

The Research on the Risk-Taking Behavior of Commercial Banks in Central Asia - Based on the Empirical Evidence of 67 Commercial Banks

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Abstract: Importance of the regional collaboration is well understood by rising economic development of China as it has played a very important role in developing One Belt One Road initiative for regional advancement with Central Asia countries. With the fully implement of One Belt One Road initiative, which for the economic, culture and regional development cannot be overemphasized. However, there is currently a lack of research on the financial cooperation between those countries. This study aims to establish a new commercial bank risk behavior framework to analyze the financial situation in Central Asia countries, that is the risk-taking motivation, risk-taking decision, and risk-taking consequence correspondingly. Then used the data of 67 commercial banks in Central Asia from the year 2010 to 2020 based on the dynamic panel model to do the statistical testing. The major findings of this study expose that the commercial banks in Central Asia lack the risk-taking motivation, the risk-taking decision needs to be optimized and the risk-taking consequence need to be inhibited. To deepen financial cooperation between China and Central Asian countries, the study puts forward several policy suggestions. For example, both China and Central Asia countries should pay much attention to the risk-taking behavior of commercial banks, China and Central Asia should actively expand new cooperation areas and opportunities such as banking risk prevention.

Keywords: Central Asian Countries, "One Belt One Road Initiative", Commercial Bank, Risk-Taking Behavior

1. Introduction

The "One Belt One Road initiative" has been taken into practice for many years and has achieved beyond the expected progress and results. As a critical region, Central Asia connecting the Silk Road Economic Belt which considered as an important hub connecting the New Eurasian Land and the China-Central Asia-West Asia corridors. Under the guiding ideology of "strengthening policy and development strategies and deepening partnership" between China and Central Asia, more attention must be paid to the role of finance in adjusting resource allocation, optimizing investment effects, reducing trade costs, and smoothing economic cooperation [1]. Therefore, using the bank risk-taking behavior as the starting point, the paper deeply investigate the individual features of banks in Central Asia and the elements of levy and macroeconomic conditions which can provide meaningful guidance for the investigation of China's

overseas financial investment environment and then prevent and control of financial risks accordingly [2].

In general, the financial development of the five Central Asian countries is not balanced. According to statistics data, Uzbekistan Bank has the most significant number of bank branches per 100,000 people, reaching 40-45%. In the other countries, the indicators are relatively low. In terms of bank competition, bank concentration in the five Central Asian countries has remained high which indicate that bank competition is not sufficient. Tajikistan, for example, has maintained a high concentration level of 90%, while other countries have level of concentration about more than 70%. In terms of bank risky situation, the NPL ratio of the banks of the countries showed an upward trend since the 2008 but now has start to decrease. As for the Z-score, which represent the standard deviation of bank return on assets was lower than the average number. Among all the five countries, Kirghistan's

higher Z-score value represents more stable banking industry than other countries.

2. Literature Review

Literature regarding the banking risk-taking behavior concentrate on "One Belt One Road initiative" can be categorized into two groups, first is the "One Belt One Road initiative" policy development and the other is the factors [3].

Before 2012, the research about "One Belt One Road initiative" mainly made by Chinese scholars. The perspective about relationship between China and Central Asian mainly through political and historical cooperation rather than economical [4, 5]. In 2013, as President Xi formally proposed the "One Belt One Road initiative", the research on the economic cooperation between China and Central Asia countries gradually increased. Sebastien believed that Central Asian countries need China's economic support, so the "One Belt One Road initiative" can be considered as the driver of both sides economic development. He also mentioned the cultural conflicts exist [6].

The first aspect is the trade pattern of China and Central Asian countries. For example, Deng and Zhang analyzed the trade status and complementation of Central Asian countries, and concluded that there were about 10 industries is complementary between China and Central Asian countries which has great potential in trade [7].

The other research point is China's outward direct investment to the Central Asian countries. Inmaculada and Florian used gravity models to conduct an in-depth analysis of ODFI between China and Central Asian countries. The result showed that OFDI to Central Asian is mainly attracted by natural resources and trade volume [8].

