Fiscal Decentralization, Financial Decentralization and Macroeconomic Governance

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Abstract: *Improvement of the macroeconomic governance system as an important part of the national governance system is a key initiative to address major economic problems in the new era. The coordination and economic regulatory effects of fiscal and monetary policies are subject to the arrangements of fiscal and financial decentralization systems. Analysis revealed a mismatch between China's fiscal income decentralization and fiscal spending decentralization, as manifested in the clear decentralization of fiscal revenue and vague decentralization of fiscal spending; in pursuing local economic stability, local governments seek other sources of revenue and compete for financial resources, as manifested in apparent financial centralization and implicit financial decentralization, causing financial decentralization to be inconsistent between various levels of government and between government and the market. The above-mentioned problems are reflected in mutual conversion between public finance and financial intermediation as two financial allocation methods and mutual transmission between fiscal and financial risks, making the case for enhancing coordination between fiscal and monetary policies. In creating a scientific macroeconomic governance system, therefore, we must establish clear local government responsibilities, reduce the proportion of local fiscal spending, clarify the orientations and relief boundary of fiscal and monetary policies, moderately decentralize financial powers, and give better play to the role of local governments in improving the quality of economic development and controlling major risks.*

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1. Introduction

After seven decades of development since 1949 and especially the recent four decades of reform and opening up since 1978, China has achieved tremendous progress in its socio-economic development and unveiled a new era for socialism with Chinese characteristics. Amid its economic transition from rapid growth to high-quality development, China is faced with such priorities as the transition of economic development mode, the improvement of economic structure, and the shift of growth drivers. Great efforts must be made to address unbalanced and inadequate development and the intertwined structural, institutional and cyclical issues, improve the quality and efficiency of development, narrow the gaps of urban-rural and regional development and income distribution, defuse major financial risks, and balance

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development with economic security. Advancing the development of macroeconomic governance systems is a critical step for solving those problems. In China's macroeconomic governance system, however, the problem is that fiscal and monetary policies as key governance instruments are often contradictory with each other. Such contradictions reflect incompatibility between central and local fiscal and financial powers. In advancing the development of a macroeconomic governance system, we must balance the fiscal and financial powers of central and local governments.

A key aspect of fiscal power structure between central and local governments is fiscal decentralization. Fiscal decentralization is the administrative decentralization of fiscal income organization and control and economic decentralization based on the tax-sharing system (Jia, 2013). There is an abundance of research literature on fiscal decentralization, which may explain China's economic growth and imbalance (G. Montinola *et al*., 1995; L. Eyraud & L. Lusinyan. 2013; Zhan and Liu, 2020; Wang, *et al*., 2020; Lyu and Wang, 2021). Fiscal decentralization lies at the heart of financial power structure between central and local governments. The core aspect of financial decentralization refers to the demarcation of powers between central and local governments with respect to financial regulation, financial stability, financial resource allocation, and the governance of financial companies. In recent years, research in this area has made some progress, focusing on the empirical implicit local debt effects of financial decentralization variables (Li and Qiao, 2020), economic growth, inflation (Fu and Liang, 2017), financial volatility, among other economic variables, but few studies have delved into economic principles at a deeper level.

There is an important correlation between fiscal decentralization and financial decentralization. Since the structure of decentralization is unbalanced, the correlation between the two brings about problems at three levels: First, the structural incompatibility of fiscal decentralization has led to an imbalance between local government revenue and spending. Fiscal decentralization encompasses the two aspects of fiscal revenue decentralization and fiscal spending decentralization. Fiscal revenue decentralization underpinned by the tax sharing system allows local governments to share in tax revenues while restricting local government income sources; due to the lack of a clear demarcation between central and local administrative powers, local governments are saddled with complex administrative affairs and extensive responsibilities, causing the decentralization of fiscal spending to be vague and incompatible with the decentralization of fiscal revenue.

Second, the structural inconsistency of financial decentralization has led to explicit financial centralization and implicit decentralization. Financial decentralization occurs between various levels of government (primarily central and local governments), between government and the market, and between different departments of government at the same level. Under the financial decentralization between various levels of government, the central government exercises powers to regulate and stabilize major financial institutions including commercial banks while local governments exert an indirect influence over capital allocation by local commercial banks (especially those in which local governments have a majority stake). As such, government-market financial decentralization is inconsistent with financial decentralization between various levels of government.

