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OIL PRICE FLUCTUATIONS, CREDITWORTHINESS OF THE FINANCIAL SYSTEM, AND SME FINANCING IN KAZAKHSTAN

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Abstract

Kazakhstan remains a resource-dependent country, and the overall economy experiences external commodity price volatility. Oil export revenue exerts a positive effect on the economic development of oil-producing countries; however, depending only on oil revenue will make the economy vulnerable to oil price shocks, especially in the case of an oil price recession. This is forcing the Kazakhstan Government to pursue industrial diversification to accomplish sustainable and balanced economic development, particularly concentrating on the diversification and expansion of the SME sector. Second-tier banks remain SMEs' main source of financing. Due to the higher risks associated with SMEs, they have to borrow money at high interest rates that endanger their growth. Since the global crisis in 2008 and the adoption of the Basel capital requirement, banks have become more reluctant to lend funds to SMEs. The government's use of a credit guarantee scheme (CGS) relies on the willingness of second-tier banks to lend to SMEs, since they decide which SMEs to lend to and the effective interest rate. Second-tier banks, on the other hand, are dependent on the oil price volatility. This paper examines the status of the CGS in SME financing in Kazakhstan. In addition, it provides an empirical analysis using the structural VAR method that shows that the creditworthiness of the whole financial system in Kazakhstan is dependent on oil prices. Moreover, there is an effect from oil price volatility on currency value change, which also influences the financial situation of SMEs.

Contents

1. INTRODUCTION

The global financial crisis of 2008–2009, and the accompanying sharp decline in oil prices, significantly influenced many of the oil-exporting countries. [1] Exports and government revenues have fallen considerably in resource-based economies, adversely affecting the GDP growth. In addition, mortgage prices have hit the banking system hard, and the growth of loans to the private sector has significantly deteriorated. Since the financial system of some oil-exporting countries has weakened, governments have had to apply interventionist policies in the domestic financial sector, such as credit guarantees, liquidity support, capital injections, or equity purchases (via government-owned vehicles such as sovereign wealth funds (SWFs). Particularly, banks that lent heavily in the mortgage sector have suffered losses following the collapse of these asset prices in the stock market (Edey 2009).

Bank loans to small and medium-sized enterprises vary across regions, and there is a disproportionate distribution of bank loans within the regions. For instance, the share of bank loans extended to SMEs accounted for 35% of the total bank loans in North Kazakhstan province and 0% in Turkistan (previously known as South Kazakhstan) province as of August 2018. [2] The maximum share of bank loans extended to SMEs in the total is observable in northern regions of Kazakhstan, such as North Kazakhstan (35%), Akmola (31%), and Kostanai (14%). Indeed, only 19% of SMEs had a bank loan or held a credit line in 2014, a decline from around 30% in 2008–09, a decrease that is partly a result of the turmoil that the financial sector has experienced in recent years.

In addition, the share of bank loans for asset purchases declined from 17.7% to 8.8% from 2008 to 2015, while the share of enterprises reporting that they had demanded a loan but banks had discouraged them from applying increased from less than half to around 60%. Banks grant two-thirds of their total loans in Astana and Almaty. Enterprises located in the other regions experience particularly tight credit constraints. Banks reject a large proportion of the loan requests from SMEs, which could be due to the high collateral requirements. The OECD's *Enhancing Competitiveness in Central Asia* (2018) report documented that an absence of access to finance for firms, especially in the agriculture sector, is one of the central obstacles to improving the sector's competitiveness. Already low levels of loans have deteriorated further as a result of the global economic crisis: the amount of loans granted to the agriculture sector decreased significantly from KZT21.3 billion (equivalent to USD139 million) in 2007 to KZT14.6 billion (equivalent to USD95 million) in 2009 and only accounted for 4.9% of the total bank loans in 2018 in Kazakhstan. SMEs, especially those in the agriculture sector, face unfair competition from the informal sector, which accounts for 20% of the total employment (OECD 2018).

Oil prices affect the economy via two channels—direct and indirect. Oil price shocks could have an influence on bank profitability directly through increased oil-related crediting, expanded business activities, or excess liquidity in the banking system. Oil revenues generated in oil-exporting countries, and prospects of oil revenue, exert an impact on fiscal spending, which in turn affects corporate and bank profitability through credit to the private sector. The other indirect channel functions through the expectations and the overall business attitude in the economy. Higher oil prices could induce government revenues from oil exports and lead to favorable conditions, which boost the

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[1] For more information on the reasons behind the oil price fluctuations during the global financial crisis, see Taghizadeh-Hesary and Yoshino (2014) and Yoshino and Taghizadeh-Hesary (2014, 2016).

[2] Source: National Bank of Republic of Kazakhstan database (2018). "Loans to Economy, Regional Breakdown." http://nationalbank.kz/?docid=215&switch=english.

domestic demand and in turn lead to higher levels of bank confidence and lending and declining nonperforming loans. High oil prices also fuel public and private investment and thus increase the productive capacity of economies. This is especially observable in the example of the pre-crisis boom. With soaring oil prices, oil-exporting countries promoted investment programs to diversify the domestic economy and improve human capital. However, higher oil prices in oil-exporting countries often lead to a hike in the inflation rate (Taghizadeh-Hesary et al. 2013, 2016).

Given the concentration of exports of resource-based countries on extractive industries, the link between oil prices and the financial system, including the banking sector, is of considerable policy interest in our study not only during the period of financial crisis but also during the boom–bust oil cycles. Do oil prices influence the financial system and its performance, and, if so, what could be the relevant channels through which they affect the financial system? Furthermore, is there a link between oil prices and bank performance and how does it relate to SMEs' access to financial sources? The purpose of this study is to conduct an empirical investigation on these issues.

The banking sector turmoil has affected SMEs. Second-tier banks[3] in Kazakhstan have performed badly since the 2008–09 financial instability, and the decline following the drop in oil prices in 2014–15 adversely influenced them. This has been an obstacle to recapitalizing the weaker commercial banks, forcing them toward consolidation. Most of the smaller banks depend on a few clients and in some cases a single customer, making them fragile when runs or rapid changes in corporate policy occur. The government has undertaken action, including the acquisition of the shares of second-tier banks, the establishment of the Problem Loan Fund, [4] and the backing up of nonperforming loans and SMEs' lending support. Nevertheless, the commercial banks' access to foreign capital has halted, and the costs of borrowing have soared. For SMEs, this has implied a considerable reduction in the bank credit availability.

Lower oil prices and the reduced supply of foreign currency in the domestic market have tended to depreciate the domestic currency, increase the import costs, and cause an increase in the domestic inflation rate. The depreciation of the domestic currency and the dollarization have exacerbated the balance sheet risk (currency risks) of financial institutions and impeded the credit growth extended to SMEs. In addition, they have increased the concerns about the stability of the banking system, which is still confronting the aftermath of the 2008–09 financial crisis. The rating agencies have downgraded several large banks to junk status based on their significant foreign exchange exposure and huge exchange rate risk following the local currency depreciation and/or inadequate capital.

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[3] A bank that is not as large as the main banks in a country.

[4] The Problem Loans Fund commenced operation on 11 January 2012 with the main objective of implementing measures aimed at improving the quality of the commercial banks' loan portfolios in accordance with the requirements of normative legal acts. Its main activities include purchasing bad loans from commercial banks, managing its assets, and issuing debt securities to finance its activities. Currently, the central bank is a shareholder and owner of the Common Shares, State Property, and Privatization Committee under the Finance Ministry, which is also a shareholder and owner of preferred stocks. Accessed 5 November 2018. https://astanatimes.com/2017/03/kazakh-government-intends-to-take-action-to-resolve-problem-loans/. The National Bank will hand the Fund of Problem Funds to the Government. The Minister of Justice, Marat Beketayev, reported this at the plenary session of the Senate, presenting the draft law "On Introducing Changes and Amendments to Some Legislative Acts of the Republic of Kazakhstan on Improving Civil, Banking Legislation and Improving the Business Environment." Accessed 5 November 2018. http://www.government.kz/en/novosti/1007466-fund-of-problem-loans-to-be-handed-from-the-national-bank-to-the-government.html.

