

### DEVELOPMENT FINANCING AND ECONOMIC GROWTH NEXUS IN CASE OF KAZAKHSTAN

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This paper seeks the nature of the relationships between development financing and economic growth in case of Kazakhstan. The proposed research considers different levels study:

- a) industry level;
- b) regional level;
- c) intra-regional by industry level.

In this paper authors state the hypotheses, methods and data, which are appropriate for further investigation the following issues:

- 1) whether the development financing has a causal impact on economic growth in Kazakhstan at different levels;
- 2) what is the nature of these relationships;
- 3) is there a reverse causality effect in these relationships.

Thus, the main target of the present paper is to set up the key hypothesis based on existing theoretical, empirical and methodological findings in Finance and Growth study in order to analyze development financing and economic growth nexus in case of Kazakhstan as well as an impact of the Development Bank in these relationships. The future study could be instructive and complementary to the existing literature on finance-growth nexus.

Since the Kazakhstan has declared its independence and sovereignty the financial and industrial reforms has become the key aspects in its government policy. Kazakhstan has chosen its own way to the civilized market economy. In this light among other several important political reforms one of the main goal in stimulating economic development and sustainable welfare growth in Kazakhstan initially was the enhancing of the development financing.

By the external economic-geographical reasons, which root also into its soviet history, Kazakhstan has export-oriented economy (oil, gas, metals, grain, etc.) and that is why establishing the ample level of banking system as a finance addendum for local and international traders was carousal. This was on the one hand; on the other hand, there was a need in developing of the new sectors of economy such as producing industries and manufacturing in order to keep value added for domestic economy. The government has set the goal of moving away from the dependence on the exports of mineral resources by putting a stake on conducting radical economic reforms. Integration to the world economy and accelerated modernization of the national economy require a quality breakthrough in all development directions based on innovations, creating new sources of economic growth, and a better use of the traditional comparative advantages of the country.

According to these the establishing of the Development Bank of Kazakhstan (DBK) in 2001 and

its further strategic activities such as the long-run investment lending, export crediting and focus on processing industries financing has become a clear evidence of primary role of the regional development financing in facilitating economic growth and moving away from the dependence on the exports of mineral resources. Therefore, since the certain economic achievements in Kazakhstan, there is an expectation that finance development including both commercial as well as DBK's development financing are the key growth-driving factors in case of Kazakhstan. Thus the great opportunity is to consider and analyze the relationships between finance and economic growth, including the role of the DBK in these relationships and test this hypothesis empirically.

Besides, over the ten decades the issue concerning to the nature and direction of relationships between finance development and economic growth has been studied broadly and remain an important subject in literature. Different aspects of these relationships have been analyzed extensively in both theoretical and empirical studies for single-country and cross-nations as well as at industry and firm levels through cross-sectional, time-series and dynamic panel techniques.

That is why there is a need also to have a look at possible bi-directional causal effect, which might exists since oil, metal and other export-oriented mining industry have contributed significantly on Kazakhstan's GDP (around 60%) due to substantial export supply from Kazakhstan. The future study could be instructive and complementary to the existing literature on finance-growth nexus.

Hence, the main purpose of the present paper is to set up the key hypothesis based on existing theoretical, empirical and methodological findings in Finance and Growth study as well as data availability from Kazakhstan statistic dataset.

#### Literature Review

Many of development banks failed, leading to large fiscal losses and poor development outcomes (Micco, Panizza, 2005). After the much-publicized failure of many national development banks in the 1970s and 1980s, the future of this type of development finance was in question. Poorly controlled spending by development banks and other state-owned banks delivered little in terms of development but contributed to fiscal crises in several developing countries (Nellis, 1986). Although the particular failures there have been visible successes: some development banks have maintained financial sustainability while adhering to their mandates. The successes of some banks and the continued need for the services they provide have rekindled interest in national development banks. This combination of successful development funding and insufficient private funding has led to re-examine of the potential role of development finance institutions (Siraj, 2004; Yaron, 2004; Nembessini-Silue, 2006). These raise an argument that, without a clear

