

Enterprise Capital Liquidity Risk Management and Control Method from The Perspective of Financial Security

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Abstract: After recent years of development and innovation, our country enterprise in the great changes in many aspects and leapfrog development, based on the risk management theory as the foundation, with the method of integral to a single individual, key research, analysis, summarized our country enterprise the current liquidity risk, and corresponding Suggestions are proposed according to the above situation. Through innovative enterprise institution liquidity risk regulatory perspective, applied to the Qingdao area is mainly in Chinese commercial bank financial enterprises liquidity risk control actual examples, the enterprise financial liquidity risk by inducing factors is divided into capital position, business structure, risk of infection, such as type, sum up the experiences of financial enterprises liquidity risk control and the lack of liquidity risk control is put forward and analyzed its causes. The research conclusion of this paper has certain reference value for strengthening the supervision of enterprise capital liquidity risk from the perspective of financial security.

Keywords: Financial security; Capital flows; Risk control; Branches of enterprises

1. Introduction

With financial security into the "new normal" economy, can effectively cope with abundance of liquidity in general and local tension of this "new normal", effective management of interest rate marketization and the credit risk under the rising of market expectations and price fluctuations, and to avoid the outbreak of a new round of liquidity risk, is a subject urgently to be solved in theory and practice. In recent years, financial regulators have paid great attention to the liquidity risk of enterprises. The us subprime crisis showed that liquidity can be problematic for highly leveraged institutions that rely too heavily on debt instruments, even when capital adequacy ratios are met. The Basel committee controls the liquidity mismatch of Banks with the two major indicators of 30-day liquidity coverage ratio and net stable financing ratio, and encourages Banks to use stable financing channels. The China banking regulatory commission (CBRC) issued the guidance on enterprise liquidity risk in 2009, and revised and improved the measures on enterprise liquidity management (trial) in 2014. At present, the regulatory mode is mainly that legal person institutions implement the centralized liquidity management and assume the responsibility for taking risks. Therefore, the research on the regulatory theory and regulatory framework mainly focuses on the legal person institutions of financial enterprises, while insufficient attention is paid to the liquidity risks of financial enterprises[1]. This paper innovates the

liquidity risk supervision perspective of financial enterprises, taking 23 Chinese financial enterprises in Qingdao as an example, analyzes the liquidity risk characteristics of financial enterprises and the problems in risk control, and puts forward Suggestions for strengthening the liquidity risk supervision of China's financial enterprises under the new normal.

2. Enterprise Capital Liquidity Risk Management and Control from the Perspective of Financial Security

2.1. The characteristics and performance of enterprise liquidity risk

Due to the characteristics of multiple inducing factors, complex measurement and low frequency and high loss, liquidity risk of financial enterprises is usually managed by legal person institutions in a coordinated and centralized way and they bear the responsibility for taking risks, and there is no unified and clear standard for liquidity risk of enterprises. Based on the macro characteristics of liquidity risk and the actual differences in the liquidity risk management and control functions of legal person institutions and financial enterprises, this paper divides liquidity risk into three categories according to the different risk exposure frequency, transmission influence and management and control methods, and analyzes the liquidity risk in combination with the situation of the jurisdiction of Qingdao.

The liquidity risk of position management mainly refers to the volatility risk of the capital position of the reserve account of the central bank of financial enterprises, which is characterized by "high frequency and low loss". Financial enterprises can effectively control such risks through active management. From the perspective of the jurisdiction, the clearing amount of financial enterprises is closely related to the scale of the bank's business and the number of customers. The amount of excess reserves accounts is generally 0.5% to 1% of the average daily deposit scale. Within this year, no excess reserves accounts or overdrafts are punished by the head office or the central bank, and the risks are generally controllable[2].

Maturity mismatch is a kind of liquidity risk, which mainly refers to the mismatch of asset and liability business term of financial enterprises and institutions, resulting in the capital payment risk in the process of business term conversion, with the feature of "intermediate frequency and intermediate loss". Financial enterprises can effectively mitigate such risks through the liquidity support of legal person institutions. From the regional situation, one is the long and short of financial services mismatch risk prominent. The trend of "deposit financing" is obvious, and the "short borrowing and long lending" of wealth management funds lead to the continuous accumulation and amplification of liquidity risks. Second, the maturity mismatch risk of inter-bank business still exists. Jurisdiction of small and medium-sized enterprises institutions trade of large scale (accounting for 10% of the proportion of assets - 50%), with administrative rights trade creditor's rights and kinds of non-standard business taking gradually, some enterprises financial enterprises to "instrument category of non-standard business" as the trade business development center of gravity, short-term bills to rolling short-term interbank funds matching assets, dependence of capital market to enhance[3].