Third, the structural incompatibility of fiscal decentralization interacts and overlaps with the structural inconsistency of financial decentralization, giving rise to a chain reaction of risks and a conflict of macroeconomic governance policies. The structural incompatibility of fiscal revenue and spending under fiscal decentralization has led to significant pressures on local fiscal spending, forcing local governments to seek financial resources to support major investment projects for local development and public welfare. Substitution between financial and fiscal resource allocation methods and conversion between financial and fiscal risks have led to a behavioral conflict between fiscal and monetary policies and defects in the macroeconomic governance system. Problems at the three levels derive from the structural arrangements of fiscal and financial decentralization. Such arrangements determine local government fiscal and financial behaviors, directly or indirectly influence fiscal policy coordination

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between various levels of government, the method and intensity of local government support to the monetary policy, and the regulatory effects of central fiscal and monetary policies. In this sense, fiscal decentralization and financial decentralization determine the soundness of macroeconomic governance system and influence financial risk exposure and economic development quality. However, there has been a paucity of economic analysis combining fiscal decentralization with financial decentralization to support sound policy-making on the macroeconomic governance system.

From the perspective of coordinating fiscal decentralization with financial decentralization, this paper investigates the behavioral strategies of the government as market regulator under a set of certain market rules and the effects of such strategies on major financial risks, with a view to offering the following marginal contributions: (i) Based on the differences between central and local economic policies in terms of their objectives and instruments, this paper will analyze the intrinsic correlation between fiscal decentralization and financial decentralization, explain the underlying mechanism and economic rationale for the structural incompatibility between China's fiscal decentralization and financial decentralization and relevant financial risks, and take stock of existing empirical studies to make up for relevant research gaps at the level of fundamental theories and principles. (ii) Quantitative indicators for financial decentralization are designed to observe the effects of fiscal decentralization and financial decentralization to increase the accuracy and standardization of research on this topic. Subject to the empirical model or research methodology, most existing studies have employed only one measurement indicator. Based on the degree of local government influence over the allocation of financial resources, this paper designs indicators for measuring financial decentralization in such aspects as local commercial banks, local loans and local government debt, respectively, and analyzes the pros and cons of each indicator as basis for a quantitative research of financial decentralization in various aspects and its economic effects. (iii) This paper gives all-round considerations to the correlation between fiscal decentralization and financial decentralization, including their consistency as policy instruments for promoting local economic growth and alleviating local employment pressures. Taking into account the boundaries of local government responsibilities and behaviors, we put forth systematic and specific policy recommendations at the levels of top-down macroeconomic policy-making, local government responsibilities and implementation, and moderate financial decentralization and transmission.

2. Evolution, Measurement and Synchronous Change of China's Fiscal and Financial Decentralization

2.1 Historic Evolution of Fiscal Decentralization and Financial Decentralization since Reform and Opening up

Since the reform and opening up program was launched in 1978, China's fiscal decentralization and financial decentralization have experienced a few rounds of transformations with a close correlation between each other.

2.1.1 Fiscal decentralization and its evolution

Fiscal decentralization is an important way to incentivize local governments and raise economic efficiency. A representative theory is the theory of fiscal decentralization based on market federalism. Instead of solely considering how to allocate fiscal functions between various levels of government, "market-preserving federalism" requires fixating local fiscal budgets in designing intergovernmental fiscal arrangements and embedding some formal and informal institutional arrangements to incentivize public decision-makers (W.E. Oates, 1999). Such a hypothesis suggests that administrative decentralization since the early 1980s has enhanced local governments' economic decision-making power while fiscal decentralization allowed local governments to lawfully share fiscal revenues with the

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central government, and relatively independent economic decision-making powers and clear rules for fiscal revenue sharing served as key incentives for local governments (Montinola *et al*., 1995). In this sense, the devolution of fiscal rights and responsibilities to local governments is intended to increase the sensitivity of budgetary choices to "local" needs and preferences to achieve the goal of raising investment efficiency with local government initiatives.

In the transition from the planned economic system to a market-based one, China has launched five rounds of fiscal decentralization: It started to implement the tax sharing reform since 1993, reform the intergovernmental fiscal transfer system since 1995, reform the distribution of income tax revenue in 2002, conduct the business tax to value-added tax (VAT) reform in 2012, and reform the distribution of value-added tax revenue in 2016. Each round of reform has clarified and improved central-local fiscal revenue distribution and improved and standardized fiscal decentralization.

