Japan Federation of Credit Guarantee Corporations.
- Kuwahara, S., N. Yoshino, M. Sagara, and F. Taghizadeh-Hesary. 2016. Role of the Credit Risk Database in Developing SMEs in Japan: Ideas for Asia. In *SMEs in Developing Asia: New Approaches to Overcoming Market Failures*, edited by P. Vandenberg, P. Chantapacdepong, and N. Yoshino. Tokyo: Asian Development Bank Institute.
- Orsenigo, C., and C. Vercellis. 2013. "Linear versus Nonlinear Dimensionality Reduction for Banks' Credit Rating Prediction." *Knowledge-Based Systems* 47: 14–22.
- Poon, W. P. H., M. Firth, and H. G. Fung. 1999. "A Multivariate Analysis of the Determinants of Moody's Bank Financial Strength Ratings." *Journal of International Financial Markets, Institutions and Money* 9: 267–83.
- Ravi Kumar, P., and V. Ravi. 2007. "Bankruptcy Prediction in Banks and Firms via Statistical and Intelligent Techniques—A Review." *European Journal of Operational Research* 180 (1): 1–28.
- Riding, A.L., and G. Haines, Jr. 2001. "Loan Guarantees: Costs of Default and Benefits to Small Firms." *Journal of Business Venturing* 16 (6): 595–612.
- SCB. 2015. *Shinkin Central Bank Annual Report, 2014*. Tokyo: Shinkin Central Bank.
- Shinozaki, S. 2012. *A New Regime of SME Finance in Emerging Asia: Empowering Growth-Oriented SMEs to Build Resilient National Economies*. ADB Working Paper Series on Regional Economic Integration No. 104. Manila: Asian Development Bank.
- Uesugi, I., K. Sakai, and G.M. Yamashiro. 2006. *Effectiveness of Credit Guarantees in the Japanese Loan Market*. RIETI Discussion Paper Series 06-E-004. Tokyo: The Research Institute of Economy, Trade and Industry.

- Vandenberg, P., P. Chantapacdepong, and N. Yoshino. 2016. "Small Firms, Market Failures, and Government Policy." In *SMEs in Developing Asia: New Approaches to Overcoming Market Failures*, edited by P. Vandenberg, P. Chantapacdepong, and N. Yoshino. Tokyo: Asian Development Bank Institute.
- Yoshino, N., and F. Taghizadeh-Hesary. 2014a. "An Analysis of Challenges Faced by Japan's Economy and Abenomics." *Japanese Political Economy* 40 (3–4): 37–62. DOI: 10.1080/2329194X.2014.998591.
- . 2014b. "Analytical Framework on Credit Risks for Financing SMEs in Asia." *Asia-Pacific Development Journal* 21 (2): 1–21.
- . 2015. "Analysis of Credit Ratings for Small and Medium-Sized Enterprises: Evidence from Asia." *Asian Development Review* 32 (2): 18–37.
- . 2016a. "Causes and Remedies of Japan's Long-lasting Recession: Lessons for China." *China & World Economy* 24: 23–47. DOI: 10.1111/cwe.12149.
- . 2016b. "Optimal Credit Guarantee Ratio for Asia." In *SMEs in Developing Asia: New Approaches to Overcoming Market Failures*, edited by P. Vandenberg, P. Chantapacdepong, and N. Yoshino. Tokyo: Asian Development Bank Institute.
- . 2018a. "Remedies for Mitigating Asian SMEs' Access-to-Finance Difficulties." In *Routledge Handbook of Banking and Finance in Asia*, edited by U. Volz, P.J. Morgan, and N. Yoshino. London: Routledge.
- . 2018b. "Optimal Credit Guarantee Ratio for Small and Medium-Sized Enterprises' Financing: Evidence from Asia." *Economic Analysis and Policy*. <https://doi.org/10.1016/j.eap.2018.09.011>.
- Yoshino, N., and T. Hirano. 2011. "Pro-Cyclicality of the Basel Capital Requirement Ratio and its Impact on Banks." *Asian Economic Papers* 10 (2): 22–36.
- Yoshino, Naoyuki, Farhad Taghizadeh-Hesary, Phadet Charoensivakorn, and Baburam Niraula. 2016. "Small and Medium-Sized Enterprise (SME) Credit Risk Analysis Using Bank Lending Data: An Analysis of Thai SMEs." *Journal of Comparative Asian Development* 15 (3): 383–406. DOI: 10.1080/15339114.2016.1233821.
- Zander, R., C. Miller, and N. Mhlana. 2013. *Credit Guarantee Systems for Agriculture and Rural Enterprise Development*. Rome: Food and Agriculture Organization of the United Nations.