2. STATUS OF SMES AND THE CGS IN KAZAKHSTAN

2.1 Overview of SMEs in Kazakhstan

The Government of Kazakhstan has defined an SME as any enterprise with fewer than 250 employees. The differentiation between small and medium-sized businesses is based on annual asset values and the number of employees. Small businesses are those enterprises with annual assets lower than 1 million tenge and fewer than 50 employees. Medium-sized businesses have an asset value greater than 1 million tenge with fewer than 250 employees.[5]

In 2016, the number of operating SMEs in Kazakhstan amounted to 1,187 thousand units by the end of the year. Estimations indicate that the share of registered and operating SMEs is 79.1%, which employ about 3.1 million people as of 1 January 2017, and the share of gross value added of SMEs in the GDP of the country was 23.1% in 2016 (Damu 2017). The country lags behind global and regional benchmarks for the contribution of SMEs to the economy (Figure 1).

The Kazakh National Business Roadmap 2020 explicitly identified the importance of SME development as a priority to enhance the contribution of SMEs to employment and output (Shayakhmetova 2018). It viewed the sector as the fundamental factor that creates jobs and boosts production and planned the policy to be oriented toward streamlining regulations, increasing access to finance, improving business climates, and removing barriers. The Business Roadmap 2020 and the Productive Employment and Mass Entrepreneurship program defined access to financial sources as the main tool for SME development.

Table 1: Small and Medium-Sized Enterprises in Kazakhstan

	2011	2012	2013	2014	2015	2016
Output by SMEs, Output Share in the Gross National Product of Kazakhstan						
Share of GVA of SMEs in GDP, %	17.3	17.1	16.7	25.9	24.9	23.1
Output by SMEs, KZT Billion	7,604	8,255	9,165	15,568	15,699	16,857
Employment by SMEs						
SME Employees ('000)	2,427	2,383	2,577	2,811	3,184	3,075
SMEs to Total (%)	29.2	28.0	30.1	33.0	36.9	35.9
Number of SMEs						
SMEs' Number ('000)	1,384	1,400	1,536	1,655	1,481	1,500
SMEs to Total (%)	95.0	94.9	95.1	96.0	96.1	96.1
Number of Operating SMEs	846	810	888	927	1,243	1,187

Note: SMEs = small and medium-sized enterprises, GVA = gross value added, GDP = gross domestic product.
Source: Damu (2017).

However, the SME sector in Kazakhstan remains immature and highly concentrated in specific sectors. Kazakhstan has more than 1.1 million registered SMEs that employ more than 3 million people and produce about 27% of the GNP in the current period (in 2016; refer to Table 1). The World Bank (2015) documented that approximately 30% of registered SMEs are not active. The country lags behind the global benchmarks in terms of SME development and contribution (World Bank 2015). For instance, the SME share in the GDP was 20% in 2015, which is more than twofold lower than the global average. Kazakhstan is lagging behind most leading economies in terms of the SME share in employment (Figure 1).

SMEs are a major driver of economic growth and an important source of employment generation; thus, they are a key element of welfare and prosperity. In addition, SME development could contribute to reducing the dependence of Kazakhstan on oil extractive industries and the country's risk of declining commodity prices, hence making the economy more resilient to the natural resource curse. SMEs also have the potential to intensify the innovation process in production and exports, providing higher added-value activities and creating more and better jobs. As for their number, 80% of SMEs concentrate in the trade, construction, and service sectors, since these sectors represent low risk and modest start-up capital. The remaining SMEs operate in the agriculture sector (17%) and industry (3%). A high concentration of SMEs in only a few sectors is an indicator of limited support for SMEs to operate in adjacent sectors and limited opportunities to diversify the economy. Interestingly, the interest rate that commercial banks charge to the trade and service sector, including wholesale and retail trade, car and motorcycle repair, transportation, communication, and construction, is higher than the rate that they charge to other sectors (average 17.2% in 2018).

Figure 1: Sectoral Status of SMEs in Kazakhstan (2010 and 2015)
(%)
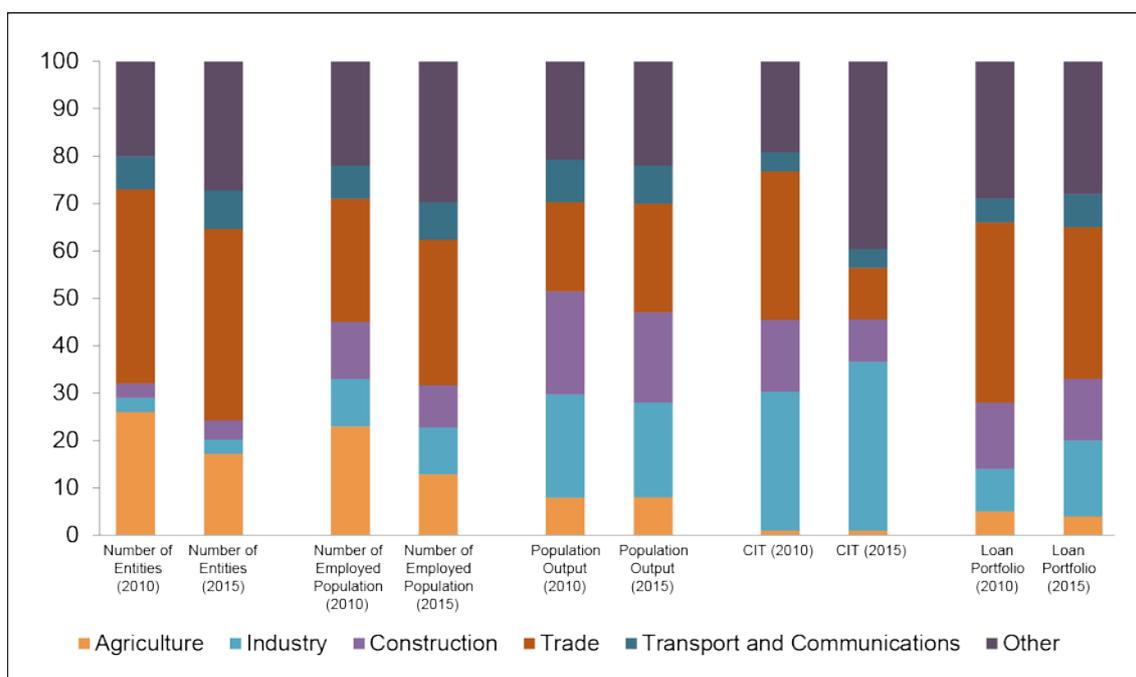
Note: Data compiled from the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan (www.stat.gov.kz) and the National Bank of the Republic of Kazakhstan (www.nationalbank.kz).

* The data for 2016 are based on operational information and assessments from the "Damu" Fund.

Source: Damu (2017).

Regarding the number of entities, number of employees, production output, and share of SMEs active in the service, trade, transport and communication, and construction sectors in the total SMEs, they grew during the period 2010–2015: (a) the number of entities from 71% to 79%; (b) the number of population members employed from 67% to 77%; and (c) the production output from 70% to 72%. However, the share of corporate income tax (CIT) collected from this sector in the total CIT that all SMEs paid reduced from 70% to 63% and that for the loan portfolio fell from 86% to 80%. Secondly, the agricultural sector has experienced a downturn, and its share in the number of enterprises, employment, and loan portfolios decreased but its output share remained unchanged. With respect to the SMEs in the industry sector during the period 2010–2015, the share of the number of enterprises in the total number of SMEs and the share of the number of employed population members in the total population employed in SMEs remained unchanged; however, the production output share reduced from 22% to 20%, the CIT increased from 29% to 36%, and the loan portfolio increased from 9% to 16%; see Figure 1 (Damu 2017).

