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Research on the Impact of Financial Structure on Economic Growth

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Abstract

Financial support for economic growth is an important lever for developing countries to enhance their international competitiveness. This article selected provincial panel data from 31 provinces in China from 2006 to 2022. Research the impact mechanism of financial structure on economic growth from both linear and nonlinear perspectives. The linear research results indicate that market-oriented financial structures can effectively promote economic growth and have a robust impact. The non-linear research results indicate that the impact of market-oriented financial structures on economic growth is influenced by the non-linear effects of the capital market and labor market. Specifically, with the improvement of the allocation efficiency of the capital market and labor market, the promoting effect of market-oriented financial structure on economic growth shows a first strengthening and then weakening effect.

Keywords: Financial structure, Economic growth, Linear influence, Nonlinear effects.

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1. Introduction

In the context of globalization, the economic growth of developing countries is particularly important in enhancing their comprehensive strength. Since the 1850s, insufficient savings have to some extent limited the economic development of developing countries. The academic community generally believes that lagging financial development and inefficient financial systems are the reasons that hinder economic development. In the 1860s and 1870s, some Western scholars began to explore the interrelationship between financial development and economic growth. They analyzed the mechanism of the impact of financial development on economic growth from different perspectives. Goldsmith (1969) He elaborated on the decisive role of financial growth in economic development, pointing out that the core of financial theory lies in revealing the factors that affect a country's financial structure. This includes the stock of financial instruments and financial flows, as well as how these two major economic factors interact to drive financial development. Given the certain connection between financial development and economic growth, there is no answer as to whether financial development drives economic growth or economic growth reflects financial development. According to the impact mechanism of financial development on economic growth, financial constraint theory suggests that the government provides rent for the financial and production sectors by implementing financial policies, stimulating economic growth. However, this will cause distortion in resource allocation. The government has provided "leasing" for banks and enterprises by reducing resident deposit interest rates and restricting lending rates, without considering the fairness and efficiency of "leasing". (Costanza, 1997). Traditional theory of the relationship between economic growth and financial development suggests that financial development has a positive promoting effect on economic growth. This theory provided a solid foundation for subsequent empirical research on the relationship between finance and economic growth. In summary, financial development and economic growth have special characteristics, and it is necessary to explore the relationship between them based on different levels of financial structure development.

When we look back at the history of financial development and economic growth in various countries, we can draw the following views. Firstly, the higher the level and level of development of the financial system, the more significant the level of economic development will also increase. Secondly, the manifestation of financial structure varies for different countries. For example, the financial structures of Germany and Japan are similar, both of which are "bank led", while the financial systems of the UK and the US are “market led”. (Zhang CS, Liu GC, 2015). At the same time, research on the relationship between the development level of a country's financial system and economic growth has a long history. However, there has been controversy in the academic community regarding this matter, and so far there has been no consensus. On the one hand, many scholars insist that the financial structure plays a crucial role in a country's economic growth (Allen and Gale,1997; Boot and Thakor, 2002); On the other hand, some scholars believe that it is not the

financial structure, but rather the depth of finance that has a significant impact on economic development (LaPorta et al., 2000).

Although there are many studies on the impact of financial structure on economic growth, a unified viewpoint has not been formed. Therefore, in response to the above differences, this article takes China, a developing country, as an example. Using provincial panel data from 2006 to 2022, conduct research on the impact of financial structure on economic growth. The specific research objectives are mainly carried out from two perspectives: linear and nonlinear. Firstly, from a linear perspective, the promotion effect of market-oriented financial structures on economic growth is studied. And the robustness of its impact effect is tested through endogeneity and robustness. Secondly, from a non-linear perspective, explore the impact of market-oriented financial structures on economic growth. Study whether the impact of market-oriented financial structures on economic growth is consistent in the process of improving the efficiency of capital market allocation and labor market allocation, respectively. If consistent, is there a difference in the degree of impact on the effect; If there is inconsistency, how will the specific impact be manifested.