As for the financial cooperation between China and Central Asia, explored the economic base of RMB regionalization in Central Asia, while Pomfret and Richard studied the different financial development level of Central Asian countries and financial potential areas between two countries [9]. Reuven and Michael suggested that business and trade activities between China and Central Asia have increased since the 2008 global financial crisis, on the other side, the possibility of financial risk has declined [10].

Bank risk-taking behavior was rooted the fact the financial institutions were vulnerable inherently, which can directly affects a country's economic growth [11]. Bank risk-taking behavior is an important issue in the banking industry, and an important driven force in the survey of foreign direct investment. Since the risk-taking behavior of banks so important, the scholars conduct research about the factors affect it from different perspectives. Among the existing studies, mostly used the United States, European Union, Japan and other developed countries as sample [12]. There is little attention on the risky situation of banks in Central Asian countries.

Through the combing of domestic and foreign literature, it can be found that although the depth and breadth of the research on Central Asian countries continue to expand, the research mostly focuses on the macroeconomic situation of

Central Asian countries, and the industry research is less. Due to the lack of data and information, the research on the financial field of Central Asia is sufficient. Hurley et al believe that Central Asia has already become a competing region interested by United States, China, Russia and Japan. So the research on the Central Asian economy will explode in the future, and the focus will shift from macro to micro areas [13]. Therefore, this paper analysis the Central Asian bank risk-taking behavior through a new framework, which can promote the implement of "One Belt One Road initiative" and prevent the financial risk spillovers.

3. The Theoretical Basis and Hypothesis

The risk-taking behavior of commercial banks refers to the overall process in which the bank makes risky decisions under the risky motivation and thus produces certain risky consequences. This paper develops the new framework of risk-taking behavior of commercial banks, and comprehensively calculates the risk-taking behavior of Central Asian commercial banks with three indicators: risk-taking motivation, risk-taking decision and risk-taking consequences.

(1) Commercial Banks risk-taking motivation

The risk motivation of commercial banks, also known as risk-taking incentive, is the preference incentive of commercial banks to overbear risks under the unique mechanism. The risk-taking motivation of commercial banks comes from the two channels of risk transformation. The first channel is that the banks' characteristics of high leverage and debt ratio, which enables banks to transfer the risks to creditors (depositors). Banks' first risk transfer motives bring unstable odds to the entire financial system. To protect the interests of depositors and prevent bank bankruptcy, governments must supervise and restrain the first risk channel of banks so to establish a deposit insurance system. However, the establishment of the deposit insurance system restricts the behavior of banks to transfer risks to deposits, but triggers a new risk transfer of banks. Because if it fails, banks can transfer the risk to the deposit insurance institution. This process of moving the risk of commercial banks to depositors and regulatory authorities (deposit insurance departments) is known as the dual risk transfer motivation of banks. Commercial banks' factors and national macro policies will affect the risk-taking motivation.

(2) Risk-taking decision of commercial banks

The risk-taking decision of commercial banks refers to the process in which banks allocate assets by constructing portfolios under the incentive of risk-taking motivation. Barth et al gave the basis principle of risk-taking decision, that is, the process of constructing investment portfolios and optimizing asset allocation based on the expected constraints [14]. Commercial bank portfolio P can be summarized as a package of investments. From the timeline perspective, the initial portfolio value is defined as PB, and the end portfolio value is PE.