2.2 Historical Trend and Current Status of the SME CGS in Kazakhstan

The Entrepreneurship Development Fund "Damu" JSC (hereinafter "Damu" Fund) established the basis for the CGS in Kazakhstan in 1997 based on a Decree of the Government of the Republic of Kazakhstan. The mission of the "Damu Fund" is to foster quality SME development in Kazakhstan through comprehensive support, including a wide range of financial instruments and programs for the development of competences.

Until 2001, the "Damu" Fund mainly functioned as a loan facility of the EBRD (European Bank for Reconstruction and Development) and the ADB (Asian Development Bank). In 2002, it began implementing the "Lending Program for Small Businesses from the National Budget" and the "Small Towns' Development Program for 2004–2006" by lending to small businesses directly. Over the period 2005–2007, the "Damu" Fund implemented project financing and leasing programs and developed a program for microlending in Kazakhstan and guarantee programs for SME loans received in second-tier banks. Currently, the Ministry of Regional Development of the Republic of Kazakhstan operates the "Damu" Fund, and the "Baiterek NMH" JSC is its sole shareholder. The "Damu" Fund has over 20 years' experience in supporting SMEs. Most of the participants in the "Damu" Fund's programs delivered financial support under the program of Conditional Placement of Funds in Second-Tier Banks until 2010. The implementation of the Conditional Placement of Funds program played an important role in cutting the overall level of interest charges on loans granted to SMEs. In addition to being a financial agent for the subsidization of interest rates on loans to businesses and providing banks with guarantees for entrepreneurs' loans, the "Damu" Fund acts as an operator of training and consulting programs as part of the "Business Road Map 2020" government program in all the regions of Kazakhstan. In its updated development strategy through 2023, it committed to the expansion of micro business crediting and the development and implementation of instruments to support micro finance institutions and credit cooperatives, particularly loans/micro credit guarantees in the framework of mass entrepreneurship, among others.

According to the "Damu" Fund, the share of funds under its programs in the total amount of credit (including subsidies, conditional loans, and guarantees) averaged 15% in priority sectors[6] of the economy and 22% in the processing industry during the years 2014–2016.[7] The share of "Damu" Fund credit in priority industries have been steadily increasing over the years to KZT574 bln in 2016 or 17% of the total credit (Figure 3). Meanwhile, in the processing industry, the share of credit under "Damu" Fund programs in the total amount of credit of second-tier banks in 2016 reached 25% in 2016 and amounted to KZT374 bln. Among the private business borrowers of second-tier banks, the share of clients of the "Damu" Fund amounted to 14% in 2016 and has been steady over the years.

Figure 2: Amount of Credit of Second-Tier Banks in Priority Sectors, bln KZT
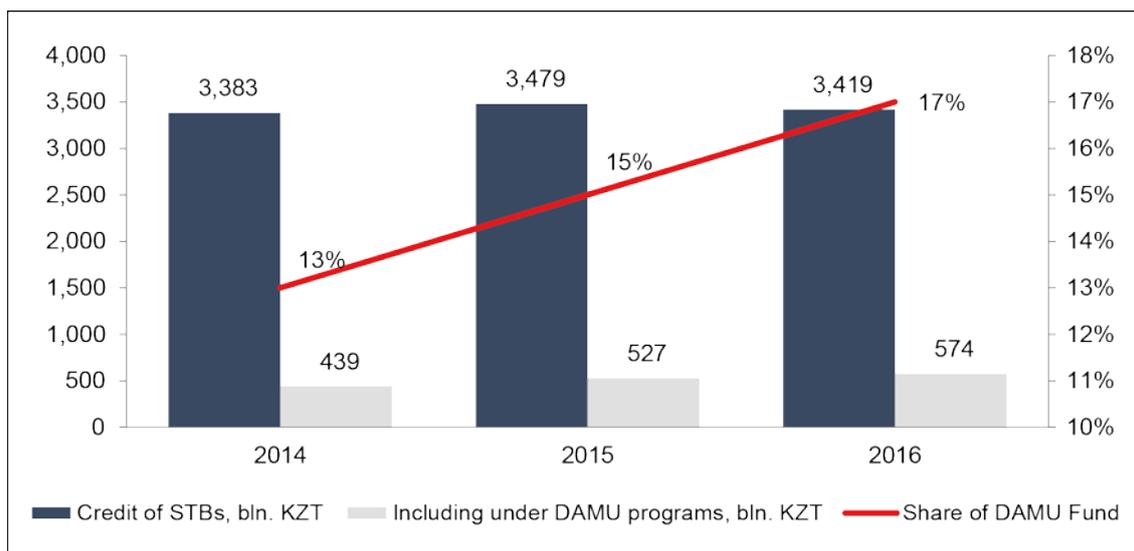
Note: STB = second-tier bank, KZT = Kazakhstan tenge.

Source: National Bank of the Kazakhstan, "First Credit Bureau" LLP. Accessed 2 July 2018. https://old.damu.kz/content/files/17/11/01_presentationOfDamuEntrepreneurshipDevelopmentFundJointStockCompanyDevelopmentStrategyFor2014_2023YearsInNewEdition.pdf.

On the other hand, the breakdown of the "Damu" Fund's credit into subsidies and conditional and guaranteed credit shows the primacy of subsidized credit in the priority sector, with the "Damu" Fund providing approximately two-thirds of loans under a subsidized scheme. However, only around 4% of credit receives a guarantee. The same applies to credit in the processing industry since 2016. Throughout 2015, the "Damu" fund provided almost 60% of its credit through a conditional investment fund. In 2016, the amount of subsidized credit increased from KZT90 bln to KZT235 bln, an increase of 161%, which increased the share of subsidized credit in the overall portfolio to 62.8%. Meanwhile, the amount of guaranteed credit is considerably smaller than that in the priority sectors in magnitude, and its share decreased to only 2.4% in 2016 (Table 2).

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[6] The list of priority sectors includes the agricultural sector, mining industry, light industry and production of furniture, tourism, and so on. The full list is available at http://astana.gov.kz/en/modules/material/11282.

[7] https://old.damu.kz/content/files/17/11/01_presentationOfDamuEntrepreneurshipDevelopmentFundJointStockCompanyDevelopmentStrategyFor2014_2023YearsInNewEdition.pdf.

Table 2: Amount of Credit of Second-Tier Banks under "Damu" Programs, bln KZT

	Subsidized	%	Conditional	%	Guaranteed	%	Total
	Priority Sectors						
	Subsidized	**%**	**Conditional**	**%**	**Guaranteed**	**%**	**Total**
2014	268	61.0%	156	35.5%	15	3.4%	439
2015	318	60.3%	186	35.3%	23	4.4%	527
2016	381	66.4%	170	29.6%	23	4.0%	574
	Processing Industry						
	Subsidized	**%**	**Conditional**	**%**	**Guaranteed**	**%**	**Total**
2014	93	39.7%	133	56.8%	8	3.4%	234
2015	90	35.7%	151	59.9%	11	4.4%	252
2016	235	62.8%	130	34.8%	9	2.4%	374

Source: National Bank of the RK, "First Credit Bureau" LLP. Accessed on 2 July 2018. https://old.damu.kz/content/files/ 17/11/01_presentationOfDamuEntrepreneurshipDevelopmentFundJointStockCompanyDevelopmentStrategyFor2014_2 023YearsInNewEdition.pdf.