2.1.2 Financial decentralization and its evolution

Existing studies have offered three definitions of the implications of "financial decentralization" (Miao and He, 2020; Fu, 2016; Hong and Hu, 2017)[1]. In the process of reform, financial decentralization involves three different aspects: First, financial decentralization between various levels of government, which primarily refers to the division of powers between central and local governments over financial regulation and stabilization. Second, financial decentralization between government and the market, which refers to a series of explicit and implicit institutional arrangements between the government and market regarding the powers to allocate financial resources and regulate financial companies. Third, financial decentralization between various departments of government at the same level, including the division of powers between government departments regarding financial supervision, financial stability, the allocation of financial resources, and the management of financial companies. The three aspects of financial decentralization are intertwined with and influence each other.

In the economic transition stage, government-market financial decentralization represents a general trend and is often the theme for financial decentralization between various departments at the same level of government. However, financial decentralization between different hierarchies of government (and sometimes between various departments of government at the same level) often determines the degree and change of financial decentralization between government and the market. Financial decentralization between various levels of government has become a key determinant of the degree of the financial decentralization. For the clarity of research, this paper focuses on discussing the evolution of financial decentralization between various levels of government and, where necessary, introduce financial decentralization of the other two definitions. The shift from absolute financial centralization to absolute financial decentralization is referred to as the "deepening of financial decentralization," and the shift from absolute decentralization to absolute centralization is referred to as "strengthening of financial centralization."

Since the reform and opening up policy was adopted in 1978, China's financial decentralization has experienced roughly three stages: the financial decentralization (1979-1997) with the milestone of the People's Bank of China (PBC) designated as China's central bank; the financial centralization (1998-2011) with the milestone of the establishment of the PBC's nine regional branches in 1998 and the implementation of vertical management for the four state-owned commercial banks; and the financial decentralization (2012-present) with the milestone of various provinces establishing local financial

[1] Definition 1: Financial decentralization refers to the division of powers between central and local governments concerning the rights of financial access, financial control, financial regulation, financial allocation, and financial stability. Definition 2: Financial decentralization refers to the different positions of governments at various levels exercising control over the allocation of financial resources and especially credit resources with significantly different financial institutional arrangements under disparate economic systems. Definition 3: Financial decentralization refers to a series of explicit and implicit institutional arrangements concerning the powers to allocate and control financial resources at different levels of government and between government and the market to promote a country's long-term economic growth and incentivize local governments to develop the economy.

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regulatory authorities, local financial holding groups, among other local financial institutions. These events suggest that local governments have implicitly possessed the powers of financial regulation, financial stabilization, financial resource allocation, and regulation over financial companies.

2.2 Indicators for Measuring Fiscal and Financial Decentralization

2.2.1 Indicators for measuring fiscal decentralization

Fiscal decentralization encompasses the two aspects of fiscal income decentralization and fiscal spending decentralization. The former is primarily reflected in the proportion of local government revenues and indicates local government abilities to share in national revenues. Among them, taxation is a fiscal revenue constituent of absolute significance, and the distribution of tax revenue is an important way to measure intergovernmental fiscal decentralization (Lyu *et al*., 2016). The latter is chiefly reflected in the ratio of fiscal spending in various localities and represents local government abilities to allocate social resources.

Fiscal decentralization, therefore, can be described at two levels: First, local fiscal revenue as a share of total national revenue: Ratio of local fiscal revenue = Total local fiscal revenue / Total national fiscal revenue. Second, local fiscal spending as a share of national total fiscal spending: Ratio of local fiscal spending = Total local fiscal spending / Total national fiscal spending.[2]

2.2.2 Indicators for measuring financial decentralization

Indicators for measuring financial decentralization are intended to accurately describe the amount of financial resources under local government influence. While some of the effects are explicit, others are implicit. Based on the degree to which local governments influence financial resources, we have designed the following indicators for measuring financial decentralization.

(1) Proportion of local commercial banks

Local commercial banks mainly refer to commercial banks in which local governments hold a majority stake, including city commercial banks (city credit unions) and rural financial institutions (rural commercial banks, rural cooperative banks and rural credit unions). Although rural cooperative banks, city credit unions and rural credit unions are not commercial banks in the legal sense, they operate in a similar way as commercial banks.