2. Literature review

Adam Smith, the father of economics (1776) pointed out in his economic work "The Wealth of Nations" that benign banking activities can promote economic growth by improving the operational efficiency of the economy. This confirms the positive role of the banking industry as a financial intermediary in economic development. Schumpeter (1911) further elaborated on the impact mechanism of financial activities on economic growth. He believes that financial intermediaries play a great role in technological progress and economic growth by providing risk management services, savings mobilization services, project selection services, supervision and control services, and transaction promotion services. Smith and Schumpeter's research on the relationship between financial activity and economic growth mainly starts from the perspective of banks. Subsequent scholars have gradually shifted their attention to the capital market and found that as an important component of the financial system, the stock market has made up for the role that banks lack. In fact, these two have their own strengths and can complement each other. For example, the standardized operation of banks gives them an advantage in reducing the costs caused by market information asymmetry. The market-oriented operation of the stock market will give it more advantages in innovation and higher operational efficiency. Allen and Gale (1997) By comparing and analyzing the mixed ratios of financial intermediaries and financial markets in countries such as the UK and Germany, the following conclusions have been drawn. The financial services provided by financial intermediaries mainly in the banking industry are different from those in the financial market. At different stages of economic development, it is necessary to provide corresponding mixed services to achieve efficient operation of the economy. There are many studies by foreign scholars on

the impact of financial structure on economic growth, and a relatively mature theoretical system has also been formed. There are mainly two conclusions.

By comparing and analyzing the mixed ratios of financial intermediaries and financial markets in countries such as the UK and Germany, the following conclusions have been drawn. The financial services provided by financial intermediaries mainly in the banking industry are different from those in the financial market. At different stages of economic development, it is necessary to provide corresponding mixed services to achieve efficient operation of the economy.

There are many studies by foreign scholars on the impact of financial structure on economic growth, and a relatively mature theoretical system has also been formed. There are mainly two conclusions. One is a bank oriented financial structure. Some scholars have found that different oriented financial systems have their own advantages and disadvantages in savings mobilization, fund allocation, risk management, etc., which can have a direct impact on economic development. However, given the different focus of the discussion, some scholars believe that banks have advantages in operational efficiency, enterprise supervision, savings mobilization, resource allocation, etc., thus supporting a bank oriented financial structure. Gerschenkron (1962) is an early scholar who paid attention to the field of financial structure. The scholar suggests that when a country's economy is in the early stages of development, the banking sector has greater advantages compared to financial markets due to standardized and institutionalized operations. If an economy is not highly developed, the banking sector has a higher efficiency and role in transparency of enterprise information and repayment of loans than the market. In terms of enterprise supervision, Diamond (1984) In a bank led financial structure, banks have the right to access information about companies and executives. Furthermore, it can effectively supervise enterprises and improve governance efficiency by reducing supervision costs. Stiglitz (1985) emphasized that due to mandatory requirements such as laws and regulations from regulatory authorities, listed companies listed on the stock market must regularly disclose information to the public. However, due to the dispersed equity of listed companies, investors with lower shareholding ratios do not have the motivation to spend time and cost to care about the company's operating conditions. As a result, there will be a phenomenon of free riding, which will also affect the efficiency of supervising enterprises. In this regard, the banking sector has an advantage over the financial market due to its standardized operation.

Another type is a market-oriented financial structure. The financial market plays a positive role in promoting technological progress, information disclosure, corporate mergers, and risk management by stimulating innovation. Therefore, they prefer market-oriented financial structures: firstly, in terms of innovation. Allen and Gale (2000) believe that encouraging enterprise innovation and supporting enterprise research and development are significant advantages of a market-oriented financial structure. Although both provide financial services to meet financing needs, the banking sector and financial markets are clearly different. In terms of investment in emerging industries, the market has a more significant investment advantage than

banks. However, banks usually do not choose to invest funds in innovative projects with high risk and uncertainty due to considerations of project risk and fund security. At this point, the financial market is the only source of funding for these high-risk projects. Therefore, when the financial market dominates the entire financial system, the evaluation of a project is determined by the market, and "survival of the fittest" can greatly promote innovation. Lin et al. (2013) also believes that the stock market will have more advantages in promoting technological progress and innovative development. Innovative projects with high risks and returns may find it difficult to obtain loans from banks, but they can raise the necessary funds in the stock market. By reviewing existing literature, we can see a basic fact. Financial development has a positive impact on economic growth, but from an empirical perspective, whether financial structure has a significant impact on economic growth. If there is an impact, scholars have not reached a consensus on which financial structure is more conducive to promoting sustained and healthy economic development. Against the backdrop of the current stage of economic development and the gradual increase in reform of the financial system. Whether to choose a bank led or market led financial structure is a question that must be answered in order to build a mature and complete financial system.