According to the latest "Damu" Fund report, as of 1 January 2017, it had signed 2597 guarantee agreements for loans worth KZT92,286 mln, and the total amount of guarantees was KZT39,844 mln. Among them, it concluded 951 guarantee agreements in 2016 for loans worth KZT26,903 mln, while the amount of guarantees was KZT11,952 mln.[8] Most of the projects were in the East Kazakhstan region (200), Zhambyl region (197), and Aktobe region (194), although it provided the largest amount of loans in Astana city (KZT7.84 bln), the Kostanay region (KZT7.81 bln), and the Almaty region (KZT7.2 bln). The fund signed 60% of all agreements with individual entrepreneurs. Meanwhile, most of the guaranteed projects were in the manufacturing industry (851), the provision of other types of services (582), and the transport and stock-keeping sector (941).

The reason that Almaty and Astana are receiving more support is that, at the end of 2016, the South Kazakhstan and Almaty regions, by tradition, as well as the cities of Almaty and Astana, maintained the lead in the number of operating SMEs. Together, these regions account for 47% of all the SMEs in the country. The lowest number of operating SMEs are in the North Kazakhstan, Kyzylorda, and West Kazakhstan regions (Damu 2017).

2.3 Conditions and Procedures of the CGS that the "Damu" Fund Provides

The "Damu" Fund's guaranteed financing requires potential borrowers to have no arrears on other loans or leasing contracts, no tax arrears or debts in pension or social contributions, and their own participation in the projects in certain circumstances. The commission fee of the Fund is 0.05% of the amount of the guarantee for up to 2 years and 0.1% for over 2 years. It is possible to obtain a guarantee for loans for the purposes of investment, acquisition of new and/or refurbishment of fixed assets, and financing of current assets. The "Damu" Fund offers different terms to different types of entrepreneurs. For example, any first-time entrepreneur[9] is entitled to up to an 85% guarantee of the loan amount for up to 5 years with a maximum loan amount of KZT20

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[8] https://old.damu.kz/content/files/Damu_BOOK_ENG_inet.pdf.

[9] A first-time entrepreneur* is an individual entrepreneur whose term of state registration as an individual entrepreneur at the time of the bank application for a loan is less than three years.

mln, although the involvement of the entrepreneur's own funds in the project is not necessary. On the other hand, operating entrepreneurs can obtain a guarantee of up to 50% of the loan amount for up to 5 years with a maximum loan amount of KZT180 mln. Finally, the "Damu" Fund also offers individually tailored guarantee plans for operating entrepreneurs, guaranteeing 50% of the loan for amounts under KZT360 mln and 20% for amounts over KZT360 mln to KZT1850 mln, although it reserves the loans for projects in priority sectors. One policy recommendation for increasing the effectiveness of the CGS in Kazakhstan is that the Damu Fund should not fix its guarantee coverage. A fixed guarantee coverage ratio for all borrowers and banks, regardless of their creditworthiness, will entail moral hazard. The guarantee coverage needs to vary based on the creditworthiness of the borrower (SME) and the banks (Yoshino and Taghizadeh-Hesary 2018).

To obtain a loan guarantee, the entrepreneur applies to the bank for a business loan, then the bank, subject to the approval of the project, sends the entrepreneur's documents to the "Damu" Fund. Once the "Damu" Fund has made a decision on the guarantee, the entrepreneur, the bank, and the "Damu" Fund sign a guaranteed agreement and the entrepreneur receives the financing from the bank. However, the "Damu" Fund's website notes that, after the "Damu" Fund's decision making, the process of granting individual guarantees involves the Regional Coordinating Council (RCC); the entrepreneur forwards his or her project proposal for review and the RCC makes the final approval decision on the entrepreneur's project.[10] In addition, a financial agent, or a second-tier bank, makes its own selection and decisions on funding entrepreneurs' projects and can establish special conditions of guarantee granting, such as the provision of additional security, security insurance, the provision of a personal guarantee, and so on.

Figure 3: Guarantee Procedure of the "Damu" Fund
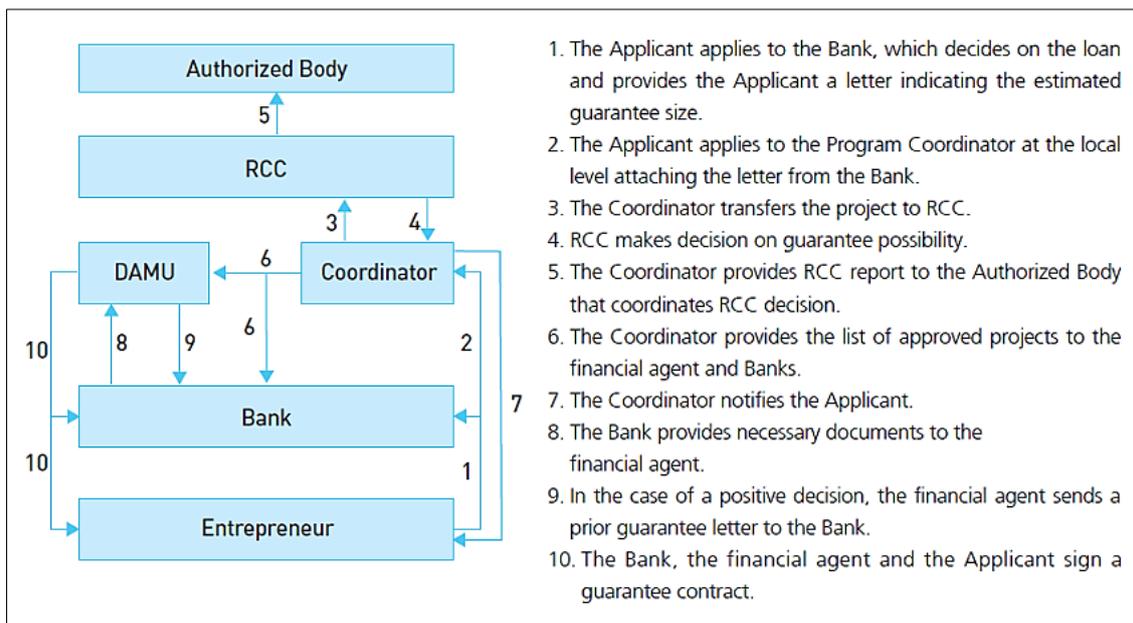
Source: KDI (2010).

The seemingly simple procedure for obtaining a credit guarantee is actually quite complex due to the multiple levels of approval from the banks, the Fund itself, and the regional and central governing bodies, which Figure 3 summarizes and is still applicable. The Government insists that multiple evaluation stages are necessary to ensure the successful process of the selection to minimize the risks for all parties; however, it also creates challenges, such as increased red tape and bribery opportunities, at both the regional and the central government level.

2.4 Challenges of the CGS that the "Damu" Fund Provides

The credit guarantee system is facing several challenges based on the way in which the "Damu" Fund established it:

(i) **Strict eligibility and low coverage**: Now, the government requires no arrears on other loans or leasing contracts as well as no tax arrears or debts in pension or social contributions to the budget. There have been positive movements to expand the list of sectors eligible for a credit guarantee through pilot programs such as "Damu-Optima," which allows entrepreneurs from sectors such as services, trade, catering, construction, and so on that are not part of the prioritized sectors of the "Business Road Map 2020" program. In 2016, this program covered 63 projects with a total loan amount of KZT1 bln, KZT320 mln of which was mostly in the trade sector. However, the small share of guaranteed loans in the overall portfolio shows that the strict conditions for eligibility drive most entrepreneurs to take out subsidized and conditional loans, and the use of loan guarantees has not caught up yet.