The return rate of the portfolio P, r_p , is expressed as:

$$r_p = \frac{PE - PB}{PB} \quad (1)$$

Suppose that a commercial bank faces a series of assets that can be invested, called the investment domain (investment universe), containing the types of investment products. Assuming the bank can choose assets in the investment

domain, the portfolio value of commercial banks can be expressed as:

$$PB = \sum_{j=1}^n N_j \times PB_j, \quad PE = \sum_{j=1}^n N_j \times PE_j \quad (2)$$

Put (2) into (1), which can obtained following formula:

$$r_p = \frac{\sum_{j=1}^n N_j \times PE_j - \sum_{j=1}^n N_j \times PB_j}{\sum_{j=1}^n N_j \times PB_j} = \frac{\sum_{j=1}^n [N_j \times (PE_j - PB_j)]}{\sum_{j=1}^n N_j \times PB_j} = \frac{\sum_{j=1}^n \left[N_j \times PB_j \times \frac{(PE_j - PB_j)}{PB_j} \right]}{\sum_{j=1}^n N_j \times PB_j} \quad (3)$$

Define the weight of the assets, N_j , $j = 1, 2, \dots, n$ w_j

$$w_j = \frac{N_j \times PB_j}{\sum_{j=1}^n N_j \times PB_j}, \quad j = 1, 2, \dots, n \quad (4)$$

The return on investment of the assets is,

$$r_j = \frac{PE_j - PB_j}{PB_j} \quad (5)$$

Put (4) and (5) into (3) can calculated as following:

$$r_p = \sum_{j=1}^n w_j r_j = w_1 r_1 + w_2 r_2 + \dots + w_n r_n \quad (6)$$

From equation (6), the return of the bank portfolio depends on the return and weight of the investment asset. Given that the return rate of investment assets is more determined by market factors, banks can achieve the optimal investment decisions by adjusting the weight of investment assets.

(3) Risk-taking consequences of commercial banks

The risk-taking consequences of commercial banks are manifested explicitly refer to the risks activities of commercial banks. Chen et al pointed out that risk management is not only objective for banks, but also for all the industries [15]. The risk-taking consequences of commercial banks have a strong

spillover effect, and the social cost of bankruptcy is significantly higher than its own cost. As a highly-risk industry, Financial has its internal instability. If a financial institution suffered poor management or other reasons, it can often cause domino effect to the financial system and even the whole economy. And it can also cause the spread of panic, the destruction of social credit order, eventually lead to the collapse of the banking system and cause the financial crisis. If the process continues to pass to neighbors, it will likely to trigger a global economic crisis. Barth et al noted that the historical lesson of the Great Depression is how vital the banking system but how fragile it is [14]. As a particular industry, the social cost of the bankruptcy in the banking industry is significantly higher than its own cost. Therefore, the financial market needs government's regulation to eliminate externalities and prevent the occurrence of a domino effect in the financial system.

4. Methodology

This study consists 67 Central Asian commercial banks as the research objects. According to the theoretical assumptions, this study establish an empirical model which acquire the interaction of banking risk taking and its factors in the different countries respectively, as shown in the following equation:

$$Risk_{it} = \alpha_0 + \alpha_1 Risk_{it-1} + \alpha_2 Bank_{it} + \alpha_3 Country_t + \alpha_4 Market_t + \varepsilon_{it} \quad (7)$$

1. The variable of risk-taking behavior

The variable of risk-taking behavior is divided into three section. Firstly, the net interest margin (NIM) is used as an indicator of risk-taking motivation which mean the bank consider the NIM as a risk transfer channel. According to the theory analysis, the more significant the NIM, the stronger motivation of commercial banks to transfer risk to the economy. That is, the bank transfer the risk to depositors and regulatory authorities, then make themselves more profit. Secondly, the weighted risk assets (RWA) are used to measure the risk-taking decisions of commercial banks. Jokipii and Milin pointed out that the RWA can represent the investment decisions of commercial banks [16]. The

performance of bank is mainly measured by the non-performing loan ratio, income, loan offset and the likelihood of bankruptcy. So the high RWA represents the poor performance of commercial banks. Finally, the Z-score index is used to measure the risk-taking consequences of commercial banks. Z-score mainly is calculated by the distance of default, derived from the distribution probability of bank income. According to Spong and Sullivan [17], the main principle of Z-score is that if the loss exceeds net assets, which means the standard deviation of ROA is lower than average, the bank will run out of capital and eventually default.