3. Theoretical mechanism analysis and research hypotheses

From a linear perspective, the impact mechanism of financial structure on economic growth is mainly reflected in optimizing industrial structure and promoting technological innovation. Firstly, financial structure has a positive significance in optimizing industrial structure and enhancing economic development level. The financial structure of a region plays an indispensable role in its development, and economic development is also influenced by the relative scale of various components within the finance sector (Xu and Tan, 2020). The development of various industries in the region requires a matching financial structure. With the development of the real economy, the internal financial structure will also be constantly adjusted and optimized, interacting and influencing with the industrial structure of the region. Specifically, the impact of financial structure on economic development is reflected in whether the financial system can allocate limited resources to the most productive enterprises and competitive industries. In the process of economic development, the industrial structures of different economies exhibit their own characteristics. The financial system must allocate financial resources in a reasonable and efficient manner to ensure sustained and stable operation under low-risk conditions. At the same time, individuals will fully utilize their resources to generate greater economic value, increase capital returns, and promote rapid economic development (Chen, 2021). Secondly, in any industry, there will be some pioneers innovating at the beginning. This process is also accompanied by the introduction of new technologies, and these leading companies often bear the early risks of the entire industry. External uncertainty outweighs profits, and the industry often forms a "wild goose formation" development pattern.

In the stock market, investors can enjoy the profits brought by the company's development and also bear the losses when the company loses money. Therefore, for listed companies, trading in the securities market can distribute risks to all investors. This can reduce the external uneconomical risks that companies face in the early stages of technological innovation (Chen et al., 2021). In this way, not only will the enthusiasm of enterprises for research and development improve, but their research and development capabilities will also be enhanced, ensuring the development of emerging industries by providing risk diversification mechanisms. However, in order to obtain financing through issuing stocks, the securities market has put forward high requirements for these enterprises, not only requiring them to form a certain scale, but also strictly regulating their information disclosure. A high threshold has been set for enterprises, especially small businesses in the early stages of technology research and development that urgently need financial support. In countries like China, local banks, rural banks, and private banks are widely distributed. They can utilize their geographical location to provide initial financing for the development of local small businesses and emerging industries, alleviating the financial pressure on these enterprises. When the enterprise has made breakthroughs in technology and has the willingness to expand its scale, it can then obtain loans from banks or choose to go public for financing (Laeven et al., 2015). Through analysis, we can conclude that adjusting the financial structure can improve the convenience for enterprises to obtain funds. Provide financial support for enterprise technological innovation, promote the development and maturity of technology, and thus drive economic development. This leads to the first Hypothesis of the text:

Hypothesis 1: A market-oriented financial structure helps promote economic growth.

From a non-linear perspective, financial structure has a positive impact on promoting the flow of funds and labor, and can have a positive impact on economic growth. Market oriented or bank led financial structures can optimize the allocation of limited funds and labor resources through their own advantages (Gerschenkron A., 1962), Maximizing the utilization value of resources to promote economic growth. For the capital market, bank intermediaries can accumulate more funds from customers and minimize risks. Banks can gather public funds at a lower cost by utilizing their own operational characteristics to form a relatively large and substantial pool of funds. At the same time, it can also reduce various risks faced by individual investors (Chen et al., 2021). In the communication and negotiation between the banking department and the demand side for funds, it has higher bargaining power and risk tolerance. Due to the ability of banks to obtain enterprise information at a lower cost and to efficiently and accurately screen and select projects. And be able to conduct comprehensive and continuous supervision of the flow of enterprise funds after the loan to ensure the safety and timely recovery of funds. Therefore, the banking sector can play a good intermediary role, reduce

friction, improve the efficiency of fund allocation, and promote sustained economic growth (Zhu et al., 2020). Financial markets can allocate existing resources at lower costs and higher efficiency, thus better serving the real economy. In the stock market, the automatic reallocation of funds is more efficient. The market value of underperforming enterprises will decrease, while the market value of high-quality enterprises will continue to steadily increase. The corresponding resources have also been allocated among different enterprises, industries, and industries. In this way, the invisible hand in the market enables enterprises that obtain funds to focus on their business, thereby promoting industrial development and bringing about economic growth. Therefore, the improvement of capital market allocation efficiency also affects the impact of market-oriented financial structures on economic growth. Based on this, a second research hypothesis is proposed:

Hypothesis 2: The promoting effect of market-oriented financial structures on economic growth is influenced by the efficiency of fund market allocation.

