Institutions, Financial Development and Economic Growth

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Abstract: Based on the data of provinces in 1998-2017 in China, the paper uses dynamic panel threshold model to explore the relationship between institution, financial development and economic growth with marketization process as institutions. The results show that the impact of institutions and financial development on economic growth has a threshold effect. Under low institutions quality, There is a negative impact of institutions and financial development on growth. Under high institutions quality, the negative impact of financial development on economic growth becomes smaller and insignificant. The development of the stock market can promote economic growth more effectively than the development of the banking industry.

1. Introduction

Since the 1990s, how the institution affects the relationship between financial development and economic growth has become one of the hot spots in academic circles. The relationship between institution, financial development and economic growth may be affected by the quality of the institution. China's market-oriented reform may directly affect economic growth, or it may indirectly regulate the complex relationship between financial development and economic growth. Further exploration of the relationship between them can provide theoretical support for finance to serve the economy more effectively.

The services provided by financial intermediaries are conducive to centralized savings, project evaluation, risk management, supervision of managers, and convenient transactions, which are conducive to technological innovation and economic growth. Levine (1998) found that the development of financial intermediaries and the increase in liquidity of the stock market are positively correlated with long-term economic growth, and are conducive to capital formation and production efficiency Even if we control the political factors and other factors that affect economic growth, we can still get the same conclusion. The study of Rajan and Zingales (1998) also found that financial development reduced the external financing costs and incomplete information of enterprises. The financial market will affect investment and economic growth. Some economists believe that financial development is only the result of economic development. Financial development is only a passive response to economic development. The relationship between financial development and economic growth has been exaggerated by economists.

Empirically, Law et al (2013) use the instrumental variable method and find when the system quality reaches a certain threshold, financial development does not exist for economic growth. Significant positive impact. When the quality of the system is below the threshold, there is no significant effect of financial development on economic growth. Williams (2019) studies emerging economies. Based on the dynamic panel GMM method, it is found that the development of the system not only directly promotes economic growth, but also the indirect adjustment of the system weakens the negative impact of financial development on economic growth. Law et al (2018) found that the system played an important role in regulating the relationship between financial development and economic growth. Financial development, the square of financial development and its interaction with the system to analyze the regulatory role of the system, found that financial development and its interaction with the system has a positive impact on economic growth, the square of financial development and its interaction with the system has an effect on the economy The negative impact of growth indicates that the system has direct and indirect impacts, which strengthens the role of financial development in economic growth. Slesmana et al (2019) used the

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dynamic panel threshold model method to study the role of political institutions in the impact of financial development on economic growth, and found that when institutions are below the threshold, financial development has a smaller or even negative effect on economic growth, and Not significant, when the system threshold reaches the threshold, financial development has a more significant positive impact on economic growth.

This article chooses a threshold regression model to capture the piecewise linear relationship between institution, financial development and economic growth. The economic growth model uses a dynamic model, there must be endogenousness. In addition to the inherent endogenousness of the dynamic model, institutional and financial development itself may also be causal to the economic development, a dynamic panel threshold model using systematic generalized moment estimation (SYS-GMM) to conduct empirical research on this issue in order to get accurate result.

2. Model, Method and Data

2.1 Model Settings and Description

When analyzing the impact of financial development on economic growth, most of the literature adopts the following forms (such as Levine and Zervos, 1998):

$$y_{it} = \rho y_{it-1} + \beta FD_{it} + \lambda INS + \delta X_{it} + \alpha_i + \gamma_t + \varepsilon_{1it} \tag{1}$$

Among them, y represent the logarithm of real GDP per capita, FD represents financial development, INS represents system, X is a series of other control variables that affect economic growth. According to relevant literature, it mainly includes labor force growth rate, human capital, investment, economic openness, currency Expansion rate, government expenditure, FDI, etc. In addition to analyzing the impact of financial development on economic growth, this paper also analyzes the impact of institutions on economic growth. The main explanatory variables are institutional INS and financial development FD. T

To estimate whether the non-linear relationship between financial development and economic growth is affected by the system, a dynamic panel data threshold model is used:

$$\begin{aligned} y_{it} - y_{it-1} = {} & \alpha_i + \gamma_t + (\beta_1 FD_{it} + \lambda_1 INS_{it}) * I(\ INS_{it} \le \theta) + \\ & (\beta_2 FD_{it} + \lambda_2 INS_{it} + \mu_2) * I(INS_{it} > \theta) + (\rho - 1) y_{it-1} + \delta X_{it} + e_{it} \end{aligned} \tag{2}$$