According to specific financial indicators, there are four methods to calculate the ratio of local commercial banks: (i) the number of legal entities of local commercial banks: Ratio of local commercial bank institutions = Number of local commercial banks / Total number of nationwide commercial banks; (ii) the amount of assets held by local commercial banks: Ratio of assets held by local commercial banks = Amount of assets held by local commercial banks / Amount of assets held by all nationwide commercial banks; (iii) the amount of loans from local commercial banks: Ratio of loans from local commercial banks = Amount of loans from local commercial banks / Amount of loans from all nationwide commercial banks; (iv) the amount of liabilities held by local commercial banks: Ratio of liabilities held by local commercial banks = Amount of liabilities held by local commercial banks / Amount of liabilities held by all nationwide commercial banks.

In the banks-dominated financial system, commercial banks occupy a vital position in the allocation of financial resources. In most cases, local governments are majority shareholders of local commercial

[2] For a comprehensive description of fiscal resource allocation, the numerator and denominator can be total fiscal revenue and spending or per capita fiscal revenue and spending depending on the focus of research. They may also be budgetary fiscal revenue and spending, extrabudgetary fiscal revenue and spending, government fund revenue and spending, among indicators, to create fiscal decentralization indicators from different perspectives. In some cases, extrabudgetary local fiscal revenues, especially long-term dependence on non-standard behaviors and revenues, have constituted implicit decentralization contracts in the mid- and long-term reforms, which are generally endogenous to China's industrialization and urbanization processes. Researchers need to choose from those items in designing fiscal decentralization indicators.

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banks and appoint their senior management; the ratio of local commercial banks can be used to estimate the market share of local commercial banks in terms of number of local banking institutions, amount of assets, amount of liabilities, amount of loans, among others, which to some extent reflects the space of local government maneuvers and their effects on the amount and destination of loans from commercial banks. The drawbacks of this indicator are twofold: First, the forms of local financial resources are varied and include not just local commercial banks[3]; second, local governments may also influence large and joint-stock commercial banks operating in their jurisdictions, which is hard to measure in local financial decentralization.

(2) Ratio of bank loans at various localities

According to the amount of bank loans at each locality as a share of national total bank loans, the actual use of bank loan resources at the locality can be observed (He and Miao, 2016). The indicator of calculation is as follows: Ratio of bank loans at each locality = Amount of loans issued by local banks / Amount of nationwide bank loans. This indicator offers the following advantages: First, bank loans still account for the highest share of bank assets and denote banks' operational capabilities and behaviors. Meanwhile, bank loans are still the most important source of financing and financial resource for enterprises. Second, local governments may influence the amount of loans issued by large banks and nationwide joint-stock banks in various forms (such as policy meetings). Third, there is generally a positive correlation between local bank loans and other financial indicators, and changes in bank loans and the total amount of financial resources roughly share the same trend. The ratio of bank loans may reflect a certain structure of financial decentralization. The drawback is that bank loans are influenced by not only the financial decentralization behaviors of local governments, but local economic development level and decisions made at the headquarters of commercial banks, i.e. subject to both centralization and decentralization factors.

(3) Proportion of local government liabilities

Local government liabilities include, *inter alia*, local government bonds and liabilities of local government financing vehicles (LGFVs) for which local governments have repayment, relief and guarantee obligations. Calculation indicators can be designed in a case-by-case manner. In reality, only local government liabilities data are relatively easy to obtain and continuous while other data are harder to obtain.

Normally, local government bonds are held by commercial banks, and local governments may indirectly obtain bank capital by issuing bonds. Local government bonds, therefore, are a form of financial decentralization. This indicator is calculated by the amount of local government bonds as a share of total government bonds (Ma and Ma, 2018). Due to the difference of statistical approach for bonds, it can be divided into two sub-indicators: First, calculation based on the amount of newly issued bonds in a year: Ratio of newly issued bonds by local governments = Newly issued bonds by local governments in a year / Total newly issued bonds by governments in a year. Second, calculation based on year-end balance of bonds: Ratio of balance of local government bonds = Year-end balance of local government bonds / Total year-end government bonds. The benefits of these two indicators are twofold: They may reflect financial decentralization of local governments in terms of liabilities using continuous data. The drawback is the uniformity of financial decentralization explained since local government liabilities also include other forms of liabilities.