Risk contagion is a kind of liquidity risk, which mainly refers to the contagion of credit risk, reputation risk, compliance risk, market risk and liquidity risk among financial enterprises, which may cause the enterprises with weak risk resistance to fall into the liquidity crisis and have the characteristics of "low frequency and high loss". The liquidity risk control ability of legal person institutions and the coping strategies of financial enterprises are the key to prevent and control such risks[4].

2.2. Enterprise capital liquidity risk management and control problems to be solved

From the business comparison, one is weak in the table outside the table. In the design of the liquidity risk management and control system for financial enterprises, off-balance sheet businesses such as bank notes and

letters of credit and intermediary businesses such as financial management and commission sales are basically not involved, so there is a "vacuum" in liquidity risk management. Second, loans are weaker than their peers. Learning from the experience and lessons of the "money shortage" event, the enterprises in the jurisdiction generally pay more attention to the liquidity risk of inter-bank business, but the traditional credit asset management lacks the management of term matching, and does not fully understand the risk of long-term loan, quality deterioration, short-term deposit and quantitative co-existence[5].

From the point of view of management link, first, the system support is weak. Financial enterprises in China generally have not established a branch-level liquidity monitoring system, and 6 institutions cannot fill in the statistical table of the liquidity ratio and liquidity maturity gap of branch size. The day management of enterprises is mainly concentrated in the field of reserve position management and lacks the identification and monitoring of potential liquidity risks. Second, weak stress testing and early warning management. The 22 enterprises did not conduct the liquidity risk stress test at the branch level, but only carried out emergency positioning exercise or moderately regulated the liquidity management direction of the branch based on the liquidity pressure test results of the head office, and all financial enterprises did not have the liquidity index warning within this year. Third, the assessment guidance is weak. The liquidity assessment of financial enterprises under the jurisdiction is only limited to the structure of assets and liabilities and the liquidity limit, and there are no assessment indexes such as term matching degree and concentration degree, so the liquidity management assessment of financial enterprises is not refined enough[6].

The first reason for insufficient control is the business philosophy of putting more emphasis on profit and less on risk. Before the "money shortage" event, some financial enterprises uncontrollably enlarged the maturity mismatch gap between the assets and liabilities of the same bank, in order to support the long-term asset delivery with short-term liabilities. At present, some financial enterprises expect the market interest rate to go down, and the capital pricing strategy tends to support the development of medium - and long-term assets and short-term liabilities. In both cases, higher spread yields are obtained by amplifying liquidity exposure. The management idea of sacrificing liquidity for profitability is the root cause of liquidity risk accumulation. Second, the head office, light branch management awareness. Financial enterprises generally lack the main responsibility consciousness of liquidity risk management. Some financial enterprises also have the wrong idea that "the benefits belong to themselves and

the risks belong to the head office". They even tend to reduce the liquidity risk control standards subjectively, and are close to the bottom line requirements of the head office to carry out business, so as to obtain the maximum benefits. The third is the management philosophy that emphasizes the short term over the long term[7]. Some Banks will financial enterprises one-sided understanding for pandemic risk management positions provision for management, for short-term index value degree is higher, but the table inside and outside the overall business structure matching with time management, taking into account the liquidity premium pricing mechanism to reduce the long-term potential liquidity risk accumulated chronically inadequate controls seriously, cause the system construction, examination management and stress testing management resources insufficiency, affected the control effect of liquidity risk.

2.3. The analytic hierarchy process is introduced to realize risk control

At present, the financial enterprises of financial enterprises mainly combine various business characteristics and actual risk exposure to build a liquidity risk control framework for financial enterprises. The first is to transfer liquidity risk from financial enterprises to legal entities through the centralized capital business management mode. Central bank after the second generation of online payment system, the national 22 of 23 companies adopt the way of "a little access, a little clearing" liquidation, with full system both payment remittance through the headquarters of excess reserves account opened in the bank to deal with, the simplified capital management process, improve the service efficiency of funds at the same time, also make the cash liquidity management function and risk further centralized to the institutional investor, large capital position forecast management positions gradually replacing provision for account management, become the financial enterprise liquidity risk control key positions in management. Second, enhance the ability of financial enterprises to identify and measure liquidity risks through the design of a more comprehensive liquidity management architecture[8]. Third, strengthen the foundation of liquidity control through improving liquidity management indicators and tools.