For the labor market, bank intermediaries provide financing to businesses to help them expand their business, innovate and develop investment projects. This financing support can promote the improvement of production capacity of enterprises, thereby creating more employment opportunities. When enterprises expand their scale and hire more labor, the employment opportunities in the labor market increase, and the income of workers also increases, thereby promoting overall economic growth (Diamond, 1984). And banks provide savings accounts and investment products for individuals and businesses, helping them plan financial goals and accumulate wealth. Individuals can increase their wealth accumulation through savings and investment, while businesses can expand their investment through bank financing. This accumulation of wealth and investment activities provides capital for the economy, promotes the development of productivity and innovation, and thus drives economic growth (Lin, 2013). The financial market supports enterprises in increasing their production and innovation capabilities by providing multiple financing channels, thereby creating more employment opportunities. When enterprises expand their scale and hire more labor, the employment opportunities in the labor market increase, and the income of workers also increases, promoting overall economic growth. Moreover, the financial market provides investors with diverse investment opportunities, including stocks, bonds, futures, etc. Investors provide financial support to enterprises by purchasing these financial assets, helping them achieve expansion and innovation (Laeven, 2015). The participation of investors promotes the effective allocation of resources and the flow of capital, stimulating the vitality and innovation ability of enterprises. This in turn drives the growth of the labor market and economic development. When information and demand in the labor market are effectively transmitted and reflected, enterprises and individuals can make more accurate employment, investment, and consumption decisions, thereby promoting economic growth (Liu et al., 2021). Therefore, the improvement of labor market allocation efficiency will also affect

the impact of market-oriented financial structures on economic growth. Based on this, a third research hypothesis is proposed:

Hypothesis 3: The promoting effect of market-oriented financial structures on economic growth is influenced by the efficiency of labor market allocation.

4. Empirical strategy

4.1 Model building

Regarding the first hypothesis of this article. This article constructs a benchmark regression equation to characterize linear features and examine the impact of financial structure on economic growth:

$$Pgdp_{it} = \alpha_0 + \alpha_1 Fs_{it} + +\eta_1 Control_{it} + \lambda_i + \delta_t + \varepsilon_{it} \quad (1)$$

In the formula (1), i represents the country, t represents time, and $Pgdp$ represents economic growth. Specifically, it refers to the level of economic development in China. Fs represents financial structure, specifically the level of development of market-oriented financial structures. $Control$ represents control variables, mainly including other variables that may affect economic growth, including: degree of openness to the outside world (Open), government expenditure (Gc), industrial structure (Is), consumer demand (Cd), and urbanization level (Urb). α_0 is the estimated coefficient, α_1 represents the coefficient to be estimated, η_1 represents the vector composed of estimated coefficients of control variables, λ_i is the fixed effect of provinces, σ_t is the fixed effect of years, and ε_{it} is a random disturbance term.

Considering that the efficiency of allocation in the capital market and labor market will affect the non-linear impact of financial structure on economic growth. Construct a threshold effect model for research hypothesis 2 and research hypothesis 3. Study the nonlinear impact of financial structure on economic growth under different efficiency of capital market allocation and labor market allocation. The specific threshold effect model is constructed as follows:

$$\begin{aligned} Pgdp_{it} &= \beta_0 + \beta_1 Fs_{it}(Cap < \mu_1) + \beta_2 Fs_{it}(\mu_1 \le Cap < \mu_2) \\ &+ \cdots + \beta_n Fs_{it}(Cap \ge \mu_n) + \eta_2 Control_{it} + \lambda_i + \delta_t + \varepsilon_{it} \end{aligned} \quad (2)$$

The formula (2) mainly targets Hypothesis 2, where $Pgdp$ represents economic growth, Fs represents financial structure, and Cap represents the efficiency of fund market allocation. Specifically, it refers to the liquidity of the fund market and the degree of fund factor allocation. $Control$ represents control variables, mainly including other variables that may affect economic growth. Specifically, it includes: degree of openness to the outside world (Open), government expenditure (Gc),

industrial structure (Is), consumer demand (Cd), and urbanization level (Urban). β_0 is the estimated coefficient, β_1、β_2、…、β_n represents the coefficient to be estimated, μ_1、μ_2、…、μ_n is the estimated value of the threshold variable, η_2 represents the vector composed of the estimated coefficients of the control variable, λ_i is the fixed effect of the province, σ_t is the fixed effect of the year, and ε_{it} is the random disturbance term.

