ISSN 2616-7433 Vol. 2, Issue 4: 22-24, DOI: 10.25236/FSST.2020.020405

Research on the Dynamic Mechanism of Financial Development and Industrial Structure Upgrading based on VAR Model--Data from Hunan Province 1990-2017

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ABSTRACT. *This paper uses financial development scale (FIR) and financial development ratio (FE) as two important indicators of financial development to examine their impact on industrial structure upgrading (ISU). Meanwhile, with reference to the statistical data of Hunan Province from 1990 to 2017, the paper establishes time series and VAR model to explore the interaction between regional financial development and industrial structure upgrading, and puts forward corresponding countermeasures and suggestions, so as to provide decision-making basis for promoting financial development and industrial structure upgrading in Hunan Province.*

KEYWORDS: *Financial development; Industrial structure; Var model*

1. Empirical score

1.1 Unit Root Test

According to the AIC and SC minimum principle, the maximum lag order is determined as 2 (as shown in Table 1).

Table 1 Test Results of Optimal Lag Order

Lag	LogL	LR	FPE	AIC	SC
0	85.66682	NA	3.47e-07	-6.358986	-6.213821
1	155.1441	117.576*	3.34e-0*	-11.01109	-10.43043
2	163.3933	12.05652	3.66e-09	-11.95333*	-10.937176*

By using Eviews 8.0 software and ADF test method, the stationarity of each sequence is tested. All variables in the model conform to I (1) process. The results are shown in Table 2.

Table 2 Stationarity Test of Each Time Series

Variable	ADF value	1%critical value	5%critical value	10%critical value	Conclusion
lnFE	-0.313171	-2.653401	-1.953858	-1.609571	Nonstationary
ΔlnFE	-3.700608	-3.711457	-2.981038	-2.629906	Stability
lnFIR	-1.946073	-2.653401	-1.953858	-1.609575	Nonstationary
ΔlnFIR	-5.349097	-3.711457	-2.981038	-2.629906	Stability
lnISU	-1.113599	-3.699871	-2.976263	-2.627420	Nonstationary
ΔlnISU	-3.402312	-3.711457	-2.981038	-2.629906	Stability

Note: Δ represents the first-order difference of variable

1.2 Var Model

On the basis of determining the lag order of the model, the VAR model is constructed, and the fitting results are shown in Table 3. The equation var (3) is obtained as follows:

ISSN 2616-7433 Vol. 2, Issue 4: 22-24, DOI: 10.25236/FSST.2020.020405

*LNISU=1.242152*LNISU(-1)-0.524019*LNISU(-2)+0.015555*LNFIR(-1)-0.001381*LNFIR(-2)-0.010788LNFE(-1)+0.077097LNFE(-2)-0.046481*

Table 3 Var Fitting Results

	LNFE	LNFIR	LNISU
LNFE(-1)	0.973523	-0.088590	-0.010788
	(0.21933)	(0.26271)	(0.05568)
	[4.43865]	[-0.33721]	[-0.19375]
LNFE(-2)	-0.312055	-0.140290	0.077097
	(0.20216)	(0.24215)	(0.05132)
	[-1.54359]	[-0.57936]	[1.50223]
LNFIR(-1)	-0.159092	0.749277	0.015555
	(0.18787)	(0.22503)	(0.04769)
	[-0.84681]	[3.32964]	[0.32615]
LNFIR(-2)	0.308095	0.068059	-0.001381
	(0.20296)	(0.24310)	(0.05152)
	[1.51801]	[0.27996]	[-0.02680]
LNISU(-1)	0.671577	0.369900	1.242152
	(0.74604)	(0.89360)	(0.18939)
	[0.90019]	[0.41394]	[6.55864]
LNISU(-2)	0.163482	0.676138	-0.524019
	(0.79772)	(0.95551)	(0.20251)
	[0.20494]	[0.70762]	[-2.58759]
C	0.266135	0.168256	-0.046481
	(0.11760)	(0.14087)	(0.02986)
	[2.26297]	[1.19444]	[-1.55687]

It can be seen from the above table that the scale and ratio of financial development in lag phase 1 and lag phase 2 have no significant impact on the optimization of industrial structure. With the extension of lag phase, the relationship between industrial structure adjustment and financial ratio has been strengthened.