2.2 Estimation Method

To more accurately estimate the equation, it is also applied The horizontal variable is used as the tool variable of the difference variable. It makes full use of the information of the horizontal equation and the difference equation. In order to avoid the problem of too many tool variables, the lag length of the relevant variable is controlled when estimating. For specific estimation, refer to the estimation process of Arčabić et al (2018), and sort by INS size. In order to ensure that the two mechanisms have enough samples, take the value in the range of 10%-90% as the threshold value to perform a loop search, using the system GMM Method to estimate the model and get the over-identified Hasen test value,Choose the smallest INS as the threshold estimate θ.Since the threshold parameter only exists under the alternative hypothesis, it is unrecognizable. When judging the results of the model, the wild bootstrap is repeated 1000 times to obtain the distribution of the threshold value, and then the confidence interval and the accompanying probability of the threshold value are obtained. Once the threshold estimate is determined, the sample can be divided into two parts.Finally, the estimated model is tested for the validity of instrument variables and serial correlation.

2.3 Variable Description and Data Source

This article selects panel data of 30 provinces and cities except Tibet for a total of 20 years from 1998 to 2017, the variables are described as follows:

2.3.1 Explained variable: the real GDP growth rate.

Explanatory variables: financial development, select three types of bank development indicators and stock market indicators, 1. financial depth = ratio of various loan balances of financial institutions to GDP; 2. financial related ratio = deposit and loan balances as a proportion of GDP; 3. Financial Constraint Ratio = total loans accounted for the proportion of total deposits; 4. Stock market width = number of companies listed on the Shanghai and Shenzhen Stock Exchanges; 5. Total stock market size = stock market value as a percentage of GDP; 6. Circulation stock market size = stocks The market value of market circulation as a proportion of GDP. Represented by FD1, FD2, FD3, FD4, FD5, FD6 respectively.

2.3.2 Threshold variable: marketization process

Control variables: population growth rate POP in each region, human capital EDU, capital formation ratio of GDP k. Total imports and exports accounted for IMEX as a share of GDP, FDI as a share of GDP in FDI, inflation rate PI, and initial per capita income INI_Y. All data are calculated based on the actual value of 2000 as the base period, indicated by lowercase letters.

3. Empirical Results

Annual data is susceptible to economic cycles and economic fluctuations. Relatively long-term data can smooth economic fluctuations. A systemic GMM is requiring large N and small T data. Considering that the data time span is not too long, take the 4-year average, such as Law et al (2018) also take the 4-year average, and finally include 1998-2001, 2002-2005, 2006-2009, 2010-2013, 2014-2017, A total of 150 sets of data from 30 provinces and cities during this period. To avoid the problem of excessive tool variables, set the maximum tool variable lag to 2.The results are shown in Table 1.

Table 1 Estimation Results of Dynamic Panel Threshold Model

	(1)	(2)	(3)	(4)	(5)	(6)
	fd1	fd2	fd3	fd4	fd5	fd6
fd_1	-0.011	-0.003	-0.075**	0.971	-0.008***	-0.004**
	(-1.53)	(-0.92)	(-2.65)	(1.06)	(-4.21)	(-2.18)
ins_1	-0.018	0.013	0.015	-0.137	-0.098	-0.106
	(-0.07)	(0.05)	(0.07)	(-0.47)	(-0.41)	(-0.44)
intercept	13.296**	12.784*	9.152	18.210*	10.220**	10.024*
	(2.31)	(1.94)	(1.59)	(1.85)	(2.12)	(2.00)
fd_2	-0.007	-0.002	-0.055	1.828***	-0.001	0.0004
	(-1.27)	(-1.23)	(-1.69)	(3.58)	(-0.39)	(0.33)
ins_2	0.940*	0.947	0.596*	0.876	0.642*	0.619
	(1.80)	(1.62)	(1.80)	(1.41)	(1.71)	(1.58)
lnk1	3.512***	3.359***	3.734***	3.796***	2.904**	2.794**
	(2.96)	(2.79)	(4.43)	(3.08)	(2.74)	(2.54)
lnedu	1.632	2.211	-3.025	1.817	1.313	1.376
	(0.69)	(0.92)	(-0.89)	(0.58)	(0.53)	(0.54)
lnrpop	-0.626***	-0.642***	-0.738***	-0.536**	-0.631***	-0.560***
	(-3.25)	(-3.18)	(-4.32)	(-2.67)	(-4.29)	(-3.21)
lnrimex	0.333	0.254	-0.106	-0.278	0.203	0.140
	(1.65)	(1.27)	(-0.53)	(-1.21)	(1.10)	(0.64)
lnrfdirmb	0.714**	0.738**	0.531**	0.763**	0.799***	0.802***
	(2.45)	(2.63)	(2.55)	(2.74)	(2.86)	(3.02)
pi	-0.033	0.099	0.020	0.181	0.110	0.064
	(-0.21)	(0.61)	(0.12)	(0.89)	(0.72)	(0.36)
lnini_y	-1.171	-1.225	-0.028	-0.940	-0.995	-0.822
	(-1.33)	(-1.43)	(-0.04)	(-0.90)	(-1.27)	(-0.97)
_cons	-7.035	-6.901	-3.041	-24.201**	-2.581	-3.467
	(-0.84)	(-0.73)	(-0.50)	(-2.46)	(-0.39)	(-0.51)
period effect	yes	yes	yes	yes	yes	yes
threshold	11.563***	11.563***	11.877***	12.710***	11.877***	11.877***
N	150	150	150	150	150	150
AR(2)	0.476	0.516	0.330	0.430	0.444	0.475
Sargan	0.473	0.307	0.643	0.178	0.609	0.416