$$\begin{aligned} Pgdp_{it} &= \gamma_0 + \gamma_1 Fs_{it}(Lab < \nu_1) + \gamma_2 Fs_{it}(\nu_1 \le Lab < \nu_2) \\ &+ \cdots + \gamma_n Fs_{it}(Lab \ge \nu_n) + \eta_3 Control_{it} + \lambda_i + \delta_t + \varepsilon_{it} \end{aligned} \tag{3}$$

The formula (3) mainly targets Hypothesis 3, where $Pgdp$ represents economic growth and Fs represents financial structure, Lab indicating the efficiency of labor market allocation. Specifically, it refers to the mobility of human resources and the degree of labor factor allocation. $Control$ represents control variables, mainly including other variables that may affect economic growth, including: degree of openness to the outside world (Open), government expenditure (Gc), industrial structure (Is), consumer demand (Cd), and urbanization level (Urban). γ_0 is the estimated coefficient, γ_1、γ_2、…、γ_n represents the coefficient to be estimated, ν_1、ν_2、…、ν_n is the estimated value of the threshold variable, η_3 represents the vector composed of the estimated coefficients of the control variable, λ_i is the fixed effect of the province, σ_t is the fixed effect of the year, and ε_{it} is a random disturbance term.

4.2 Introduction to Key Variables

4.2.1 Explained variable: Economic growth

This article draws on the approach of Liu Y et al. (2021), using per capita GDP as a measure of economic growth, specifically calculated as the ratio of Gross Domestic Product to the national population. The value reflects that the higher the per capita GDP level, the greater the economic growth; The lower the per capita GDP level, the smaller the economic growth.

4.2.2 Core explanatory variable: financial structure

Referring to the financial structure measurement method (Kim et al., 2016; Yeh et al., 2013), the total trading volume in the stock market is used as the proxy indicator for the financial market. The more trading volume in the stock market, the better the development of the financial market. Using the loan balance of financial institutions as the proxy indicator for financial intermediaries, the more loan balances of financial institutions, the stronger the ability of financial intermediaries in the financial system to provide funds. The ratio of the two measures the importance of financial markets and financial intermediaries in the financial system. The larger the value, the higher the degree of marketization of the financial structure, and conversely, the lower the degree of marketization of the financial structure.

4.2.3 Threshold variable

Referring to the approach used in existing research (Xu Y, et al., 2021), the reciprocal of the financial market distortion index is used to represent fund allocation efficiency. A smaller financial market distortion index indicates higher fund allocation efficiency.

Similarly, labor-market allocative efficiency is expressed using the inverse of the labor-market distortion index. The smaller the degree of labor market distortion is, the greater the allocative efficiency of the labor market is, where the degree of labor market distortion is measured using the wage difference of the homogeneous labor in the labor market.

4.2.4 Control variable

Based on existing research, this article controls for other variables that may affect economic growth. (1) The degree of openness to the outside world, measured by the proportion of foreign investment (%); (2) Government expenditure, expressed as the ratio of government fiscal expenditure to GDP; (3) Industrial structure, expressed as the ratio of the added value of the tertiary industry to the added value of the secondary industry; (4) Consumer demand, expressed as the ratio of total retail sales of consumer goods to regional GDP; (5) The level of urbanization is expressed as the ratio of urban population to total population.

4.3 Data source and processing

Based on the availability and completeness of various indicators, this article selects data from 31 provinces in China from 2006 to 2022, with a total of 527 observations. Except for the total trading volume in the stock market from the Wind database, all other basic variable data are from the Statistical Yearbook, China Statistical Yearbook, China Population Yearbook, and the websites of provincial statistical bureaus over the years. When the same indicator appears from multiple data sources and there are differences, this article shall refer to the Statistical Yearbook of each province over the years.

4.4 Descriptive statistics of variables

Based on the availability and completeness of each indicator, this study selects data from 31 provinces in China for the period from 2006 to 2022, for a total of 527 observations. The total stock market trading volume data are obtained from the Wind database, while the data for other basic variables are sourced from the annual statistical yearbooks, China Statistical Yearbook, China Population Yearbook, and the websites of provincial statistical bureaus. When the same indicator appears in multiple data sources with discrepancies, this study prioritizes the data from the annual statistical yearbooks of each province. The descriptive statistics of the variables are given in Table 1.