[3] To address this drawback, we may also expand the scope of banks into local financial institutions, including local commercial banks and local financial holding companies established by local governments, as well as local financial asset management companies. The above method can be referenced to calculate the ratio of local financial institutions, the ratio of assets held by local financial institutions, the ratio of financial institutions regulated by local governments, and the ratio of assets held by financial institutions regulated by local governments. Those indicators include almost all financial institutions over which local governments exert influence in their jurisdictions and are more comprehensive than the ratio of local commercial banks. The drawback is that it cannot describe the degree to which local governments influence other financial institutions (in which local governments are not majority shareholders).

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2.3 Coordination between Fiscal Decentralization and Financial decentralization

Due to data availability, this paper selects representative fiscal decentralization indicators: Local budgetary fiscal revenue and spending as a share of national budgetary fiscal revenue and spending, local extrabudgetary revenue and spending as a share of national extrabudgetary revenue and spending, and the balance of local government liabilities. As can be seen from fiscal decentralization data, the share of local budgetary spending has increased, and fiscal revenue decentralization became incompatible with fiscal spending decentralization. Local governments were forced to seek other revenues to stabilize local economic operation and fund investment projects. As such, local government extrabudgetary revenue as a share of national extrabudgetary revenue increased sharply from 55.90% in 1992 to 94.90% in 1997, and after peaking at 95.20% by 1998, stabilized at around 93% in the late stage; local government extrabudgetary spending also followed the same upward trend (from 56.36% in 1992 to 94.60% in 1997). See Figures 1 and 2. The balance of local government debt increased sharply, up from 16.59 trillion yuan in November 2017 to 26.02 trillion yuan in January 2021. See Figure 3.[4]

Fiscal decentralization has increased local governments' economic decision powers and the independence of local interests, allowing local governments to adjust investment structure according to their economic development needs (Hu and Liu, 2016). Due to explicit financial centralization, it became easier for local governments to expand investment only when the central government adopted a proactive fiscal policy and an expansionary monetary policy during an economic downturn. Instead of direct administrative intervention in bank credit, local governments established local commercial banks,