understanding of the role of development banks, more failures could occur. They have provided counter-cyclical funding, facilitated access to credit, created employment, strengthened the capital market, built capacity in project appraisal and evaluation, and influenced government policies (Hulme & Mosley, 2002; Micco & Panizza, 2005). Thorn and Charlotte du Toit (2009) argue that despite the obvious need for a better understanding of their role, development banks have not featured strongly in the recent literature on development finance. Much of the relevant literature is either dated, deals with national development banks only in passing, or is restricted to particular aspects affecting their performance. In the most literature it is mentioned on the last available survey (Bruck, 2005) indicates that there are over 520 development banks worldwide. The success of the early development banks and the problems, which can contribute on their failure and why consider in De Aghion (1999). The primary requirements for development banks' successful performance and acting have pointed in Shirley (1989); De la Torre (2002) and Bruck (2005).

Hinds (2002) proposes the role for the regional development banks in the implementation of a modern worldwide financial. He assesses existing internal and external problems that are leading to a redesign of the worldwide financial architecture and proposes a role for these banks in their solution. The role of multilateral development banks assesses in Buiters and Fries (2002). Authors argue the role of these banks in fostering development or transition through the institutional mechanisms; they also conclude that a useful direction for these banks' reform is to exploit more effectively the potential complementarities between the public and private sector financing operations. The role of regional development banks consider in Griffith-Jones, Griffith-Jones and Hertova (2008). Authors conclude that there is a need for new or expanded regional development banks to fill gaps in the international financial architecture. Regional development banks have specific and localized roles which are not always covered adequately by global institutions. Toyoda (2006) examines the prominent role that development banks continue to play in the more advanced economies of East Asia through focusing on the role of such banks in Japan, Korea, and Singapore. Sobreiro (2009) discusses the special aspects of development banks and evidences that application of Basel II or even Basel finds serious obstacles and is not relevant because their operational logic, which is not the same as the private sector and nor are these institutions subject to the occurrence of systematic risk. Lazzarini and Musacchio (2011) look at the effects of equity purchases by Brazil's development bank on firm performance between 1995 and 2003.

There are certain papers which focus on regional, multilateral and bilateral development finance institutions (DFI), regarding to comparison

of their: aims and objectives; ownerships; general activities; distribution over sectors, countries; type of instruments; impact assessments; gaps and overlaps. (Kingombe, Massa and Dirk Willem te Velde, 2011). Dirck and Warner (2007) focus on the use of subsidies by certain regional, multilateral and bilateral development finance institutions in the private infrastructure sector and examine the nature and extent of subsidisation to private sector infrastructure in developing countries. The lending trends among multilateral finance institutions are shown in Humphrey and Michaelowa (2010). They investigate how country shareholding arrangements affect the lending of multilateral development banks under different economic conditions and over time. According to Kingombe, Massa, and Dirk (2011) the objectives of multilateral development finance institutions (DFIs) are often multiple, and may include investing in sustainable private sector projects; maximizing impacts on development; remaining financially viable in the long term; and mobilizing private sector capital. DFIs influence the economic growth directly as well as indirectly through attracting the Foreign Direct Investments.

In this light an impact of multilateral DFIs on economic growth in 150 countries is considered in Massa (2011). By using the Generalized Method of Moments (GMM) for panel data analyses, she studies the relationship between the investments of a selected sample of multilateral DFIs and economic growth for a sample of 101 countries in the period 1986-2009. While there is a rapidly growing literature assessing the effects of DFIs at the micro level, there are gaps in the evidence on the macro impact of DFIs' investments. For example, a number of DFIs have carried out specific evaluations to assess the results of their investment operations in terms of contributions to employment creation, technology transfers, market organization, capacity building, etc., and a few independent studies have tried to measure and assess the performance of DFIs. However, there is no study investigating the impact of DFIs on macroeconomic variables such as economic growth. The main task of Massa's paper (2011) is to fill this gap by analyzing the extent to which multilateral DFIs contribute to fostering economic growth. In order to do this, author takes into account different income categories of countries as well as different sectors in which multilateral DFIs operate. The adopted results show that investments by multilateral DFIs are growth enhancing and that their role is stronger in lower-income countries than in higher-income countries. It appears that lower-income countries benefit mainly from investments directed to the agriculture and infrastructure sectors, whereas in higher-income countries investments by DFIs in the infrastructure and industry sector play the predominant role in fostering economic growth.

