



Research Article

ISSN : 0975-7384
CODEN(USA) : JCPRC5

Optimization analysis of the industrial structure with the financial support based on the market

Yonggui He* and Guangwei Zhang

North China Electric Power University, Baoding, China

ABSTRACT

As the spillover of late effects of the financial crisis, the Chinese economy is facing the heavy pressure of the external and the internal economy goes into the specially superimposed period of "the shifting period of the growth rate, throes period of the structural adjustment and the digestion period of previous stimulus policies", this paper mainly studies financial instruments as the core of the modern economy how to play its irreplaceable role in determining the fundamental role of the market and support the optimization of the regionally industrial structure. In this paper, it breaks through the limitations of the research of their own development of more financial problems. It takes Hebei Province for example to analysis innovatively the optimization of the industrial structure with the market-oriented financial support in the use of relevant software, around the mechanism of the industrial structure optimization with the financial support. The key is the comparison of results of the static regression analysis and the dynamic regression analysis. It gets the strength and the influence of overflow with financial support instruments in the regional adjustment of the industrial structure. Based on the data of the research it puts forward the corresponding countermeasures. In this paper, research results provide a scientific criterion to know how to play of market-oriented financial support for industrial restructuring and practice the market economy in the relevant regional area of case .

Keywords: market-oriented; the financial support; the optimization of the regional industrial structure

INTRODUCTION

Context and Significance

Since the financial crisis, the opportunities we face is no longer a simple system of the global division of labor, expanding exports and accelerating the traditional investment from outside , but force us to expand domestic demand, improve innovation capabilities, and promote the transformation of the economic development mode. The internal economy situation is presented in the shift of economic growth, structural adjustment pains, pre-stimulus period of digestion, which are superimposed. To this end, January 23, 2013 the government issued a "circular economy development strategy and action plan for the near future." July 1, 2013, the State Council issued "Guidance on financial support for the adjustment and transformation and upgrading of the economic structure." October 6, 2013, the State issued "Guidance on resolving conflicts of serious surplus production capacity ". From those , we recognize that the state deeply promote the optimization of industrial structure . The market should play a decisive role in allocating resources .The market-oriented reform have to combines with the adjustment of the industrial structure to meet the needs of domestic and foreign markets following market-oriented ,and to maximize the value of industries by the recently concluded Third Plenary Session of the 18th . To some extent, which is the starting point of the optimization and adjustment of industrial structure, but also the important benchmark examine of the results of the optimization and adjustment of industrial structure. We should be in a "superposition of three phases" stage according to the characteristics of China's

economy, seize new opportunities we face in development, momentum, flow, promptly take effective strategic initiatives. Finance as an important part of the modern economy, plays a vital role in the adjustment of the regional industrial structure[1]. Therefore, the finance should provide strong support for the adjustment of the industrial structure, which not only can promote industrial structure optimization, but also for the current financial reform also plays a guiding role.

Empirical Analysis

There are many aspects of the study on the adjustment of the industrial structure with the financial support about Hebei Province, which uses the econometric methods. For example, the first step is ADF, the second step is the cointegration test, and the final step is the Granger causality test and so on. However, the economic significance of cointegration theory is that it reveals between long-term and stable relationship between time series variables, although he has cointegrated variables have their own law changes in the short term, but there is a coordinated change in trend. The Granger causality test thinks that: if it contains the variables X and Y under conditions of the past information to forecast Y is better than just individual contains Y under conditions of the past information to forecast Y, which we call X is the Granger reason of Y, or it is known as non-Granger causes[2]. Financial time series with these test methods can be made the qualitative Correlation analysis (including the size and direction of the association); and not be established a causal relationship between two variables. Also, I think there are defects in the following aspects:

First, there is not the clear mechanism of the financial support in most of articles, even though some articles take it without the empirical analysis. Second, the empirical analysis in most of the articles is not systematic and rational, especially not explain, analyze and propose corresponding recommendations in accordance with the mechanism of action of the adjustment of the industrial structure with the financial support. Third, we hope test the affection of the industrial structure adjustment with the financial support with another proven way, and to make the complement for others.