The analytic hierarchy process (AHS) provides a quantitative and accurate description of the properties to be evaluated. Thus, applying AHS to the evaluation index system of liquidity risk of financial enterprises in China can clarify the internal hierarchical structure of liquidity risk and achieve the effect of quantitative analysis.

AHS model construction, determination of quantitative factor set: the set is divided into three parts, namely

financial products; The term structure of deposits and loans; Structure of assets and liabilities[9].

The judgment matrix of factor set, the construction of the comparison matrix of the factors contained in the index layer above, A is the n-order matrix, where the matrix value of A can be determined by referring to the scale assignment rule of Satty comparison matrix. In general, W is used to represent the evaluation domain:

$$w = \{w_1, w_2, w_3 \dots\} \tag{1}$$

AHS evaluation was obtained by using operator. Multiply the weight set B by the judgment matrix A to get A new matrix B, B2=BA. Then, an anti-interference term V=(9,7,5) is constructed and calculated by A2=B2V. Finally, A2 gets the final evaluation result X according to the special operator. Of course, these complex calculations will be done using matlab programs. First, the adopted post-investment service is graded into weights, as shown in figure 1[10].

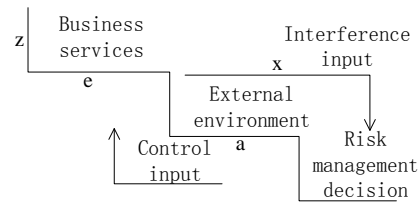


Figure 1. Model construction diagram

After the components of each stage are counted, the matrix is constructed, in which the input of risk system comes from capital, labor, raw materials and other elements, and then the multiple linear regression analysis is conducted. Parameter estimate of multivariate linear regression model, the same as yuan linear regression equation is also on the error sum of squares (Σe2) as the minimum under the premise of using the least squares solution of parameters. Taking the bilinear regression model as an example, the standard equations for solving regression parameters are:

$$\begin{cases} \sum y = nb_0 + b_1 \sum x_1 + b_2 \sum x_2 \\ \sum x_1 y = b_0 \sum x_1 + b_1 \sum x_1^2 + b_2 \sum x_1 x_2 \\ \sum x_2 y = b_0 \sum x_2 + b_1 \sum x_1 x_2 + b_2 \sum x_2^2 \end{cases} \tag{2}$$

The observation fitting diagram is shown in Figure 2. The fluctuation charts after the first 150 iterations and over 200 iterations were analyzed respectively. The fluctuation chart of the first 150 analysis iterations is shown in Figure 3.

The fluctuation chart after the number of iterations is greater than 200 is shown in Figure 4.

Through image analysis, it is found that after 200 iterations of the function, the frequency trend is relatively stable, and we carry out fixed-point processing on the value of linear regression in the relatively stable

region. The unstable data of different companies: initial external barriers, the current competitive trend a, net profit b, asset light (0 is true) c, asset demand d, attract key e, self-raised fund f, follow-up quantity g, current income sustainability h, market data i, market development j, management category k, generalization and other factors m were read into the regression equation.