Thus based on the most scholars' opinion and initial brief observation of the mentioned above literature it is evidently clear that it does not offer an

updated and comprehensive assessment of the role of the development banks. Therefore, this issue still in progress and needs to be investigate.

### Hypothesis, Data and Variables

#### 1. Sector level

There is an opinion that bank-based finance structure prevailed in developing countries and affects significantly economic growth in earlier stages of their economic development. According to theoretical background, since Kazakhstan economy is a development / transition economy, there is an expectations that the strong positive relationship between finance and growth exists in case of Kazakhstan. Based on substantial Growth-finance academic study, in particular at countries level we are motivated to apply different modern econometric techniques to check following issue: whether this theoretic-empirical point of view is evidently clear in case of Kazakh economy.

#### H1: Finance development (excluding/including DBK's loans) enhances sector value. Is there reverse causality effect?

The bank loans data, which is broken-down by the main sectors of Kazakh economy:

- 1) Agriculture.
- 2) Industry, including.
  - a) Mining;
  - b) Manufacturing;
  - c) Energy.
- 3) Construction.
- 4) Trade.

5) Transport and Communication are considered as a cross-sectional subunits.

The time dimension 2001–2011 is extended on a quarterly basis. Therefore, the time period is Q101–Q411. *Explanatory independent variables F*: are the bank loans, DBK's loans, total (Bank+DBK) loans extended to 8 economic sectors on quarterly basis. also can include Stock Market indexes as Market capitalisation and Volume traded (total and by sectors breakdown). *Dependent variables G*: value added to gross domestic product (GDP) by sector; quarterly basis deflated by appropriate Index (in real terms). Bank loans data at sectors level on a quarterly basis was found from NBK statistic bulletin beginning with 2001. The data for the industries' value added contribution to GDP (by the same industries as for the loans) have taken from NSA bulletin as a measure for economic growth. The loans dates as well as GDP at industry level dates are represented at the end of each quarter Q101–Q411 in local currency, so that we have needed to deflate them by using appropriate index.

#### 2. Regional level

In order to be able to provide fully comprehensive analysis, use any possible perspectives based on recent approaches and different econometric estimations we have decided to have a look at horizontal (regional) level of the development in addition to vertical (industry) level. It is necessary to note that from the very beginning DBK has paid

substantial attention to the regional lending diversification in its credit policy since the 16 local regional governments have become the shareholders of DBK. That is why DBK provide accurate monitoring of its regional lending statistic in its reports. These all could allow us to construct integrated view for the finance development relationships in Kazakhstan and consider the DBK's contribution to the regional finance development and as a result to the regional economic growth, which is crucial part of the national economic growth.

#### H2: The DBK's Role in Regional Finance Development

The bank loans data, which is broken-down by 16 official regions – «oblast» (districts) of Kazakhstan are considered as a cross-sectional subunits. The time dimension 2001–2011 is extended on a quarterly basis. Therefore, the time period is Q101–Q411. *Explanatory independent variables F*: are the bank loans, DBK's loans, Total (Bank + DBK) loans extended by 16 regions in Kazakhstan on a quarterly basis. *Dependent variables G*: gross regional product (GRP) on a quarterly basis deflated by appropriate Index. The NBK and NSA statistics offers the appropriate data on a quarterly basis at regional level (16 regions) on a quarterly basis for Q101–Q411. In particular, the regional breakdown of the GDP represents NSA databases (in PDF format) in present prices and need to be deflated. NBK offer in its bulletin the bank loans data at regional level, which is represented at the end of the quarter and in local currency so that also need to be deflated. We have found some regional data for DBK's loans from its website just on an annual basis. Hence we still need to find DBK's data for every our chosen time intervals and regions. We are attempting to construct strong empirical evidence for the stated above hypothesis by using several econometric approaches, which are more appropriate in case of Kazakhstan from data availability point of view. Besides the main purpose of research is to have a look on DBK's contribution among whole banking system in Kazakhstan and find empirically its crucial role in ameliorating economic growth.