First of all, we elaborate the mode of action in the adjustment of the industrial structure with the financial support: one is the stock restructuring, which may be in routine adjustments from endogenous factors, such as, the supply and demand structure and the price structure, you can also adaptably reflect on the structural imbalance made under certain value targets; another is the incremental restructuring, which occurs with the the flow, the magnitude of changes, speed and direction based on the structure of certain stocks. But for the present circumstances, the one hand is the credit markets (ie banking channels), mainly through commercial bank loans way which have allocated funds for different sectors; the other hand is a direct financing channels (stock market), through the issuance of securities in the primary market and transactions in the secondary market for companies to raise the necessary funds, and adjust the flow of funds through the market mechanism. Specific mechanism structure drawing as follows Figure I. This figure excerpts from "the mechanism analysis of the adjustment of industrial structure with the financial impact," Fu Jin, Wu Xiaoping[3].

Table 1 Variables of the adjustment of the industrial structure with the financial support in Hebei province

| Year | Y ₁ | Y ₂ | X ₁ | X ₂ | X ₃ |
|------|----------------|----------------|----------------|----------------|----------------|
| 1994 | 0.481428 | 0.311983 | 1.030113 | 17.37151 | 0.581424 |
| 1995 | 0.464208 | 0.314232 | 0.846646 | 4.569542 | 0.879295 |
| 1996 | 0.482081 | 0.314923 | 0.814446 | 40.44518 | 0.916417 |
| 1997 | 0.489248 | 0.318085 | 0.830629 | 108.2551 | 0.958867 |
| 1998 | 0.489738 | 0.324501 | 0.822960 | 90.63982 | 1.049098 |
| 1999 | 0.484825 | 0.336634 | 0.830566 | 63.12052 | 1.113936 |
| 2000 | 0.498608 | 0.337919 | 0.745675 | 69.0396 | 1.099029 |
| 2001 | 0.488807 | 0.345549 | 0.741362 | 24.62786 | 1.110162 |
| 2002 | 0.483808 | 0.357203 | 0.734951 | 44.15597 | 1.139056 |
| 2003 | 0.493775 | 0.352489 | 0.709528 | 14.28549 | 1.151495 |
| 2004 | 0.507421 | 0.335274 | 0.665111 | 31.38401 | 1.091100 |
| 2005 | 0.526519 | 0.33365 | 0.595938 | 1.193555 | 1.075191 |
| 2006 | 0.532843 | 0.339684 | 0.590512 | 19.74607 | 1.094529 |
| 2007 | 0.529265 | 0.338106 | 0.584986 | 28.94751 | 1.054990 |
| 2008 | 0.543427 | 0.329506 | 0.533813 | 31.40694 | 1.105986 |
| 2009 | 0.519848 | 0.352082 | 0.586896 | 36.49449 | 1.297403 |
| 2010 | 0.530061 | 0.343049 | 0.603690 | 56.01299 | 1.292215 |
| 2011 | 0.540614 | 0.339456 | 0.613724 | 182.5971 | 1.220223 |

Note: Data from 1995-2012 Finance Yearbook of Hebei province.

In this paper, the selected variables of the industrial structure: Y₁= the gross of the secondary industry/GDP,

Y_2 = the gross of the tertiary industry[4]; Financial support variables : X_1 = Loans / Deposits, X_2 =the amount of direct financing/GDP, X_3 = Savings rate.As is shown in Table 1.