(ii) **Complex procedure and government interference**: As mentioned earlier, there is a complex procedure to obtain a credit guarantee, which involves multiple levels of evaluation and approval. Although, according to "Damu," the average guarantee application takes about 1–1.5 months, the process may require up to 5–6 months due to delays in the decision-making process, especially when it involves the completion of the necessary documents that were missing during the application. While the evaluation process of the bank and of the "Damu" Fund itself is warranted, the involvement of central government body coordinators and the RCC overcomplicates the process and does not necessarily add scrutiny and efficiency to the final score. Moreover, increased involvement of government officials leads to a higher risk of bribery and corruption in the final decision making. To improve the current process, according to the latest report in 2016,[11] the government has introduced an automated application review for the loan guarantee that is accessible from the official electronic government services website. This has also helped reduce the number of documents and references required and allows clients to apply for guarantees remotely. Unfortunately, despite these changes, the regional governments still have a considerable influence over the decision-making process and even the conditions of the guarantee scheme based on numerous reports from local entrepreneurs.

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[11] https://old.damu.kz/content/files/Damu_BOOK_ENG_inet.pdf.

Independence of the fund and financial sustainability: The first principle of the "Public CGS for SMEs"[12] that the World Bank developed states that the funds should be established as an independent legal entity on the basis of a sound and clearly defined legal and regulatory framework to support the effective implementation of the Fund's operations and the achievement of its policy objectives. The "Damu" Fund, on the other hand, has evolved since 1997 into a complex organization devoted to supporting a wide range of activities related to micro, small, and medium-sized enterprises, including lending, educational, and training support. Therefore, it is difficult to expect further development of CGSs with so many other programs eroding the attention of the "Damu" Fund in terms of time and human capital resources. Political decisions should not disrupt the Fund, which needs to be able to make its own financial decisions. Thus, it may be necessary to establish a dedicated independent institution within or apart from the "Damu" Fund both to evaluate the current conditions and to develop a more efficient process for the CGS to ensure the availability of a wider range of financial tools for SMEs to access in local financial markets.

3. EMPIRICAL ANALYSIS

3.1 Oil Price, Financial System Creditworthiness, and Financial Depth Nexus

Second-tier banks are the essential elements in providing credit guarantees. In fact, while credit guarantees ease the collateral requirements for SMEs to obtain a loan from a bank, the bank still decides on the essential elements of the loan conditions, such as the interest rate, the loan term, and potential extra security requirements, as the previous section explained. Since second-tier banks borrow extensively from foreign banks to support their local resources, it is clear that the exchange rate fluctuations will have a significant impact on their creditworthiness, and the overall creditworthiness of the local financial market plays a crucial role in the development of the CGS. Lower creditworthiness increases the cost of borrowing for banks and therefore the cost of borrowing for SMEs and leads to fewer approvals of credit guarantees, regardless of the amounts that the government is ready to guarantee.

This section shows that the creditworthiness of local financial markets and their players is highly dependent on oil price fluctuations, as oil revenue is a significant part of government revenue, thus proving the importance of oil prices in the development of credit guarantees. The KASE index acts as a proxy for creditworthiness and is composed of a mix of Kazakhstan-based financial, telecom, and energy companies, including several commercials banks that play an important role in the CGS.

To assess the creditworthiness of a financial system, it is important to access bank-level data and apply credit-rating techniques to these data. The credit rating of banks requires complex measures and sophisticated analysis.[13] Therefore, in the absence of relevant data, the study shows that the stock price index level is a representative of the country's creditworthiness, and, since oil revenue accounts for a significant portion of the government's budget and the country's total exports, the stock price index and the overall creditworthiness of the financial system are vulnerable to oil price fluctuations. The KASE index consists of a mix of Kazakhstan-based financial, telecom, and energy and oil

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[12] http://documents.worldbank.org/curated/en/576961468197998372/pdf/101769-REVISED-ENGLISH-Principles-CGS-for-SMEs.pdf.

[13] For more information on the credit rating of banks, see the model that Yoshino, Taghizadeh-Hesary, and Nili (2017) developed.

companies. The list solely includes service industries that are vulnerable to the conditions in the oil market.

The opportunity to obtain financing from the DAMU is significantly limited to companies from a narrow list of respective industries or sectors, such as trade and services. However, the list does not include such important sectors of the economy as manufacturing and agricultural production, which exert a positive spillover effect on the overall economy. The latter can contribute to significant diversification of the economy, thereby boosting the quality of borrowing by providing loans to companies in the real economy as opposed to services.

We test for the presence of correlations between creditworthiness and the stock index, using credit default swap (CDS) spreads as a proxy for the creditworthiness of the economy. A CDS is a derivative acting as a hedge or insurance policy against the credit default risk of the borrower. The CDS spread increases when the creditworthiness of the borrower declines and shrinks in the case that the creditworthiness improves. Reyngold et al. (2007) were among the first to employ CDS spreads as an indicator of a company's creditworthiness and to apply a methodology with a wider range of reference entities. Castellano and Giacometti (2012) introduced further modifications and compared their so-called implied ratings with agency ratings from all three major credit rating agencies, Standard & Poor's (S&P), Moody's, and the Fitch Group. The study documented that the developed method of implied ratings generates results with high accuracy.

We find an inverse relationship between the credit default swap spread and the stock index change. Indeed, a stock index increase (decrease) is associated with a decrease (increase) in credit risk. The correlation between the credit risk and the stock index was –0.3 on average from 2005 to 2008. Interestingly, a high negative correlation was apparent from late 2008 to the end of 2012. The correlation reached the highest swing around -0.5 and –0.7 for the period. This coincides with the period of financial turmoil that erupted in 2007. The plausible explanation that Bernanke (2016) provided is that the global aggregate demand influences both the creditworthiness and the stock index.

Since Kazakhstan is an active borrower on international capital markets, the economic performance and its perspectives depend on the creditworthiness of the country. The economy grew twofold in size to $110 billion from 2001 to 2007, while commercial banks in Kazakhstan managed to capitalize with triple-digit growth by massively borrowing on international capital markets (Nuttal and Aris, 2008). It is possible to consider the KASE index as a barometer of financial depth. KASE reached its historical maximum in July 2007 and exhibited a horizontal trend during the year. The period from 2001 to the end of 2008 was a period of economic growth and prosperity. The increase in the CDS spread in the preceding year (mid-2007) indicates that the credit rating was diminishing and the probability of default was increasing. As a result, the stock index collapse at the end of 2008 is evident from the approximately 77% drop.

Moreover, we find a clear negative correlation of the sovereign credit risk and the oil price. One plausible explanation is that a decline in oil prices in most cases has a significant impact on the credit rating of oil-producing firms or countries, as their revenue from oil exports will shrink and this will have a negative impact on the government budget size. We find a significant negative correlation between the credit risk (the CDS spread) and the oil price, especially since 2008. The average correlation was –0.5 from 2008 to 2017. Thus, creditworthiness is of great importance in relating oil prices to financial development and the whole economic performance. In line with this fact, Balcilar, Hammoudeh, and Toparli (2018) focused on the magnitude of volatility transmission and the risk spillover mechanism across the oil market, the

financial market risks, and the oil-related CDS sectors. In their study, they examined the volatility transmission mechanism across the oil and financial markets and the CDS sectors using the volatility impulse response model. They found that the Lehman Brothers' bankruptcy had destabilizing effects on all oil-related sectors. Their findings also showed that all oil market-related shocks have significant risk transmission effects on the financial market. Pavlova, de Boyrie, and Parhizgari (2018) studied the dynamic spillover of crude oil prices and volatilities on the sovereign risk premia of ten oil-exporting countries. Their results indicated a 4%–31% directional spillover from crude oil prices to sovereign credit default swap (CDS) spreads. Venezuela, Colombia, the Russian Federation, and Mexico are the top recipients of crude oil shocks. The effect of political variables and aggregate demand and supply shocks are relatively smaller than the oil-specific shocks.