2. The Other Variables

The main banking variable including the income index, bank scale, credit index and liquidity index that can affect the risk-taking behavior of commercial banks.

Following the typical practice, the main financial variable including the inter-bank exchange rate. This study divides the national macro indicators into two levels. The first category is macroeconomic indicators which including inflation, GDP growth, and the domestic credit ratio provided by the banking

sector. The other category is the bank supervision indicators which including capital supervision and deposit insurance system. Demirguc and Detagriache conducted a study of 178 countries worldwide, and showed that 107 of them implemented implicit deposit insurance systems, including the five Central Asian countries [18]. In view of that, this study does not take the deposit insurance system as an explanatory variable.

Table 1. Definition and measure variables.

Variable	Symbol	Definition and measure	Sources
Risk-taking behavior	Risk-taking motivation	NIM (Net Interest Margin)	Bankscope
	Risk-taking decision	RWA (Risk Weighted Asset)	calculated
	Risk-taking consequence	Z-score	calculated
	SIZE	The log of asset	calculated
Bank characteristic	LIQ	Liquid Assets/Dep ST Funding	Bankscope
	NLA	Net Loans/Assets	Bankscope
	REP	Recurring Earning Power	Bankscope
	CIR	cost to Income Ratio	Bankscope
Financial market	IR	Inter-bank Ratio	Bankscope
	INF	Inflation	WDI
Macro environment	GDP	GDP growth ratio	WDI
	DCFS	Domestic credit by financial sector	WDI
	T1R	Tier 1 Ratio	Bankscope

Eq (8) was adjusted by involving the specific variables respectively, as showing in the following equation:

$$\begin{aligned} RISK_{it} = & \alpha_0 + \alpha_1 RISK_{it-1} + \alpha_2 SIZE_{it} + \alpha_3 DER_{it} + \alpha_4 CRE_{it} + \alpha_5 IL_{it} + \alpha_6 REP_{it} + \alpha_7 CIR_{it} \\ & + \alpha_8 IR_{it} + \alpha_9 RI_{it} + \alpha_{10} INF_{it} + \alpha_{11} GDP_{it} + \alpha_{12} DCFS_{it} + \alpha_{13} T1R_{it} + \mu_{it} \end{aligned} \quad (8)$$

Table 2. Descriptive Statistics.

variables	Mean	Std.Dev	Min	Max	Obs
NIM	7.18	5.82	-1.87	71.2	519
RAW	0.69	0.21	0.06	1.36	519
ZSCORE	18.41	16.99	-4.78	123.54	519
SIZE	2.64	0.84	-1.55	4.39	519
LIQ	50.67	43.21	2.81	602.46	519
NLA	49.79	21.50	0.285	90.64	519
REP	3.61	3.93	-21.85	29.50	519
CIR	60.63	29.41	0.51	276.17	519
T1R	21.28	14.28	-84.10	103.9	519
IR	110.40	36.68	5.22	534.23	519
INF	13.69	8.14	-4.98	59.74	737
GDP	6.65	3.08	-0.47	14.7	737
DCFS	28.85	15.53	5.55	60.53	737

Given the availability and continuity of empirical data, this study choose 67 commercial banks in Central Asia which including 28 in Kazakhstan, 10 in Kyrgyzstan, 7 in Tajikistan, 4 in Turkmenistan and 18 in Uzbekistan. The sample ranged

from 2010 to 2020, and the data were mainly obtained from the Bankscope database and the World Bank WDI database. (See Table 2 for details).

For the dynamic panel model of Equation (7), the study adopts a two-step dynamic GMM estimation method to overcome the endogenous problem. The dynamic panel GMM estimate is divided into differential GMM (dif-GMM) and system GMM (sys-GMM), since the instrumental variable is confirmed valid by using the Sargan test which means the system GMM Estimation can solve the weak tool variable problem and be more effective. The study will analyze the empirical results using the Xtabond2 command in Stata, both in differential GMM and systematic GMM.