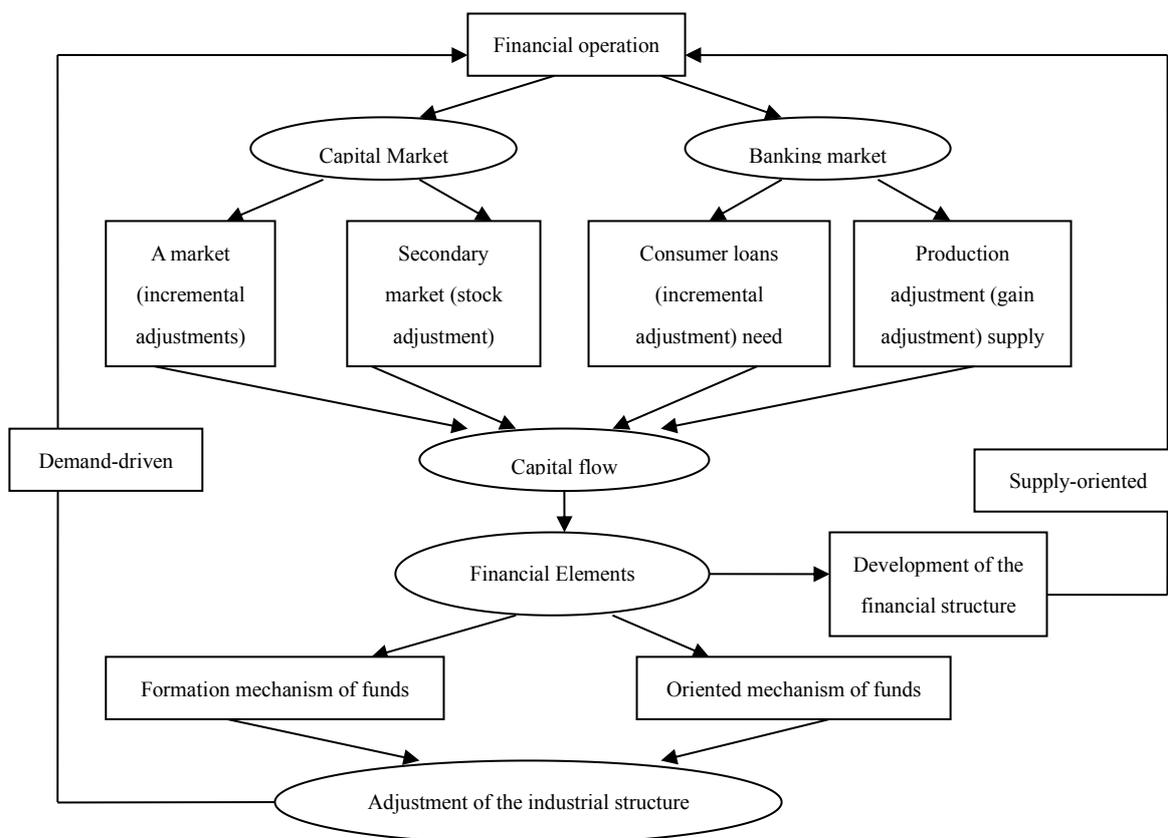


Figure 1 Specific mechanism structure drawing of the adjustment of the industrial structure with the financial support

The following is the descriptive analysis of variables of the adjustment of the industrial structure with the financial support in Hebei province, such as Table 2 .

Table 2 Descriptive analysis of variables of the adjustment of the industrial structure with the financial support in Hebei province

| Variables | Mean | Standard deviation | Max | Min | Observations |
|-----------|----------|--------------------|----------|----------|--------------|
| Y_1 | 0.504807 | 0.024177 | 0.543427 | 0.464208 | 18 |
| Y_2 | 0.334685 | 0.013548 | 0.357203 | 0.311983 | 18 |
| X_1 | 0.715641 | 0.130137 | 1.030113 | 0.533813 | 18 |
| X_2 | 48.01629 | 44.00248 | 182.5971 | 1.193555 | 18 |
| X_3 | 1.068356 | 0.16332 | 1.297403 | 0.581424 | 18 |

Note: Data from 1995-2012 Finance Yearbook of Hebei province.

Then, we make the correlation analysis about the adjustment of the industrial structure with the financial support in Hebei province with the excel, such as Table 3 . Obtained from Table 3: There is the negative correlation between Y_1 , Y_2 and X_1 , which shows that it is not optimizational for secondary industry and tertiary-industry when we change deposits into loans, but inhibits their optimization .Loans which flow into the secondary and tertiary industries are not lending to optimize the industrial structure upgrading industries but into the industries of the big profit that is precisely high polluting industries or surplus industry sectors. The incremental adjustment of funds is not conducive to optimizing the industrial structure, and the upgrading and optimization of the industrial structure is not conducive to change deposits into loans at the same time. Y_1 , Y_2 and X_3 have the positive correlation, which shows that savings rate is conducive to optimizing the industrial structure and the adjustment of t secondary and tertiary industries is also conducive to the growth of savings rate, while it supports money enough. Y_1 has a positive correlation with X_2 , which indicats that the direct financing promotes the industrial to upgrade, while the increasing value of the secondary industry is also conducive to the development of direct financing. It shows the negative correlation between Y_2 and X_2 ,

indicating that direct financing is not conducive to the transformation and upgrading of tertiary industry, while tertiary industry also plays a certain extent of direct financing, we can say the incremental adjustment mechanism of funds is difficult to impact the tertiary industry. There is Probably companies of the high quality in the secondary industry which attracts more idle funds, and it is difficult to find high-quality corporate in the tertiary industry, thus directly form a vicious cycle, and then result the final result now.