In 2008, the abrupt decline in the oil price damaged the creditworthiness. The global economic condition affected the risk level and credit rating as the increased CDS spread during the period shows. Most of the negative correlation could be explained by the tendency of the CDS spread and the oil price to react in the opposite direction to common factors, including changes in the global demand, risk aversion, and overall uncertainty. Hilscher and Nosbusch (2010) found that rating premiums occur when the predictions of economic fundamentals are more balanced. It may be that soaring oil revenues, particularly for oil-exporting countries, generate a source of more easily obtained revenue and that what is observable in this circumstance is another version of a "stability premium" or a channel through which that premium can operate. Oil revenue may also enhance a country's ability to obtain improved access to capital markets. Hill, Brooks, and Faff (2010) showed that the market premium may affect credit ratings. A mixture of mechanisms, which increased oil revenue caused, may be operating. Being a net oil exporter increases the ability of a country to meet its external debts and obligations. Therefore, it should be one of the major determinants of a country's credit rating.

Another factor that can influence SMEs' financial side is a currency value in front of foreign currencies or the exchange rate. Nomura Securities presented an analysis of developing countries that are susceptible to currency crises (Nomura 2018). The so-called Damocles index (by analogy with the Sword of Damocles in the ancient Greek myth) ranks 30 emerging markets (countries) by their degree of exposure to currency crises. The index is based on 13 calculation indicators, taking into account such macroeconomic indicators as the size of foreign exchange reserves, external debt, imports, budget deficit, current accounts, and so on, which together predict the risk of a currency crisis in the country in the next 12 months. Nomura's presented analysis identified a number of countries with a very low risk of currency shocks: Brazil, Indonesia, the Russian Federation, and Kazakhstan. The authors of the report noted a significant decrease in the risk of currency shocks in Kazakhstan in comparison with the pre-crisis period against the backdrop of economic recovery and prudent macroeconomic policies. The economy of Kazakhstan recovered from the oil shock of 2014 thanks to a floating exchange rate, prudent macroeconomic policies, the restoration of oil prices, and the return of economic growth in the Russian Federation. As a result, the value of the Damocles index fell to zero, which indicates an extremely low currency risk.

3.2 Data Description and Analysis

We consider a structural VAR model based on monthly time series data for Kazakhstan over the period from 2000:08 to 2017:08 (a total of 205 observations), for $z_t = (prod_t, rea_t, rpo_t, kase_t)$, where $prod_t$ is the percentage change in global crude oil production, rea_t is a measure of real economic activity, rpo_t is the real price of oil, and $kase_t$ is the stock index. Concerning the percentage change in global crude oil production, $prod$, we employ the oil production data from the *Bloomberg* database to estimate the log differences of world crude oil production in millions of barrels pumped per day (and averaged by month). We use Kilian's (2009) detrended Baltic real freight rate index to estimate the component of real economic activity (*rea*) that indicates the demand for industrial commodities in global markets. As Kilian (2009) suggested, this index comprises dry-cargo single-voyage ocean freight rates. We deflate the index using the Consumer Price Index (CPI) to convert it into real terms. To remove the long-term trend and thus single out the global business cycle, we linearly detrend the real freight rate index. Refer to Kilian (2009) for a detailed description of the construction of the global real economic activity measure.

Figure 4: Historical Development of the Time Series 2000:08–2017:08
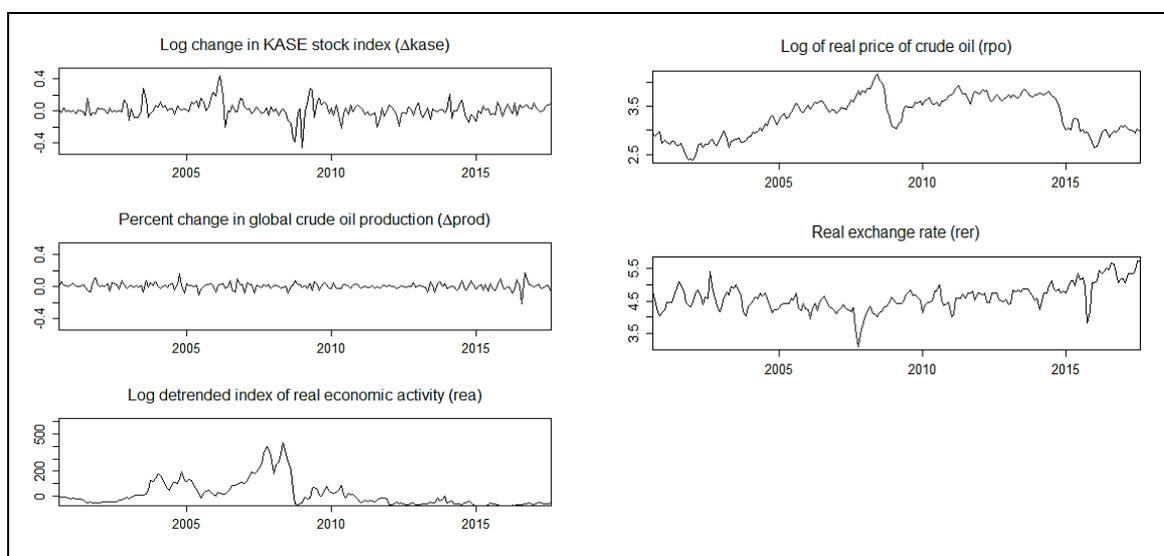
Source: Compiled by the authors.

Figure 4 exhibits the historical development of the time series discussed above (log change of crude oil production $\Delta prod_t$, real economic activity rea_t, log of the real price of oil rpo_t, log change in the stock index KASE $\Delta kase_t$, and real exchange rate rer_t) for the period from 2000:08 to 2017:08. Interestingly, it is observable that the crude oil price soared from the beginning of 2000 to 2008. We document the same pattern for the log detrended index of real economic activity. It peaked in 2008 and experienced a dramatic decline around 2010. The percentage change in global crude oil production is relatively stable and exhibits high volatility in recent years.

3.3 Structural VAR Estimates

The decomposition of the forecast error variance in Tables 3 and 4 allows us to assess the impact of structural shocks in the crude oil market on the variability of the KASE index, the impact of structural shocks in the crude oil market on the exchange rate volatility, and the impact of volatility from structural shocks in the crude oil market on the exchange rate volatility, respectively. Although, in the short term, the effects of the three structural shocks in the crude oil market (crude oil supply shocks, aggregate demand for industrial commodities related to the business cycle, and specific demand shocks in the crude oil market) are insignificant.

We base the structural VAR estimates on Kilian (2009):

$$Bz_t = \gamma + \sum_{i-1}^{p} r_i \, z_{t-i} + \varepsilon_t \tag{1}$$

where y is a parameter vector, C_i and B denote the lagged and contemporaneous coefficient matrices, respectively, and e_t is a vector of mutually and serially uncorrelated structural innovations.

Assuming that B^{-1} exists, the reduced-form representation of Eq. (1) is:

$$z_t = \alpha + \sum_{i-1}^{p} A_i \, z_{t-i} + e_t \tag{2}$$

where $a = B^{-1}c$, $A_i = B^{-1}C_i$, and the reduced-form innovations, e_t, are linear combinations of the structural shocks, e_t, $e_t = B^{-1} e_t$.