3. The Result

(1) Risk-taking motivation (NIM) situation of 67 commercial banks in Central Asia

According to the above theory, the study empirically tests the risk-taking motivation of 67 commercial banks in Central Asia, and the regression results are as follows.

Table 3. The dynamic results of the risk-taking motivation in Central Asia banks.

	dif 1	dif 2	sys
NIM-L1	0.402*** (6.43)	0.274*** (15.27)	0.459*** (67.51)
SIZE	-14.664*** (-4.43)	-5.207*** (-3.10)	1.611 *** (-6.67)
LIQ	0.016 (1.19)	-0.024*** (-3.10)	0.047*** (10.53)
NLA	0.051 (0.95)	0.035*** (3.27)	0.075*** (16.67)
REP	0.458*** (3.70)	0.003*** (8.65)	0.219*** (12.31)
CIR	-0.005 (-0.52)	-0.024*** (-6.40)	-0.016*** (-6.89)
IR	0.013* (1.36)	-0.006*** (-2.57)	-0.002*** (-3.17)
INF	-0.112*** (-2.43)	-0.018** (-1.98)	-0.020*** (-4.19)
L.GDP	0.273*** (2.63)	0.101*** (3.17)	0.041** (2.27)

	dif 1	dif 2	sys
DCFS	-0.26*** (-3.57)	-0.076*** (-5.9)	-0.014*** (-3.73)
_cons			3.973*** (6.05)
AR(2) p value	0.18	0.83	0.40
Sargan p value	0.108	0.001	0.5

Note: (1)***levels of significance at 1%, **levels of significance at 5%, and *levels of significance at 10%.

As shown in the empirical results in Table 3, the differential GMM results are slightly different from the systematic GMM estimates. First, the risk-taking motivation of 67 commercial banks in Central Asia is significantly and positively correlated with their risk-taking motivation before. In general, commercial banks in Central Asia lack of risk-taking motivation. Mostly because central Asian banks occupy a dominant position in the financial system. Under the ideology of "protection and guarantee", most banks do not want compete to other financial institutions. On the other hand, central Asian banks are mainly focus on traditional businesses which with fewer financial innovation and a relatively low proportion of derivatives business.

Second, central Asian bank's risk-taking motivation is significantly correlated with the current assets (the more current assets, the more motivation and ability to bear higher risk business and project), net loan ratio, profitability (Caprio and Honohan proved that the optimal risk-taking motivation can increase the yield because with the high yield, the bank willing to take high risk transfer motivation [19].) and GDP growth rate (in some developed countries, commercial banks's risk taking motivation is high).

Finally, bank size is significant negative correlation with the risk-taking motivation. Hendrik and Isabel conclude that under the condition of incomplete competition and moral hazard, the larger banks can use option and internal standard as the privilege to take more risky activities [20]. Whereas in the competitive environment, the small Banks easy to take

greater risky investments. Chia-Chung Chan used the banks in Taiwan as sample to test the relationship between regulations and risk activities, and then confirm that the asset scale is significantly negatively correlated with the risky in commercial banks [21]. The reason is that large commercial banks are already in the mature stage of the product life cycle and show a more conservative attitude towards high risk. The second index is the cost-to-income ratio which indicate operating cost can reduce the risk opportunities in banks. The exchange rate was affected by the tight capital position of financial institutions. The rise in the inter bank exchange rate indicates that capital is in short supply and the cost of ban inter bank risk taking behavior greatly increases. The inflation rate of Central Asian countries has been always at the high level, especially in Kyrgyzstan. High inflation rate leads to a surge in industry risks. In order to avoid risks, banks will inevitably reduce loan projects, and reduce risk-taking motivation. In Central Asian countries, financial institutions are relatively concentrated. The dominant position of banks lack necessary competition and motivation to take more risks.

(2) Risk-taking decision (RWA) situation of 67 commercial banks in Central Asia

In general, the risk assets of Central Asian banks account for a relatively high proportion, with some even reaching more than 90%. There is a large room for optimize the risk-taking decisions. The regression results are shown in Table 4.