#### Model Specification and Methodology

In the modern econometrics of finance and growth the main types of empirical research from the data collecting point of view might be divided by the following groups: cross-sectional data analysis (data is collected in the particular or closest time period); time series data analysis (several observation of the definite data that collected during the definite time intervals); panel data analysis (generalization of the first – cross-sectional and the second – time series analysis); pooled cross sectional data analysis (different cross-sectional data that aggregated in different time periods). The most applied method for the economic and growth study is the construction and estimation of the simple regression model:

$$G_{it} = Y_{it} - Y_{it-1} = \alpha + \beta_i F_{it} + C_{it} \gamma_i + \mu_i + \varepsilon_{it} \quad (1)$$

where  $Y$  is per capita (log per capita) real GDP or of the another measure of welfare, such as real capital stock or measure of total factor productivity,  $G$  is the growth rate of  $Y$ ,  $F$  is one of the measure of the financial sector development.  $C$  is a standard set of conditioning information, is the observation unit as a country,  $t$  is the time period.  $\mu$  and  $\varepsilon$  are error terms. While  $\varepsilon$  is a white noise error with a mean of zero,  $\mu$  is a country-specific element of the error term that does not necessarily have a mean of zero. The explanatory variables  $F$  and  $C$  are measured either as an average over the sample period or as an initial value. Since the disaggregated data on industries or firms levels have become available the observation unit  $i$  in regression (1) could be an industry, a firm or a household.

Thereby the main problem here is to determine a sign and significance of the coefficient  $\beta_p$ , and to check whether the estimate of  $\beta_i$  is unbiased and efficient. In other words to define whether the explanatory variables' in (1) are endogenous variables and if so to identify what are the possible reasons of these and use particular techniques to eliminate endogeneity bias.

#### 1. Sector level

In order to explore our Hypothesis **H1** we consider following panel regression model

$$G_{it} = Y_{it} - Y_{it-1} = \alpha_1 + \beta_1 F_{it} + C_{it} \gamma_1 + \varepsilon_{it}; \quad (2)$$

$$F_{it} = \alpha_2 + \beta_2 Z_{it} + C_{it} \gamma_2 + v_{it}; \quad (3)$$

$$F_{it}^* = F_{it} + u_{it}, \quad (4)$$

where  $i = 1, \dots, 8$  indicate sectors;  $t = 1, \dots, 44$  indicate quarters;  $G_{it}$  is dependent variables and indicate value added to GDP by  $i$  the sector at quarter  $t$  (deflated

by appropriate index);  $F_{it}$  is independent variables and indicate bank loans in  $i$  the industry including/excluding DBK's loans; Stock Market indexes as Market capitalisation and Volume traded (total and by sectors breakdown) at quarter  $t$ .  $C$  and  $Z$  included and excluded exogenous variables, respectively.  $Z$  are not correlated with error  $\varepsilon$ :  $E[Z_i' \varepsilon_i] = 0$  and  $E[Z_i' u_i] = 0$ .

Estimating regression (1) with instruments (IV) can help alleviate biases arising from reverse causation, omitted variable and measurement error. Regression (1) is typically estimated with a Two-Stage-Least Squares Estimator (TSLS). Unlike the OLS estimator, the TSLS estimator only uses the variation in the explanatory variables that is correlated with the instrument and therefore uses less information than the OLS estimator. If OLS is consistent, it is therefore more efficient than IV, whereas if OLS is inconsistent, the IV estimator is both consistent and efficient.