We estimate the reduced-form Eq. (2) and recover the structural shocks, e_t, by imposing zero (exclusion) restrictions on the elements of B. We use the structural moving-average representation to infer the impulse responses. We follow Kilian (2009) to impose a block recursive structure on the contemporaneous link between the reduced-form VAR innovations and the underlying structural disturbances. In particular, we assume that B^{-1} has a recursive structure such that we can decompose the reduced-form innovations, e_t, according to $e_t = B^{-1}e_t$, as follows:

$$e_t = \begin{pmatrix} e_t^{\Delta prod} \\ e_t^{rea} \\ e_t^{rpo} \\ e_t^{rpg} \end{pmatrix} = \begin{pmatrix} b_{11} & 0 & 0 & 0 \\ b_{21} & b_{22} & 0 & 0 \\ b_{31} & b_{32} & b_{33} & 0 \\ b_{41} & b_{42} & b_{43} & b_{44} \end{pmatrix} \begin{pmatrix} \varepsilon_t \text{ oil supply shock} \\ \varepsilon_t \text{ aggregate demand shock} \\ \varepsilon_t \text{ oil}-\text{specific demand shock} \\ \varepsilon_t \text{real exchange rate} \end{pmatrix}$$

In fact, the results in Table 3 show that, in the first month, the impact of shocks in the oil market on the stock index is close to zero. As the horizon increases, the effect of shocks of the real price of oil, the aggregate demand, and the real exchange rate gain a little more importance, while the impact of supply shocks is negligible throughout the period under review. For example, the total power of explanation of these shocks for the impact is less than 14% of the variance in the real price of the oil market on the variability of the KASE index, less than 3% of the variance in the real price of the oil market on the volatility of the exchange rate, and 16% of the variance of volatility in the oil market in the volatility of the exchange rate, but the power of explanation increases as the forecast horizon increases. With the 15-month horizon, we see 19% of real oil price shocks, and aggregate demand shocks explain only 12% of the stock index volatility. With a horizon longer than 15 months, the impact of real oil price shocks on the stock index is about 61%, followed by a real exchange rate of about 33%.

Table 3: Percentage of the Impact of Supply and Demand Shocks in the Crude Oil Market on the Overall Variability of the KASE Index

Horizon	Aggregate Demand	Oil Supply	Real Oil Price	RER	Other
1	3.03%	1.40%	8.46%	0.83%	86.29%
2	2.56%	1.73%	7.33%	1.96%	86.42%
3	3.41%	1.65%	15.35%	1.82%	77.77%
15	12.33%	3.67%	19.31%	5.90%	58.78%
∞	2.83%	2.21%	60.93%	33.28%	0.74%

Note: Based on variance decomposition of the structural VAR model (1).

Source: Authors' compilation.

Structural shocks in the world crude oil market are an important basis for the Kazakhstan stock market. Historical decomposition of the cumulative effect of structural shocks on the KASE index shows the overall impact of oil prices and the volatility of oil prices on the KASE index. The real price of oil has an impact on the KASE index. However, the volatility shocks of the real price of oil have the greatest impact, mainly corresponding to changes in the KASE index since the beginning of 2010. More interestingly, the variable is the only determinant that causes fluctuations in the KASE index.

In the long term, the shock of the supply of crude oil, the shock of the aggregate demand, and the shock of the oil demand on the market together make up about 99% of the variability of the real price in the crude oil market for the variability of the KASE index, 53% of the volatility of the real price in the crude oil market for the volatility in the exchange rate, and approximately 39% of the variability of the volatility in the crude oil market on the overall exchange rate volatility. This suggests that structural shocks in the world crude oil market are an important basis for the Kazakhstan stock market, with the greatest contribution coming from oil demand shocks (accounting for more than 60% of long-term changes in real oil prices), then changes in the real exchange rate (which account for more than 33%). In turn, fluctuations in the exchange rate are due to shocks in the crude oil market (which account for about 47%) or other shocks in general (accounting for about 40%).

Figure 5 presents the cumulative impact of each structural shock on the KASE index. It shows the overall impact of oil prices on the KASE index. It is apparent that the real price of oil (in the first chart) made the largest contribution to the KASE index. In addition, we find that shocks in oil supplies cause long fluctuations in the KASE index. Although we do not present the results in the paper, we observe that the volatility shocks of the real price of oil have the greatest impact and mainly correspond to changes in the KASE index since the beginning of 2010, when the volatility of the real oil price replaced the real price of oil. More interestingly, the variable is the only determinant that causes fluctuations in the KASE index. The accumulated effect of changes in real oil prices on the variability of the KASE index is the most significant. Although supply and demand shocks in the supply of crude oil cause long fluctuations in the KASE index, the effect of oil price volatility over time is much more intense.

Figure 5: Historical Decomposition of the KASE Index
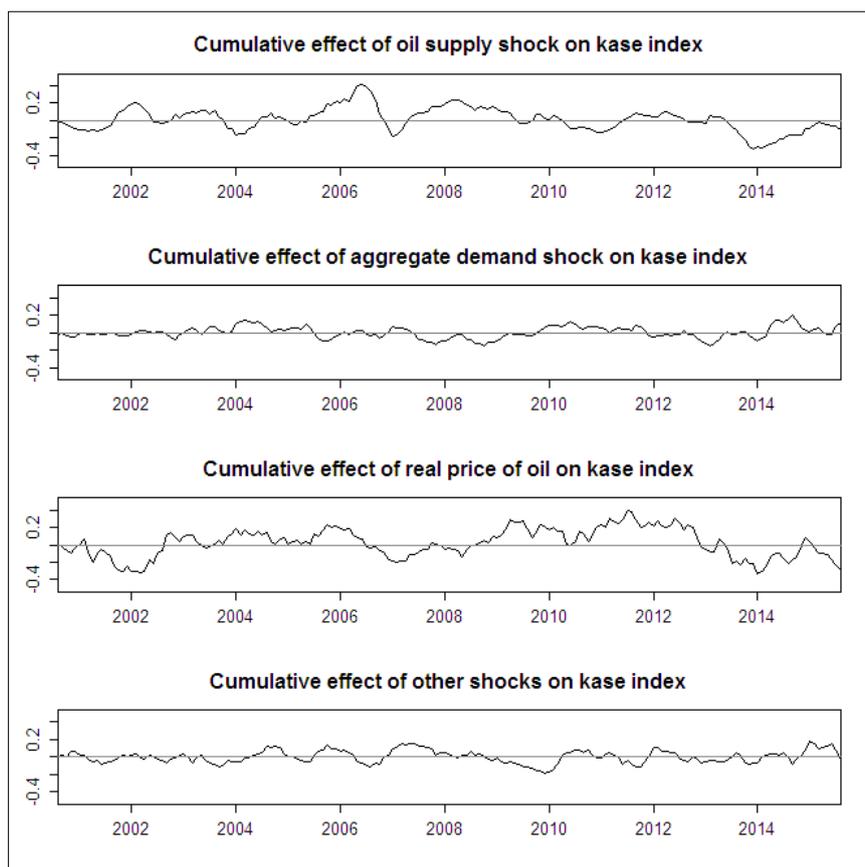
Source: Authors' compilation.

We estimate the impact of supply and demand shocks on the exchange rate as well. Table 5 presents the results, showing that oil price movements largely drive the exchange rate. As the horizon increases, the effect of shocks in the real price of oil on the real exchange rate becomes aggravated, while the impact of supply and demand shocks are negligible throughout the period under review. With the 15-month horizon, we detect 21.35% of real oil price shocks, and aggregate demand shocks explain only 8.41% of the exchange rate movements. With the long-run horizon, the impact of real oil price shocks on the stock index is about 22.15%, followed by oil supply and demand shocks.

Table 5: Variance Decomposition of the Exchange Rate

Horizon	Aggregate Demand	Oil Supply	Real Oil Price	Other
1	1.48%	0.43%	14.19%	83.90%
2	4.07%	2.75%	14.20%	78.98%
3	4.24%	3.32%	13.69%	78.76%
15	7.42%	7.51%	21.35%	63.73%
∞	8.41%	8.93%	22.15%	60.51%

Note: Based on variance decomposition of the structural VAR model (1).