Table 3 Correlation analysis about the adjustment of the industrial structure with the financial support in Hebei province with the excel

| Variables | Y ₁ | Y ₂ | X ₁ | X ₂ | X ₃ |
|----------------|----------------|----------------|----------------|----------------|----------------|
| Y ₁ | 1 | | | | |
| Y ₂ | 0.353166 | 1 | | | |
| X ₁ | -0.86795 | -0.5854 | 1 | | |
| X ₂ | 0.185519 | -0.0116 | -0.00321 | 1 | |
| X ₃ | 0.550294 | 0.801028 | -0.77449 | 0.261351 | 1 |

Note: Data from 1995-2012 Finance Yearbook of Hebei province.

In order to better analyze the impact of various indicators of financial support among the adjustment of the industrial structure in Hebei Province, and then to optimize the industrial structure according with our target of the upgrading and optimization[5]. The dependent variable: Y₁, Y₂; Independent variables: X₁, X₂, X₃ Therefore, empirical model (1) and (2).

$$Y_1 = A_1 + B_1 X_1 + C_1 X_2 + D_1 X_3 + E_1 \quad (1)$$

$$Y_2 = A_2 + B_2 X_1 + C_2 X_2 + D_2 X_3 + E_2 \quad (2)$$

According to the model (1) and (2) obtained Table 4, we performed regression analysis. We can get each additional unit of X₁ which will make the reduction of 0.21 units Y₁. It explains that the loan / deposit ratio does not make the secondary industry / GDP increase, but reduce. Each additional unit of X₂ will increase 8.13E-05 units of Y₁, which shows that the amount of direct financing/GDP is helpful to adjust the industrial structure of the second structure. One unit X₃ will gain 0.12 units of Y₁. The savings rate help promote optimal adjustment of the secondary industry. The impact of the variables Y₂ of the financial support is relatively smaller, whether it is positive or negative. For example, the coefficient of X₁ to Y₂ is -0.05451, which illustrates the effect is negative and the relative size of the impact is smaller.

Table 4 Regression analysis about the adjustment of the industrial structure with the financial support in Hebei province with the excel

| Variables | R-Square | Intecept | Slope | Observations |
|--------------------------------|-------------|-------------|----------|--------------|
| Y ₁ *X ₁ | 0.870899035 | 0.653225261 | -0.21092 | 17 |
| Y ₁ *X ₂ | 0.022570112 | 0.502129671 | 8.13E-05 | 17 |
| Y ₁ *X ₃ | 0.326955422 | 0.371303725 | 0.122952 | 17 |
| Y ₂ *X ₁ | 0.211454978 | 0.374023012 | -0.05451 | 17 |
| Y ₂ *X ₂ | 0.008878755 | 0.33735325 | -2.7E-05 | 17 |
| Y ₂ *X ₃ | 0.651549493 | 0.236153886 | 0.091036 | 17 |

Note: Data from 1995-2012 Finance Yearbook of Hebei province.

The above regression analysis, we make is static, but the reality is dynamic. To make the test more actual, we can modify the above empirical model (1) and (2) to the following model (3) and (4). The dependent variable: Y₁, Y₂; Independent variables: X₁, X₂, X₃; Lagged variables: Y₁ (-1), Y₂ (-1); Constant terms: A₃, A₄; Error correction value: E₃, E₄.

$$Y_1 = A_3 + F_3 Y_1(-1) + B_3 X_1 + C_3 X_2 + D_3 X_3 + E_3 \quad (3)$$

$$Y_2 = A_4 + F_4 Y_2(-1) + B_4 X_1 + C_4 X_2 + D_4 X_3 + E_4 \quad (4)$$

According to the model (3) and (4), we use eviews to make the GMM test with the variable Y (-1) to obtain the data as Form 5. There is the difference between Table 4 and Table 5, which also highlights the need for the dynamic test, and illustrates the size and the direction of the effect of the variables of the financial support for the adjustment of the industrial structure. The coefficient of X₁ to Y₁ is -0.07, and the direction is negative, but the data is much smaller than the data in the Table 4. However, X₂ and X₃ to Y₁ are not the case, their direction

is positive, the test results in Table 4 are the same to them, but the coefficients are increased, indicating that the effect gains a lot. It is significantly different from Table 4. The coefficients of X_1 , X_2 to Y_2 are different, the direction of action are not the same, and the role of great influence were 0.49, 0.69. X_1 and X_2 are apparently significant roles in promoting Y_2 . Though the role does not change the direction of the X_3 but its effect has undergone great changes, indicating that their dynamics play an important role in it.