Table 4. The dynamic results of the risk-taking decision in Central Asia banks.

	dif 1	dif 2	sys
L1	0.087 (0.68)	0.096 (1.28)	0.193*** (4.69)
SIZE	-0.322*** (-2.48)	-0.293*** (-4.23)	-0.095*** (-2.06)
LIQ	-0.0003* (-1.57)	-0.0003** (-2.02)	-0.001 (-1.21)
NLA	0.004* (1.65)	0.004*** (3.79)	0.004*** (4.96)
REP	-0.003 (-0.28)	-0.001 (-0.22)	0.006* (1.65)
CIR	-0.001 (-1.11)	-0.001* (-1.49)	0.0009* (1.68)
IR	0.00 (0.30)	0.00 (1.36)	0.0001 (0.84)
INF	-0.003* (-1.69)	-0.001*** (-2.66)	-0.002*** (-5.45)
L.GDP	0.003 (0.79)	0.001 (0.75)	0.002 (1.20)
L.DCFS	-0.005** (-2.04)	-0.004** (-2.09)	0.0005 (0.52)
_cons			0.762*** (6.02)
AR(2) p value	0.901	0.669	0.709
Sargan p value	0.296	0.296	0.490

Note: (1)***levels of significance at 1%, **levels of significance at 5%, and *levels of significance at 10%.

From the empirical results, the risk-taking decisions of 67 commercial banks in Central Asia are positively correlated with their performance before which indicate that their risk-taking decisions relatively in stable. For the impact of other variables on the risk-taking decisions, the proportion of net loan is significant positively correlated with RWA,

indicating that the risks of Central Asian commercial banks are mainly concentrated in the loan business. Bank size, current assets ratio and income ability are significant negatively correlated with RWA. The above indicators are all important criteria to optimize bank risk-taking decision-making. Banks with large scale, high proportion of

current assets and strong profitability have better risk-taking decisions than small banks. According to the theory, the bank risk-taking decision is affected by the interbank exchange rate. However, the empirical results are not significant, the main reason is that the development of central Asian countries is not perfect and cannot contributed as a balance between supply and demand in capital market.

Moreover, central Asian banks have witnessed liquidity crises and increase the inter-bank exchange rates. It is worth noting that the relationship between bank risk-taking decision

and national macro variables is not significant, which means the risk-taking decision of Central Asian banks mainly depends on individual bank factors, and less affected by the national economic growth rate and inflation rate.

(3) Risk-taking consequences (Z-score) status of 67 commercial banks in Central Asia

Due to the impact of the 2008 financial crisis, the Z-score of central Asian state banks is generally low which showed a high risky situation in the banking industry. The empirical results are shown in the following table.

Table 5. The dynamic results of the risk-taking consequence in Central Asia banks.

	dif 1	dif 2	sys
L1	0.284*** (3.58)	0.312*** (11.39)	0.451*** (29.92)
SIZE	-7.906** (-1.85)	-8.817*** (-8.94)	-1.282*** (-2.62)
T1R	0.019 (1.01)	0.086*** (2.97)	0.11*** (16.98)
LIQ	0.229*** (2.37)	0.260*** (13.15)	0.205*** (23.14)
NLA	0.345* (1.77)	0.489*** (9.10)	0.395*** (30.65)
REP	0.155 (0.15)	0.489*** (2.58)	0.419*** (4.51)
CIR	0.241** (2.04)	0.291*** (13.11)	0.132*** (22.05)
IR	-0.020 (-1.19)	-0.028*** (-9.49)	-0.008*** (-8.3)
L.INF	0.267*** (2.39)	0.196*** (6.64)	0.295*** (21.41)
L.GDP	-0.432* (-1.75)	-0.514*** (-4.70)	-0.399*** (-11.84)
L.DCFS	-0.226* (-1.72)	-0.224*** (-5.27)	-0.168*** (-10.94)
_cons			-25.475*** (-13.75)
AR(2) p value	0.705	0.883	0.397
Sargan p value	0.001	0.001	0.679

Note: (1)***levels of significance at 1%, **levels of significance at 5%, and *levels of significance at 10%.