Table 1: Descriptive statistics of variables

Variable	Variable name	Observations	Mean	Std	Min	Max
Pgdp	economic growth	527	4.897	0.198	4.363	5.387
Fs	financial structure	527	0.774	0.661	0.031	3.450
Cap	capital market	527	1.398	0.368	0.859	4.297
Lab	labor market	527	0.041	0.024	0.017	0.186
Open	Open to word	527	0.291	0.334	0.010	1.711
Gc	Government Spending	527	3.323	0.414	1.837	4.551
Is	industrial structure	527	1.797	3.043	0.527	24.888
Cd	consumer demand	527	0.372	0.066	0.207	0.538
Urb	urbanization level	527	0.555	0.145	0.222	1.022

4.5 Benchmark regression results

Table 2 reports the impact of financial structure on economic growth, mainly including benchmark regression results and endogeneity tests. Column (1) shows the regression results without adding control variables. The results indicate that, without adding control variables, the impact of financial structure on economic growth is significantly positive at the 1% level. This indicates that, without considering the influence of other control variables, market-oriented financial structures can promote economic growth. Column (2) shows the regression results with the inclusion of control variables but without fixed province and year effects. The results show that, without controlling for provincial and annual effects, the impact of financial structure on economic growth remains significantly positive at the 1% level. This indicates that, without considering the effects of provinces and years, market-oriented financial structures can still promote economic growth. Column (3) shows the regression results that comprehensively consider the influence of control variables and fix the effects of provinces and years. The results indicate that the impact of financial structure on economic growth is significantly positive at the 5% level. This indicates that market-oriented financial structures can effectively promote economic growth.

Column (4) is an endogeneity test, based on the complex interaction characteristics between financial structure marketization and economic growth, that is, there may be a bidirectional causal relationship between the degree of financial structure marketization and economic growth. To alleviate this endogeneity problem, this article draws on existing research and uses the lagged values of financial structure marketization and financial structure marketization for all years except for that province in the same year as instrumental variables, perform regression analysis using 2SLS. Table 2 column (4) reports the regression results of instrumental variables. Firstly, the F-statistic of the first stage regression is far above the empirical value of 10, indicating a high correlation between the selected instrumental variable and the endogenous explanatory variable, which can exclude the problem of "weak instrumental variables"; Secondly, conducting an over

identification test for instrumental variables, the results of the Overid-P statistic test are not significant, and the null hypothesis that the selected variable is an exogenous variable cannot be rejected, indicating that the selected instrumental variable is valid; Finally, from the regression results of the second stage, it can be seen that the impact of financial structure on economic growth is significantly positive at the 1% level. The above results all indicate that market-oriented financial structures can effectively promote economic growth.

Table 2: The Impact of Financial Structure on Economic Growth

	Benchmark Regression			**Endogeneity testing**
	(1)	**(2)**	**(3)**	**(4)**
Fs	0.011***	0.009***	0.019**	0.056***
	(0.010)	(0.003)	(0.010)	(0.010)
Open		0.077***	0.023	-0.198***
		(0.019)	(0.017)	(0.025)
Gc		0.550***	0.187***	0.146***
		(0.019)	(0.035)	(0.020)
Is		0.007***	-0.007***	0.001*
		（0.003)	(0.00)	(0.001)
Cd		0.058	-0.044	0.039
		(0.060)	(0.050)	(0.093)
Urb		0.441***	0.093	0.682***
		(0.067）	(0.072)	(0.072)
Year effect	Yes	No	Yes	Yes
Provincial effect	Yes	No	Yes	Yes
Constant term	4.482***	2.891***	3.925***	4.051***
	(0.012)	(0.041)	(0.103)	(0.069)
Sample size	527	527	527	527
First stage F-value				20.66
Overid-P Value				1.0000
R^2	0.957	0.937	0.960	0.548

Note: *, * *, and * * * represent significance levels of 10%, 5%, and 1%, respectively. The content in parentheses is standard error.

4.6 Robust testing

4.6.1 Replace core explanatory variables

Refer to Levine R. (2002) measurement method. Using the relative ratio between the stock market and the banking system to measure the level of marketization of financial structure from three dimensions: relative scale, relative vitality, and relative efficiency. Here, the variable is set to Fs1, and the regression results are shown in column (1) of Table 3. After replacing the core explanatory variable, the impact of financial structure on economic growth remains significantly positive at the 1% level, consistent with the previous results. This indicates that the market-oriented financial structure has a relatively stable promoting effect on economic growth.