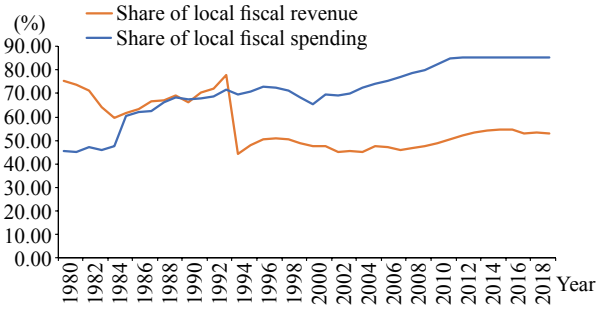


Figure 1: Local Fiscal Revenue and Spending as a Share of National Total

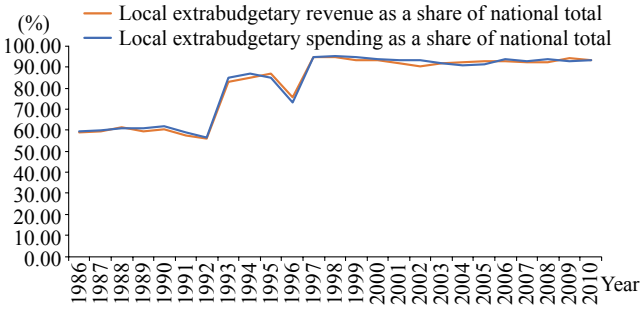


Figure 2: Local Extrabudgetary Revenue and Spending as a Share of National Total

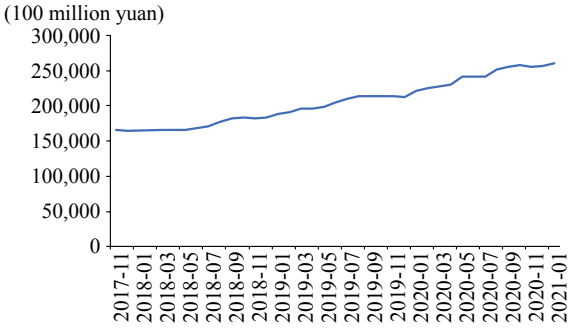


Figure 3: Balance of Local Government Liabilities

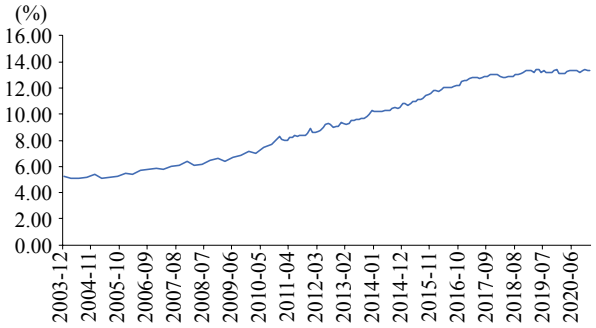


Figure 4: City Commercial Banks as a Share of the Total Liabilities of Banking Financial Institutions

[4] Aside from financial decentralization described by a few indicators for measuring local financial decentralization, there are many other forms of financial decentralization that cannot be overlooked, which require a further exploration of measurement methods.

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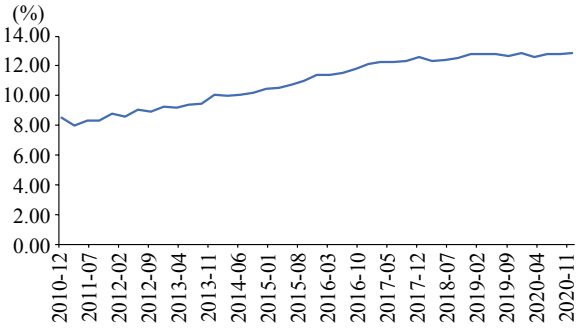


Figure 5: City Commercial Banks as a Share of Total Assets of Banking Financial Institutions

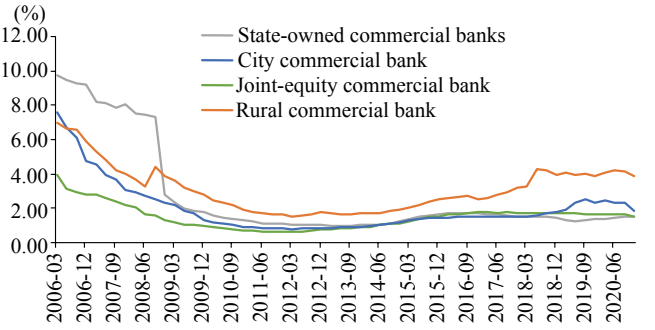


Figure 6: NPL Ratio of Banks of Different Types

Source: Wind database.

local financial holding groups and local financial asset management companies to expand investment, access more financial resources, and maximize output, displaying the characteristics of financial decentralization. With the sharp increase of local government spending, city commercial banks as typical representatives of local commercial banks saw their liabilities as a share of the total liabilities of banking financial institutions rise sharply (see Figure 4), and city commercial banks saw their assets as a share of the total assets of financial institutions spike (see Figure 5) and, to some extent, cause financial risk to rise (see Figure 6). The increasing debt ratio of local commercial banks shares the same trend with the balance of local government liabilities and the non-performing loans (NPLs) ratio of local commercial banks.

Structural adjustment from fiscal centralization to decentralization, therefore, requires a high consistency in the degree of financial decentralization to avoid any conflict that may induce financial risk and compromise economic development quality. In comparison, financial decentralization is even more complex due to such reasons as the lag effect of economic policy-making, market-based financial resource allocation, and the sharing of financial risk liabilities. When fiscal revenue decentralization is incompatible with fiscal spending decentralization, financial intermediation becomes characterized by explicit centralization and implicit decentralization.

3. Fiscal Decentralization, Financial Decentralization and Macroeconomic Governance: A Theoretical Explanation

Historical evolution and empirical data suggest that fiscal decentralization often influences financial decentralization. Given the complexity of issues related to financial decentralization, it appears hard to conclude that financial decentralization will necessarily occur after fiscal decentralization. Hence, it is necessary to analyze macroeconomic and financial stability policies concerning fiscal and financial decentralization from the perspective of macroeconomic governance and explore the underlying economic mechanism.