The Z-score of 67 Central Asian banks were significant positively correlated with its lag term which indicate the risk-taking consequences of Central Asian banks at a continuous upward trend. Mostly because of the financial crisis and the US policy of quantitative easing, Central Asian countries have suffered from banking crisis. As the increasing influence of Central Asian countries in the world, especially they actively responded to the "One Belt and One Road" initiative. With the formulation of economic development plan, the risk of bankruptcy in banking industry is expected to continuously reduced.

From the perspective of variables affected on the risk-taking consequences of banks, the core Tier 1 capital adequacy ratio is significant positively correlated with Z-score which indicate that the improvement of capital regulation can improve Z-score and prevent the occurrence of risk consequence. The capital adequacy ratio has become the basic norm for all banks around the world, and banks in Central Asian countries are no exception. The proportion of current assets, the proportion net loans and profitability are significant positively correlated with Z-score. Those indicators can make the banks more stable and profitable. The implementation of the comprehensive risk management and the implicit government guarantee can reduce the bank risky consequences, too. It is worth noting that Z-score is significant negatively correlated with bank size and GDP growth. Among the five central Asian economies, Kazakhstan was the largest emerging market economy and ranks first concerns its bank assets. But Kazakhstan has seen as the outbreak of banking crises. International rating

agencies noted that Kazakhstan's financial regulators were less independent, with a surge in non-performing loans and high risk levels for banks.

5. Conclusion and Recommendations

The study establishes a theoretical framework of bank risk-taking behavior which consists risk-taking motivation, risk-taking decision and risk-taking consequences of commercial banks from a new perspective. The risk-taking behavior of commercial banks is jointly influenced by individual bank factors, financial market factors and national macro policy factors. A dynamic panel model was established to test the risk-taking behavior of 67 commercial banks in five Central Asian countries. The empirical results show that the 67 commercial banks in the Central Asian countries have low risk bearing motivation. Still, the risk taking consequences are high, and there is excellent room for optimize the risk-taking decisions. The main reasons are as follows: First, central Asian banks have a high proportion of risk assets which is a ratio widely used in risk-taking behavior; Second, the non-performing loan ratio of central Asian banks is typically high which means the credit risk is prominent; Third, central Asian banks generally face intense liquidity crisis and inter-bank exchange rate; Finally, the high inflation rate of central Asian countries and the excessive credit ratio in the financial sector aggravate the bank risk-taking behavior.

To promote China's "One Belt and One Road" strategy, deepen financial cooperation with Central Asian countries, and avoid bank risks overflow in Central Asian, the study

puts forward several policy suggestions. First, the risk taking behavior of Central Asian banks should pay much attention on because it can cause risky spillover in trade and financial cooperation. As a high-risk industry, commercial banks have its own characteristic of instability. If a banking institution fails due to poor management or other reasons, it not only causes the spread of panic and leads to the collapse of the entire banking system, but also bring the financial crisis or even the economic crisis. If the process continues to pass to neighbors, it will likely to trigger a regional economic crisis.

Second, China and the Central Asian should actively expand new cooperation areas and opportunities. The traditional theory that the profit of banking mainly based on deposit and loan spreads has increasingly challenged, while the off-balance sheet business and intermediary business has already becoming the core activities in future [22]. China's foreign investment enterprises and banking institutions can take advantage of this opportunity to explore new cooperation opportunities with Central Asian countries.

Third, the study has set an excellent case of how China and Central Asian countries cooperate in financial area such as banking risk prevention. As the regulatory measures of Chinese banks has becoming mature, especially in improve banking risk-taking behavior. Therefore, China can provide banks of Central Asian countries with experience in regulating risk-taking behavior, since the credit risks and liquidity risks that caused Central Asian banks lots troubles.