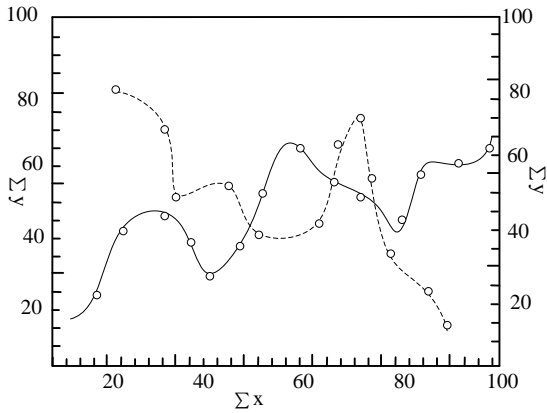


Figure 2. Observation fitting diagram

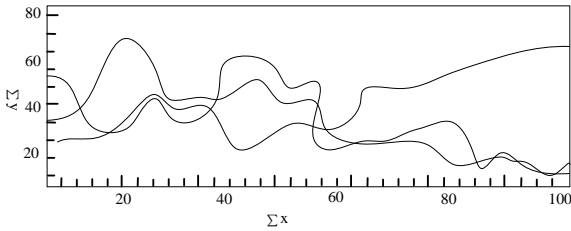


Figure 3. Wave chart of the first 150 times

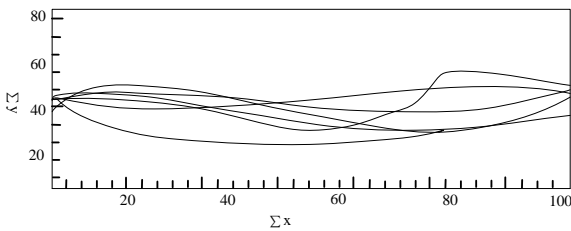


Figure 4. The wave chart after the number is greater than 200

3. The Empirical Analysis

Select the joint-stock financial enterprises under the jurisdiction of Qingdao for empirical research. According to the website of the financial enterprise, in 2011, the financial product accounts for 71.7% of the total loan amount, the medium and long-term loan ratio is 58.2%, the capital adequacy ratio is 12.44%, and the established row vector is $V = (0.771, 0.582, 0.124)$.

According to the above data preparation, we can get the quantitative factor set and establish the judgment matrix A_{33} for the target layer from the historical data.

$$A_{33} = \begin{pmatrix} 1 & 0.5 & 0.125 \\ 2 & 1 & 0.167 \\ 8 & 6 & 1 \end{pmatrix} \quad (3)$$

It is easy to know that this matrix meets the requirements of comparison matrix. Where $\lambda = 3.0183$, by calculating the standard form of A matrix, the weight set of A is B.

$$B = (0.0718, 0.2267, 0.7015)$$

$$B^2 = (6.1372, 4.4716, 0.7483)$$

$$X = PA = (64.729, 52.5424, 11.23)$$

The evaluation domain W for the liquidity risk assessment of commercial Banks was established, and three comment levels were set as surplus, concern and warning, respectively. The corresponding scores were 90, 70 and less than 50, $W = \{\text{surplus, concern and warning}\}$. In the model constructed in this paper, the evaluation result of the liquidity risk of financial enterprises under the jurisdiction of Qingdao is:

$$X = PA = (64.729, 52.5415, 11.23)$$

Based on the model's analysis of financial products over the years and combined with the actual data, the prediction data of financial products from 2011 to 2021 can be drawn, as shown in Figure 5.

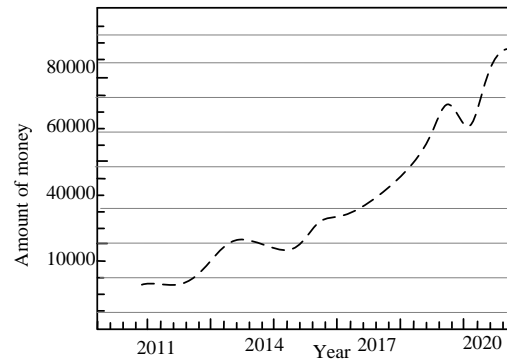


Figure 5. Forecast data of financial products for 2011-2021

Therefore, the liquidity risk of financial enterprises under the jurisdiction of Qingdao is relatively large. In terms of market investment, competition trend, asset demand, current income sustainability and market development account for the largest proportion of discrete weight, followed by net profit, asset-light, self-raised funds, number of followers, etc. Therefore, when considering investment risks, priority should be given to the weight of competition trend, asset demand, current income sustainability and market development. Young enterprises should be selected for investment to maximize profits in the society and invest in the aspects

that conform to the predicted trend. The predicted value is more reliable than the actual one.

4. Conclusions

Through the establishment and practical application of the risk supervision model of enterprise capital liquidity under the financial security environment in this paper, and the current situation of China's financial environment and enterprise capital flow, we can determine the development trend and trend of financial enterprises in the future.

At present, the issuance of financial products in China has increased substantially, which will reduce the liquidity provided by China's commercial Banks. We must warn major Banks to pay attention to the quality of financial products, so as to reduce the liquidity risks of commercial Banks. China's financial market is still immature and in the initial stage of development, so it is necessary to accelerate the reform of the financial market to provide a better external environment for commercial Banks to carry out effective risk management, effectively expand the scope and scale of the money market, and establish the commercial paper market and short-term bond market. At present, the society is changing from indirect financing to direct financing. The traditional deposit and loan business of Banks is gradually shrinking. The intermediate business is different from the traditional banking business, which can minimize the cost of Banks and reduce the liquidity risk to almost zero. Actively, reasonably and effectively promote asset securitization and rationally adjust asset structure in order to reduce liquidity risk. Vigorously developing intermediary business can greatly reduce the liquidity risk of commercial Banks, cushion the blow of

the capital market on the deposit and loan business, and integrate with the international standards.

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