Rajan and Zingales (1998) seek to establish the impact of financial development on industry-specific growth for 41 countries and different manufacturing industries in 1980–1990. Their study involves a cross-country and cross-industry consideration. They have estimate a multiple regression model, which specified economic growth as the dependent variable. As a proxy for growth, the average annual real growth rate of value-added has been used. Two finance indicators; in particular the capitalization ratio and accounting standards were used as a proxy for finance development indicators. The study asserts that financial development enhances growth in indirect ways. In Rajan and Zingales (1998) own words the model they estimate is:

$$\begin{aligned} Growth_{j,k} = & \text{constant} + \beta_{1\dots m} \times \text{Country Indicators} + \beta_{m+1\dots n} \times \text{Industry Indicators} \beta_{(n+1)} \times \\ & \times (\text{Industry 's share of manufacturing in country k in 1980}) + \beta_{(n+2)} \times \\ & \times (\text{External Dependence of industry } j \times \text{Financial Development of country } k) + \varepsilon_{j,k} \end{aligned} \quad (5)$$

According to Rajan and Zingales (1998) appropriate measure of an industry being "better off" is the growth in value added for the industry, i.e., the change in the log of real value added in that industry between 1980 and 1990. Real value added in 1990 is obtained by deflating value added by the Producer Price Index and/or Index of industrial Production and/or Wholesale Price Index (which data is available). For the finance development measurement, the ratio of domestic credit plus market capitalization to GDP (Capitalization ratio) has used. For checking the robustness test the capitalization ratio has been also redefine as the ratio of domestic credit to the private sector to GDP. As the second proxy for finance development, they have used the accounting standards in a country. The primary hypothesis was, «industries that are more dependent on external financing will have relatively higher growth rates in countries that have more developed finan-

cial market». The study designed a multiple regression model, which specified growth as the dependent variable and the financial development, external finance dependency, country specific factors, and industry-specific factors. The average annual real growth rate of value-added was used as a proxy for growth, while value-added and gross-fixed capital formation for each industry obtained from the Industries Statistics Year Book (1993). Two finance indicators were used as a proxy. These are capitalization ratio and accounting standards. The study asserts that financial development enhances growth in indirect ways.

#### 2. Regional level

Since we are attempting to consider Development and Growth relationships in line of endogeneity problem, our time detention horizon and cross-regional data allow us to analyse Hypothesis **H2** using TSLS approach as well as try to apply

dynamic panel regression approach. Therefore, our panel regression is as follows

$$G_{it} = Y_{it} - Y_{it-1} = \alpha_1 + \beta_1 F_{it} + C_{it} \gamma_1 + \varepsilon_{it}; \quad (6)$$

$$F_{it} = \alpha_2 + \beta_2 Z_i + C_{it} \gamma_2 + v_{it}; \quad (7)$$

$$F_{it}^* = F_{it} + u_{it}, \quad (8)$$

where  $i = 1, \dots, 16$  indicate regions;  $t = 1, \dots, 44$  indicate quarters;  $G_{it}$  is dependent variables and indicate regional growth in  $i$  the region at quarter  $t$  (deflated by appropriate index);  $F_{it}$  is independent explanatory variables and indicate regional bank loans including/excluding DBK's loans in the region at quarter  $t$ .  $C$  and  $Z$  included and excluded exogenous variables, respectively.  $Z$  are not correlated with error  $\varepsilon$ :  $E[Z_i' \varepsilon_i] = 0$  and  $E[Z_i' u_i] = 0$ . Appropriate data availability from Kazakh sources and rich econometric techniques encouraging us to expect that modern empirical approach is applicable for exploring our second hypothesis **H2** and computes significant results, which could contribute in Growth-Finance study.

### Conclusion

There are certain econometric instruments, which have been applied by scholars in their research to explore and describe existing economical processes on the macro and micro levels based on the relevant statistical data. Over the ten decades the issue concerning to describe properly the relationships between finance development and economic development has studied broadly using different econometrical approaches. These offer certain comprehensive methods showing how is it possible manipulate with data and statistic in order to find new interpretations or generalized the already existence theory. Moreover the substantial development of data accessibility on the international as well as country, industry, firm, household levels encourage for further more deep and detailed investigation, which could help contribute in this particular area. All of these allow us fully consider and analyse the finance and growth relationships and have a look at possible bi-directional causal effect, which could exist due to the substantial export supply from Kazakhstan.

Thus the hypothesis whether the Development Financing and Economic Growth in the transition economy of Kazakhstan have causal effect is an issue for further proposed investigation.

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