Note: t statistic value in parentheses, * p<.10, ** p<.05, *** p<.01 , All models control the time effect. _1 represents the coefficient corresponding to low institutional quality, _2 represents the coefficient corresponding to high institutional system.

From the comparison of models (1)-(6), the results obtained by using different financial development indicators are different, but there is one thing in common: no matter which financial development indicator is used, the financial development of low institutional quality has an impact on economic growth. Negative impact, under high system quality, the negative impact will become smaller, if it is positive impact, the positive impact will become larger, and even the negative impact may become a positive impact, such as financial Development is an insignificant negative impact at low institutional quality, and it becomes a positive impact at high institutional quality. The stock market width significantly promotes economic growth under higher market institutional quality. These results show that higher institutional quality is conducive to the role of financial development in financial growth, or that financial development stimulates economic growth depends on higher institutional quality and institutional reforms.

According to the impact of the system corresponding to the models (1)-(6), under the higher marketization process, the increase in the degree of marketization significantly promotes economic growth, and at the lower degree of marketization, the promotion of marketization to economic growth The overall stimulus effect is not significant, and the impact is positive and negative. The possible reason is that when the quality of the system does not reach a certain threshold, the relevant market-oriented system reform cannot form a joint force without supporting, and become a manager’s plan. Profit tool, therefore, continue to promote systematic market-oriented reforms to allow the economy to enjoy institutional and market-oriented dividends.

From the point of view of control variables, there is convergence in economic growth, a higher initial income per capita, and a lower economic growth rate in the future, but not significant. In most cases, the economic stability represented by the inflation rate contributes to economic growth, and the overall direction of economic growth is positive, but not significant. The increase in capital formation and FDI significantly promoted economic growth, reflecting the characteristics of China's economic growth investment drive. The increase in the degree of economic openness and education has promoted economic growth, but it is not significant. The possible reason is that China’s education quality has not promoted innovation significantly, and it has not significantly promoted China’s economic growth. The reason for the economic openness may not be The correlation is high (the highest correlation coefficient among all variables is 0.58), and the impact of population on economic growth is significantly negative, which is consistent with most research results, which may be due to the rapid economic growth that reduces the public's willingness to bear children, resulting in a population The growth rate decreases.

From the perspective of the difference in the impact of financial development, the stock market has a greater role in promoting economic growth than bank financial development. Whether it is under low or high system quality, the impact coefficient of bank financial development on economic growth is less than that of stock market development on economy. The coefficient of influence of growth. The robustness results show that the financial development indicators are replaced by financial depth indicators into financial breadth indicators and financial constraint indicators, and the estimated results have not changed substantially. Replacing financial development indicators with the size of the stock market, the total market value or the market value of circulation as a percentage of GDP, the results have changed significantly. For example, under the higher system quality, the increase in the stock market width significantly promotes economic growth. Under the low-quality system, the increase in the total market value of the stock or the market value of the circulation significantly hinders economic growth, which may be due to the limited market share under the low system quality Resources, so that the funds are separated from the real ones.

4. Policy Suggestion

Empirical evidence shows that low-quality systems hinder economic growth, and high-quality systems are conducive to economic growth. When a region has better system quality, it can better obtain the spillover effect of financial development. When the system quality is poor, financial development may not be conducive to economic growth. Specific policy recommendations are:

First, when the government adopts financial reforms to promote economic growth, it should

increase the level of institutional development, such as strengthening legal rules, reducing corruption, and improving government governance efficiency and transparency, so as to obtain the spillover effect of financial sector reforms on economic growth.

Second, there is a threshold effect on the relationship between financial development and economic growth affected by the quality of the system. Priority should be given to advancing the marketization process and system reform. In addition to continuing marketization reform, regions with high system quality can simultaneously promote financial development.

Third, the financial development represented by the stock market is more conducive to economic growth. When advancing financial reforms, the focus of financial development should be on the stock market.

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