Source: Authors' compilation.

Figure 6 exhibits the cumulative impact of each structural shock on the real exchange rate. It shows the net effect of oil prices on the real exchange rate. We determine that the real price of oil causes the largest swings in the real exchange rate, which might be one of the causes of the banking system's inefficiency. We find that shocks in oil supplies and the global demand cause moderate fluctuations in the exchange rate in comparison with the oil price movements. Thus, the accumulated effect of changes in real oil prices on the variability of the real exchange rate is the most significant. The effect of the oil price over time is much more intense.

Figure 6: Historical Decomposition of the Real Exchange Rate
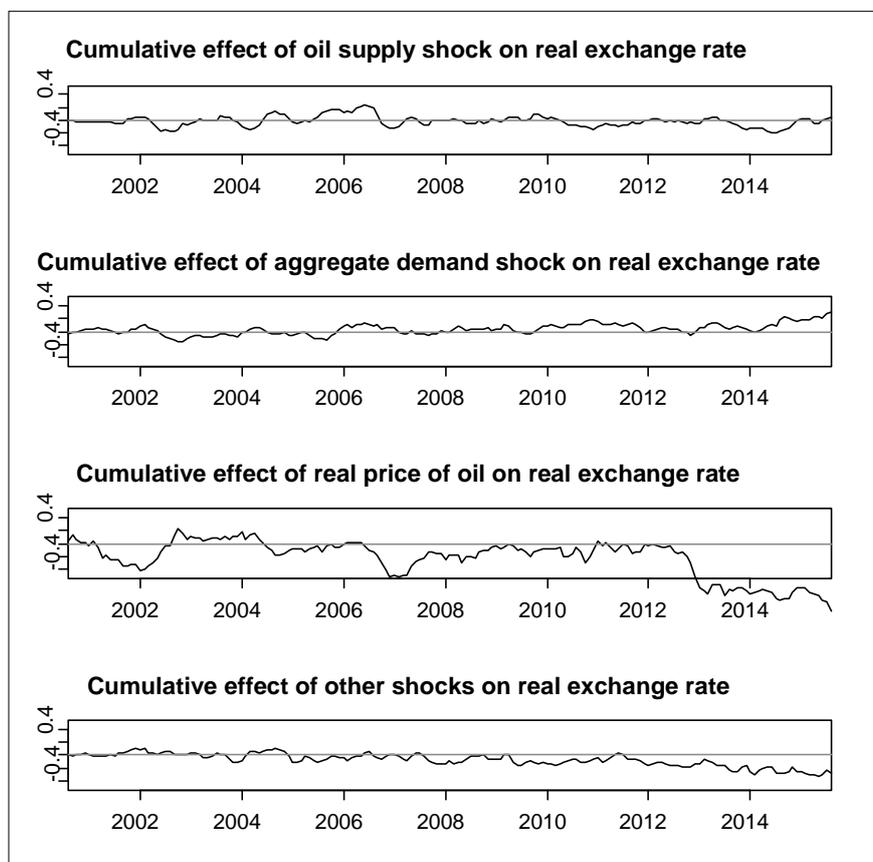
Source: Authors' compilation.

4. CONCLUSIONS AND POLICY IMPLICATIONS

Overall, SMEs are more vulnerable during economic turmoil than their larger peers. Additionally, due to the direct effect of declined demand, SMEs suffer from liquidity and creditworthiness problems as a result of the tight money supply and an increasingly risk-averse banking sector. Overdue accounts receivable affect SMEs more severely than large enterprises, as SMEs generally have a higher debt–equity ratio and possess less cash on hand. In addition, SMEs are vulnerable to increased volatility in exchange rates. All these factors narrow cash flows and can trap SMEs in financial trouble, making the concerns of sustained financing of SMEs a crucial issue during an economic downturn. Market mechanisms alone cannot solve this kind of exogenous factor problem because of the inadequacy of capital in most SMEs and the deficiencies of the banking sector. Banks and financial institutions (KASE) during downturns may also suffer from their own

financial problems, and these in turn prevent lending. The combination of these factors produces a disincentive for banks to lend to SMEs. Thus, the situation requires government intervention to ensure SME sector survival.

Some authorities have found it necessary to adopt short-term, anti-crisis measures, including increases in credit guarantee coverage, the adoption of credit guarantee terms, recovery loans, and more liberal trade/export credit. Policy makers may also introduce incentives for lending to the SME sector to financial institutions, especially providing export credit, which is important to allow SMEs to foster trading with overseas markets. However, it is necessary to align these measures through rigorous monitoring mechanisms to avoid the misuse of such incentives and guarantee that they genuinely generate positive externalities. For example, a number of authorities in Asia and the Pacific issued decrees and laws and enhanced the relevant government agencies to improve the financial conditions of SMEs as a response to the 1997–1998 Asian financial crisis.

SMEs are a key driver of economic performance, a crucial source of employment creation, and thus a major element of welfare and prosperity. SME development is the main factor that can help to reduce the dependency of Kazakhstan on mining and natural resource industries and the country's risk of declining oil prices, thus making the economy more resilient to the resource curse. In addition, SME development enhances the potential of the innovation process in production and exports, contributing higher added-value activities and the generation of more and better jobs. A large amount of SMEs concentrate in the trade and service sectors due to the fact that these sectors are characterized by low risk and modest start-up capital. Small numbers of SMEs operate in the agriculture and manufacturing sectors, which increasingly generate employment opportunities. A high concentration of SMEs in only a few sectors is an indicator of limited support for SMEs in the usage of adjacent sectors and limited opportunities to diversify the economy. Thus, the absence of access to bank loans constrains the expansion of SMEs in Kazakhstan. The academic literature has argued that this limited access to credit is due to the credit-rationing behavior of second-tier banks arising from asymmetric information in credit markets.

CGSs are available through the Entrepreneurship Development Fund "Damu" JSC, which provides loan guarantees of up to 85% to new entrepreneurs and a 50% guarantee for operating or established entrepreneurs. By focusing the guarantees on the priority sectors that the "Business Road Map 2020" program defined, the government used the scheme to divert resources toward sectors that would diversify the economy. However, the success of the CGS is highly dependent on second-tier banks and their creditworthiness as an essential player in the final decision making and the conditions of the loans, such as the interest rate.

Empirical analysis of oil prices and financial development (stock index) shows that, even though the impact of shocks in the oil market on the stock index is absent in the short run, the effect of shocks of the real price of oil, the aggregate demand, and the real exchange rate gain importance as the time horizon increases, while the impact of supply shocks is negligible throughout the period under review. We observe that the impact of real oil price shocks on the stock index is about 61%, followed by a real exchange rate of about 33% in the long run.

The policy implications of this research are that the overdependence of Kazakhstan's economy on the oil sector and the low diversification rate of the whole economy undermine the development of an operational CGS. The main source of funding for the CGS is the central government budget, and this is dependent on oil export revenue. In other words, the CGS of Kazakhstan needs to rely less on the government budget and more on collecting a premium from SMEs to reduce its vulnerability to oil shocks and become sustainable. This relationship is two-sided: the CGS can support economic diversification by helping to finance SMEs in non-commodity-based sectors. Therefore, having a strong CGS will support the diversification process of the economy in Kazakhstan.

In addition, to increase the sustainability and productivity of the CGS, it is important to base the payable credit guarantee premium of SMEs to the guarantor on the credit risk of SMEs. Those SMEs that have a better credit background need to pay a lower premium rate than risky SMEs. In addition, it is important to base the guarantee coverage for the banks on banks' creditworthiness. A fixed guarantee coverage ratio involves moral hazard. Healthier banks that manage their nonperforming loans need to receive greater guarantee coverage than risky banks.

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