4.6.2 Winsorize

Referring to the research of Liu C (2023), in order to eliminate the possible impact of data outliers, a 10% truncation was applied to all continuous variables. Regression was performed using the truncated panel data, and the results are shown in column (2) of Table 3. The impact of the financial structure after tail reduction on economic growth is significantly positive at the 5% level, consistent with the previous results. This indicates that the market-oriented financial structure has a relatively stable promoting effect on economic growth.

4.6.3 Excluding special provinces

Referring to the research of Yang ZR et al. (2018), considering the unique advantages of municipalities in accessing financial resources compared to other provinces. Excluding the data from four municipalities directly under the central government (Beijing, Tianjin, Shanghai, Chongqing), the regression results are shown in column (3) of Table 3. The impact of financial structure on economic growth after excluding special provinces is significantly positive at the 5% level, consistent with the previous results. This indicates that the market-oriented financial structure has a relatively stable promoting effect on economic growth.

Table 3: Robust test results

	Replace core explanatory variables	Winsorize	Excluding special provinces
	(1)	(2)	(3)
Fs	0.002***	0.022**	0.020**
	(0.003)	(0.010)	(0.011)
Open	0.092	0.015	0.038
	（0.019）	(0.018)	(0.025)
Gc	0.183***	0.203***	0.195***
	（0.035）	（0.349）	(0.035)
Is	0.006***	0.012***	-0.007***
	(0.002)	(0.003)	(0.002)
Cd	0.026	0.045	-0.051
	(0.048)	(0.060)	（0.052)
Urb	0.076	0.441***	0.240***
	(0.072)	(0.049)	(0.080)
Year effect	Yes	Yes	Yes
Provincial effect	Yes	Yes	Yes
Constant term	3.940***	3.895***	3.839***
	(0.103)	(0.102)	(0.104)
Sample size	527	527	459
R2	0.960	0.961	0.963

Note: *, * *, and * * * represent significance levels of 10%, 5%, and 1%, respectively. The content in parentheses is standard error.

4.7 Analysis of the Threshold Effect on the Efficiency of Capital Market Allocation

Considering the different efficiency of fund market allocation, the impact of financial structure on economic growth varies. Therefore, based on the threshold effect model, a threshold effect test is conducted. The threshold effect model of capital market allocation efficiency did not pass the triple threshold effect test, but passed the double threshold effect test. The test results are shown in Table 4. Among them, $\mu_1 = 1.160$ is the first threshold value, and $\mu_2 = 1.181$ is the second threshold value. Overall, the impact of financial structure on economic growth is positive, indicating that market-oriented financial structure helps promote economic growth. Among them, when the efficiency of fund market allocation is lower than the first threshold, the impact of financial structure on economic growth is significantly positive at the 10% level. When the efficiency of fund market allocation is between the first and second threshold values, the impact of financial structure on economic growth is significantly positive at the 1% level. When the efficiency of fund market allocation is higher than the second threshold, the impact of financial structure on economic growth is also significantly positive at the 1% level. By comparing the

coefficients, it can be found that the market dominated financial structure has an inverted U-shaped effect on promoting economic growth. With the improvement of the efficiency of capital market allocation, the promoting effect of market-oriented financial structure on economic growth shows a first strengthening and then weakening effect. The reason for this is that in the initial stage of improving the efficiency of capital market allocation, the market led financial structure gradually enhances its promoting effect on economic growth. But as the efficiency of fund market allocation improves to a certain stage, the liquidity of funds reaches a certain saturation level. The market led financial structure may slightly weaken its promoting effect on economic growth, but overall it still shows a promoting effect.

Table 4: Analysis of threshold effects on the efficiency of fund market allocation

	Cap< μ_1	μ_1 <**Cap**< μ_2	**Cap**> μ_2
	(1)	**(2)**	**(3)**
Fs	0.038*	0.066***	0.043***
	(0.022)	(0.010)	(0.008)
Open	-0.022		
	（0.032）		
Gc	0.617***		
	（0.035）		
Is	0.008**		
	（0.002）		
Cd	0.084		
	（0.103）		
Urb	0.325***		
	（0.110）		
Year effect	Yes		
Provincial effect	Yes		
Constant term	2.663***		
	(0.069)		
Sample size	527		
R2	0.943		

Note: *, * *, and * * * represent significance levels of 10%, 5%, and 1%, respectively. The content in parentheses is standard error.