Table 5 Dynamic regression analysis about the adjustment of the industrial structure with the financial support in Hebei province with the eviws

| Variables | R-Square | Intecept | Y (-1) Slope | XSlope | Observations |
|-------------|----------|-----------|--------------|-----------|--------------|
| $Y_1 * X_1$ | 0.819847 | 0.180574 | 0.745503 | -0.070512 | 17 |
| $Y_1 * X_2$ | 0.678183 | -0.044860 | -6.15E-05 | 1.102257 | 17 |
| $Y_1 * X_3$ | 0.564216 | -0.115168 | -0.094492 | 1.442226 | 17 |
| $Y_2 * X_1$ | 0.544170 | 0.183035 | -0.016072 | 0.490990 | 17 |
| $Y_2 * X_2$ | 0.573262 | 0.102620 | 2.02E-06 | 0.697659 | 17 |
| $Y_2 * X_3$ | 0.573262 | 0.102620 | 2.02E-06 | 0.697659 | 17 |

Note: Data from 1995-2012 Finance Yearbook of Hebei province.

CONCLUSION

Through the above analysis we can get the variables of the financial support are correlated with the variables of the adjustment of the industrial structure, which is positive or negative but the size of the impact of structural adjustment with the financial support is not the same, we get the overall description in the Form 3. From the Form 3, we can get that the financial support is very helpful in some ways, hindering the adjustment of industrial structure in certain aspects, which provides a detailed conclusive data for us to make us recognize the adjustment of industrial structure with the financial support.

According to the results of correlation analysis and regression analysis, there are several aspects of the proposals.

The first, with the different period of the financial support, the role of financial instruments is not the same, such as X_1 , X_2 in a short period plays a negative role to Y_2 , but in the long run (that is dynamic regression analysis) they have a positive effect on Y_2 . This suggests that we make the reform of the interest rate steadily with the market-based allocation of funds. According to the different stages of market development we adopt different means, although it may cause some losses in the short term but in the long run can effectively promote enterprise in the choice of financing channels and optimizing the financing structure[6]. which improves financing efficiency, and further strengthen financial efforts to support the real economy.

The second, the effect size of the same financial support tools for the second and tertiary industries is not the same, tools which we should choose according to our target. For example, in a dynamic regression, effect sizes of X_1 on Y_1 , Y_2 are -0.07, 0.49. Therefore, we should have a choice of financial support tools for the adjustment of the second industry and tertiary industry. Especially small and micro enterprises in the tertiary industry, according to the characteristics of the financial needs of small and micro enterprises in different industry categories, financial institutions have to provide financing, billing, financial management, consulting and other comprehensive financial services to small and micro enterprises[7]. Gradually we promote the securitization of credit assets conventional development, revitalize the funds to support small and micro enterprises and the economic restructuring.

The third, in the static regression, X_1 on Y_1 , Y_2 will play a negative role, which warn us that the incremental funding mechanism does not achieve its effects, which is likely that the money is used in the backward production capacity, high energy consumption, high pollution enterprises, and then result negative effects. In the market guidance, we make the integration of backward production capacity of enterprises. We may support high-tech enterprises to achieve the transformation and upgrading of the industrial structure with exploring the issue of preference shares by directional M & A loans, appropriate to extend the term of the loan, etc[8].

REFERENCES

- [1] Zou Jing, Wang Qing. *Commercial Research*, 2012(3): 27-35.
- [2] Li Qunfeng *Statistics and Decision*, 2010, Section 16: 161-163.

-
- [3] Fu Jin, Wu Xiaoping, Analysis of the industrial restructuring mechanism with the financial impact , *Economy and Finance*, **2005**, the second phase: 30-34.
- [4] Wu Xiaoxia *Economic Survey*, **2014**, January, Volume 31, Phase 5-8.
- [5] Sonia Labatt, Rodney R.white. A guide to environmental risk: assessment and financial products. Published by John Wiley&Sons, Inc .,Hoboken, NewJersey.Canada.**2002**(1):15-32.
- [6] Adil Najam . *Progress in Development Studies*.**2002**(2):150-162.
- [7] Liu Xiaoxuan, Zhou Xiaoyan . *Journal of Financial Research* . **2011** (2): 57-70.
- [8] Raymond W. Goldsmith, Financial Structure and Financial Development Shanghai Joint Publishing, Shanghai **1994**,121-134 .