3.1 Relationship between Fiscal and Financial Decentralization and Macroeconomic Governance

From the perspective of macroeconomic governance, significant differences exist regarding central and local economic policies under the central-local two-level government system. First, the central government's economic policies primarily include fiscal and monetary policies while local government economic policies are dominated by fiscal policies. Second, the central government's economic policies are intended to maintain exchange rate stability, financial stability, the balance of international payments and regional income equilibrium. Third, the central government's economic policy instruments include

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the control of money supply, the collection of seigniorage, and financial relief. In this paper, we create a central economic policy objective function and a local economic policy objective function to solve fiscal and financial behaviors under their respective constraint conditions.

3.1.1 Central economic policy function

(1) Objective function

Based on the central fiscal and monetary policies, we design an objective function of central economic policies taking financial stability into account: $\max\left[\mu_Y Y_t-\mu_\pi\left(\pi_t-\pi^*\right)^2-\mu_S\left(S_t-S^*\right)^2\right]$. By solving the maximum value of output and the minimum value of the loss variables, social welfare can be maximized. Y_t is output in period t, $\left(\pi_t-\pi^*\right)$ is inflation gap in period t, and $\left(S_t-S^*\right)$ is systemic financial risk gap in period t. μ_Y, μ_π, μ_S are the weight coefficients of output, inflation gap, and systemic financial risk gap, $0<\mu_Y<1$, $0<\mu_\pi<1$, and $0<\mu_S<1$. The economic factual basis is that under the catch-up economic mode, the government always prefers relatively high output, and economic growth tends to be the common goal of fiscal and monetary policies. Here, output is identified as the variable positively correlated with social welfare; the level of inflation π_t above or below the minimum inflation rate π^* is adverse for stable economic growth with a negative impact on social welfare, and $\mu_\pi\left(\pi_t-\pi^*\right)^2$ is introduced; systemic financial risk S_t has an economic optimum boundary S^*,[5] near which both the damages of systemic financial risks can be prevented and high-quality economic development can be supported.

This paper assumes that a functional relationship exists between government spending and output: $Y_t=g\left(G_{c,t}+\sum_{l=1}^{N}G_{l,t}+\sum_{i=1}^{n}I_{i,t}+\sum_{l=1}^{N}I_{l,t}\right)-\overline{G}_{c,t}$,[6] where, the minimum value of central government spending $G_{c,t}$ is greater than necessary spending on national strategic projects during a certain period $\overline{G}_{c,t}$; $G_{l,t}$ is local government spending at locality l, and N is the number of local governments; $I_{i,t}$ is investment of central SOE i in period t, n is the number of central SOEs, $\sum_{i=1}^{n}I_{i,t}$ is the total investment of central SOEs, $I_{l,t}$ is investment of local enterprise l in period t, and $\sum_{l=1}^{N}I_{l,t}$ is the total investment of local enterprises. At this moment, it is assumed that one local government and one representative enterprise exist at each locality.

Empirical research indicates that the coefficient of correlation between the growth rate of money supply and inflation is almost the only known factor. Depending on the difference in the statistical coverage of money supply, its numerical value fluctuates in the range of 0.92~0.96 (W.E. Weber, 1995). In this paper, we assume that $\pi_t=\lambda_\pi\Delta M_t$, where ΔM_t is the increase of money supply in the broad sense and λ_π is the coefficient of influence of money supply on the inflation rate.

When systemic financial risk is $S_t>S_1^*$, the minimization of $\left(S_t-S^*\right)$ requires such conventional policy instruments as countercyclical excess capital, forward-looking provision and the capital conservation buffer. In some cases, systemically important banks that are subject to significant risks and cannot be self-savaged require even stronger policy instruments, such as the purchase of risky assets from specific institutions and bailouts, which influence money supply under the policy multiplier

[5] Systemic financial risk derives from financial attribute and always exists to some extent. Absolute elimination of systemic financial risk will not only stifle the financial system, but deprive the economic system as a whole of its vibrancy; when systemic financial risk decreases to a certain level, the marginal cost of its further reduction will outweigh its marginal loss, and the increasing marginal cost is correlated with diminishing marginal loss.

[6] Central fiscal spending includes procurement spending and transfer spending, and procurement spending is divided into investment spending and consumption spending. The output multiplier effect of investment and consumption procurement spending (the output multiplier effect of procurement spending) is greater than that of transfer spending. Since the latter only accounts for a modest share, only the output effect of procurement spending is taken into account here. Meanwhile, the crowding out effect of fiscal spending is overlooked. When central government spending is modest, output will increase at a rapid pace with increasing central government spending; when central government spending reaches a certain level, the crowding out effect of further increase becomes increasingly significant, and output growth will decelerate. If configured as a logarithmic function or power function with power smaller than 1, the result of the deduction does not change the direction of influence between variables.