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References

- [1] Yin, H. (2019). Bank globalization and financial stability: International evidence. *Research in International Business and Finance*, 49, 207–224.
- [2] Bremus, F. M. (2015). Cross-border banking, bank market structures and market power: Theory and cross-country evidence. *Journal of Banking & Finance*, 50, 242–259.
- [3] Yormirzoev, M. (2021). Economic Growth and Productivity Performance in Central Asia. *Comparative Economic Studies*.
- [4] Huang YP. (2016). Understanding China's Belt & Road Initiative: Motivation, framework and assessment. *China Econ Rev*, 40, 314–321.
- [5] Islam, Md. A., Ebenezer, O. O., Sobhani, F. A. & Shahriar, M. S. (2020). The effect of product market competition on stability and capital ratio of banks in Southeast Asian countries. *Borsa Istanbul Review*, 30 (3): 292-300.
- [6] Sebastien P. (2016). Discussing China: Sinophilia and sinophobia in Central Asia. *Journal of Eurasian Studies*, 7, 14-23.
- [7] Li ZH, Deng XZ, & Zhang Y. (2021). Evaluation and convergence analysis of socio-economic vulnerability to natural hazards of Belt and Road Initiative countries. *J Clean Prod*, 282 (5), 125-154.
- [8] Inmaculada M Z, Florian J. (2016). Monetary uncertainty and trade in Eastern Europe and Central Asia: A firm-level analysis, *International Business Review*, 375-796.
- [9] Pomfret, Richard. 2020b. Uzbekistan and the World Trade Organization. *Silk Road: A Journal of Eurasian Development*, 2 (1), 54–61.
- [10] Reuven G, Michael H. 2013. China's financial linkages with Asia and the global financial crisis, *Journal of International Money and Finance*, 39, 186-206.
- [11] Claessens, S., Demirguc-Kunt, A., [17] Huizinga, H. (2001). How does foreign entry affect domestic banking markets? *Journal of Banking and Finance*, 25, 891–911.
- [12] Santoso, W., Yudiantoro, I., Soedarmono, W., & Prasetyantoko, A. (2020). The bright side of market power in Asian banking: Implications of bank capitalization and financial freedom. *Research in International Business and Finance*, 342-358.
- [13] Hurley, J., Scott, M., & Gailyn, P. (2018). Examining the Debt Implications of the Belt and Road Initiative from a Policy Perspective, CGD Policy Paper 121. Washington, DC: Center for Global Development.
- [14] Barth, J. R., Caprio, G., & Levine, R. (2013). Bank regulation and supervision in 180 countries from 1999 to 2011. *Journal of Financial Economic Policy*, 5 (2), 111–219.
- [15] Chen, M., Wu, J., Jeon, B. N., & Wang, R. (2017). Do foreign banks take more risk? Evidence from emerging economies. *Journal of Banking & Finance*, 82, 20–39.
- [16] Jokipii T, Miline A. Bank capitak buffer and risk adjustment decisions [J]. *Journal of Financial Stability*, 2011, 7 (3): 165-178.
- [17] Spong K R, Sullivan R J. (2007). Corporate governance and bank performance. *Social Science Electronic Publishing*, 38 (1), 139-160.
- [18] Demirguc K., Detagriache E. (2002). Does Deposit Insurance Increase Banking System Stability. *Journal of Monetary Economic*, 49 (7), 1307-1406.
- [19] Caprio, G., Honohan, P. (1999). Restoring banking stability: Beyond supervised capital requirements. *Journal of Economic Perspectives*, 13 (4), 43–64.
- [20] Hendrik H, Isabel S. (2011). Bank size and risk-taking under Basel II. *Journal of Banking & Finance*, 35, 1436-1449.
- [21] Chia-Chung Chan. (2013). Does bank relationship matter for corporate risk-taking? Evidence from listed firms in Taiwan. *North American Journal of Economics and Finance*, 26, 323-338.
- [22] Zhu, W., Yang, J. (2016). State ownership, cross-border acquisition, and risk-taking: Evidence from China's banking industry. *Journal of Banking & Finance*, 71, 133–153.