1.3 Analysis of Impulse Response Function

In this paper, impulse response function is used to analyze the VAR model. The results are shown in Figure 1:

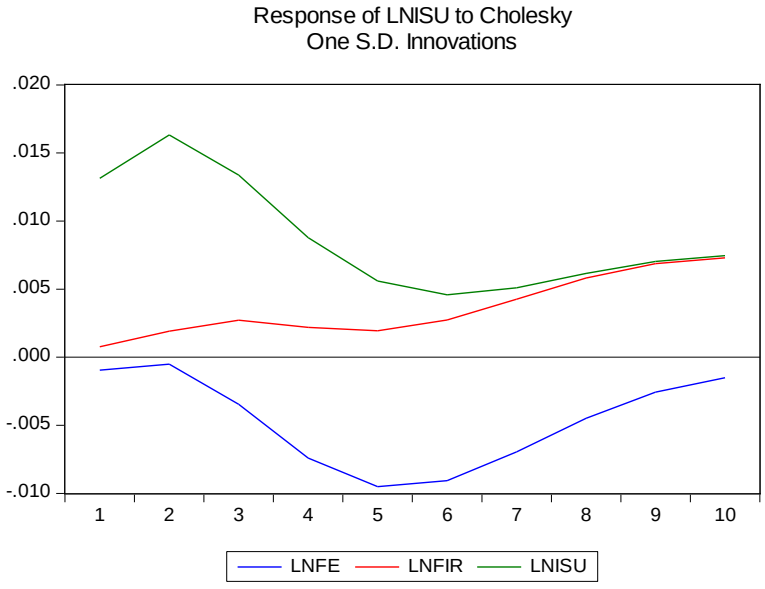

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Figure.1 Impulse Response Function

It can be seen from the impulse response function diagram in Figure 1 that after Lnisu is impacted by a positive impact of Lnfir, Lnsiu always keeps a positive value, and Lnisu continues to rise steadily from the first phase to the ninth phase, which indicates that the impact of financial development scale on industrial structure upgrading is always positive. After Lnisu is impacted by lnfe, Lnisu always keeps a negative value, indicating that the loan deposit ratio has a reverse effect on the upgrading of industrial structure; Lnisu remains stable in the first two phases, gradually increases in the third phase, and reaches the maximum in the fifth phase, indicating that in the fifth phase, the loan deposit ratio has the greatest impact on the upgrading of industrial structure, and then the curve gradually closes to 0, showing a "U" effect as a whole.

2. Conclusions and Suggestions

This paper uses VAR model to analyze 1990 From 2017 to 2017, the long-term dynamic equilibrium relationship between financial development and industrial structure optimization in Hunan Province was found. It was found that the scale of financial development in Hunan Province was positively related to the upgrading of industrial structure, and the financial development ratio was negatively related to the upgrading of industrial structure. Financial development in Hunan Province promoted industrial adjustment and optimization, realized the effective allocation of capital, and improved the ratio of financial development.[2] Accordingly, the author puts forward corresponding countermeasures and suggestions. Firstly, it's necessary to improve the system construction and financial supervision, that is, to make further plans for the development of the financial industry in Hunan Province, make it clear to cultivate and support the financial industry as a strategic pillar industry of Hunan Province, and enhance the position of financial development. Secondly, it's necessary to promote regional financial cooperation and innovation. We will promote regional cooperation with developed financial regions such as the Pearl River Delta and the Yangtze River Delta, accelerate the construction of regional financial institutions for small and medium-sized enterprises, and promote more standardized investment and financing. Thirdly, it's necessary to accelerate the construction of financial centers. We will build regional financial centers, strengthen the introduction of financial institutions, guide domestic and foreign financial institutions to set up branches in Hunan, support local financial institutions in Hunan Province to become bigger and stronger, and strive for more financial institutions to set up headquarters in some cities including Changsha, Zhuzhou and Xiangtan.

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