4.8 Analysis of the Threshold Effect on the Efficiency of Labor Market Allocation

Considering the different efficiency of labor market allocation, there are differences in the impact of financial structure on economic growth. Therefore, based on the threshold effect model, a threshold effect test is conducted. The threshold effect model of labor market allocation efficiency passed the triple threshold effect test, and the test results are shown in Table 4. Among them, $\nu_1 = 0.038$ is the first

threshold value, $\nu_2 = 0.041$ is the second threshold value, and $\nu_3 = 0.045$ is the third threshold value. Overall, the impact of financial structure on economic growth is positive, indicating that market-oriented financial structure helps promote economic growth. Among them, when the efficiency of labor market allocation is below the first threshold, the impact of financial structure on economic growth is significantly positive at the 5% level. When the efficiency of labor market allocation is between the first and second threshold values, the impact of financial structure on economic growth is significantly positive at the 1% level. When the efficiency of labor market allocation is between the second and third threshold values, the impact of financial structure on economic growth is significantly positive at the 1% level. When the efficiency of labor market allocation is higher than the third threshold, the impact of financial structure on economic growth is also significantly positive at the 1% level. By comparing the coefficients, it can be found that the market-oriented financial structure has a significant non-linear effect on promoting economic growth. Under different labor market allocation efficiencies, the promotion effect of market-oriented financial structures on economic growth is not stable. The main realization is that the promotion effect is more significant within a certain range or under conditions higher than a specific value.

Table 5: Analysis of threshold effects on labor market allocation efficiency

	Lab$<\nu_1$	$\nu_1<$**Lab**$<\nu_2$	$\nu_2<$**Lab**$<\nu_3$	**Lab**$>\nu_3$
	(1)	**(2)**	**(3)**	**(4)**
Fs	1.800**	2.597***	1.484**	1.942***
	(0.653)	(0.676)	(0.639)	(0.573)
Open	-0.014			
	（0.039）			
Gc	0.674***			
	（0.043）			
Is	0.008***			
	（0.003）			
Cd	0.113***			
	（0.109）			
Urb	0.240***			
	（0.110）			
Year effect	Yes			
Provincial effect	Yes			
Constant term	2.672***			
	(0.082)			
Sample size	527			
R2	0.944			

Note: *, * *, and * * * represent significance levels of 10%, 5%, and 1%, respectively. The content in parentheses is standard error.

5. Conclusion

This article conducts linear and nonlinear impact analysis on how financial structure affects economic growth. From the empirical test results, it can be seen that from a linear perspective, market-oriented financial structures have a significant promoting effect on economic growth. And this promotion effect is relatively stable and will not cause significant changes due to changes in the research sample. From a non-linear perspective, under different conditions of capital market allocation efficiency and labor market allocation efficiency, there are significant differences in the promotion effect of market-oriented financial structures on economic growth. Specifically, the threshold effect of capital market allocation efficiency mainly presents an inverted U-shaped impact effect. The threshold effect of the labor market does not reflect the non-linear impact. Therefore, based on the above research conclusions, accelerating the construction of a market-oriented financial structure has an important impact on promoting economic growth. And by utilizing factor markets to accelerate the construction of market-oriented financial structures, we can work together to promote economic growth.

Based on the research findings, this article proposes the following policy recommendations:

1. Deepen financial market reform. To expand the scale of the primary market from multiple perspectives, in addition to the stock market, the role of the bond market should be fully utilized, and bonds should not only exist as auxiliary roles, balancing the types of bond issuance. Change the dominance of treasury bond, increase the issuance scale of corporate bonds and corporate bonds, and help promote the impact of market-oriented financial structure on economic growth.
2. Expand the channels for entering the financial market. Especially, it is necessary to lower the entry threshold for small and medium-sized enterprises. Due to their inherent shortcomings, small and medium-sized enterprises are unable to bear the high information and time costs required to enter the securities market, resulting in the inability to meet their capital needs in a timely manner through the financial market. So, while expanding market size and balancing the types of securities and bonds in the market, it is also necessary to tailor and improve market entry mechanisms for small and medium-sized enterprises.
3. Improve the financial regulatory system. Targeted constraints and supervision should be implemented for different types of banks and financial markets. Avoid the rigid "one size fits all" regulatory system, improve regulatory flexibility, and improve the efficiency of capital and labor allocation. Such as improving the market access mechanism for enterprises, the entry and exit mechanism for investors, prohibiting market makers, and prohibiting institutional users from manipulating the market, etc.

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