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and base money effects. Hence, we have: $S_t=\lambda_S\Delta M_t$, where λ_S is the coefficient of influence of policy instruments adopted to defuse systemic financial risks on the increase of money supply.

At this moment, the objective function of the central economic policy is converted into follows:

$$\max\left\{\mu_Y\left[g\left(G_{c,t}+\sum_{l=1}^{N}G_{l,t}+\sum_{i=1}^{n}I_{i,t}+\sum_{l=1}^{N}I_{l,t}\right)-\overline{G}_{c,t}\right]-\mu_\pi\left(\lambda_\pi\Delta M_t-\pi^*\right)^2-\mu_S\left(\lambda_S\Delta M_t-S^*\right)^2\right\}$$

(2) Policy instruments and constraint equation

Items of central government spending include: $G_{c,t}$, payment of interest on debt owed in the previous period $i_{t-1}B_{c,t-1}$; in the period of economic transition, the increase of bank NPLs $\Delta L_{b,t}=L_{b,t}-L_{b,t-1}$ is ultimately written off with relief from the lender of last resort and central fiscal revenue, which is one of the important intrinsic correlations through which fiscal decentralization affects financial decentralization. Central government revenues include: Taxation $T_{c,t}=\tau_{c,t}Y_t$ ($\tau_{c,t}$ is income tax rate), increase in money supply $\Delta M_t=M_t-M_{t-1}$, and additional issuance of treasury bonds $\Delta B_{c,t}=B_{c,t}-B_{c,t-1}$. $B_{c,t}-B_{c,t-1}$ influences the amount of base money through the central bank, $B_{c,t}-B_{c,t-1}=\frac{1}{m}\Delta M_t$ and m is the money multiplier. The budgetary constraint function of the central government is initially simplified as:

$G_{c,t}+\Delta L_{b,t}+i_{t-1}B_{c,t-1}=\tau_{c,t}\left[g\left(G_{c,t}+\sum_{l=1}^{N}G_{l,t}+\sum_{i=1}^{n}I_{i,t}+\sum_{l=1}^{N}I_{l,t}\right)-\overline{G}_{c,t}\right]+\left(1+\frac{1}{m}\right)\Delta M_t$, with which

$$G_{c,t}=\frac{1}{1-\tau_{c,t}g}\tau_{c,t}g\sum_{l=1}^{N}G_{l,t}+\frac{1}{1-\tau_{c,t}g}\tau_{c,t}g\sum_{i=1}^{n}I_{i,t}+\frac{1}{1-\tau_{c,t}g}\tau_{c,t}g\sum_{l=1}^{N}I_{l,t}-\frac{1}{1-\tau_{c,t}g}\tau_{c,t}\overline{G}_{c,t}$$
$$+\frac{1}{1-\tau_{c,t}g}\left(1+\frac{1}{m}\right)\Delta M_t-\frac{1}{1-\tau_{c,t}g}\Delta L_{b,t}-\frac{1}{1-\tau_{c,t}g}i_{t-1}B_{c,t-1}$$ can be solved.

(3) Central economic policy decisions:

Substituting $$G_{c,t}=\frac{1}{1-\tau_{c,t}g}\tau_{c,t}g\sum_{l=1}^{N}G_{l,t}+\frac{1}{1-\tau_{c,t}g}\tau_{c,t}g\sum_{i=1}^{n}I_{i,t}+\frac{1}{1-\tau_{c,t}g}\tau_{c,t}g\sum_{l=1}^{N}I_{l,t}-\frac{1}{1-\tau_{c,t}g}\tau_{c,t}\overline{G}_{c,t}$$
$$+\frac{1}{1-\tau_{c,t}g}\left(1+\frac{1}{m}\right)\Delta M_t-\frac{1}{1-\tau_{c,t}g}\Delta L_{b,t}-\frac{1}{1-\tau_{c,t}g}i_{t-1}B_{c,t-1}$$

into the objective function of central economic policy-making gives us:

$$\max\left\{\begin{array}{l}\frac{\mu_Y(\tau_{c,t}g)^2}{1-\tau_{c,t}g}\sum_{l=1}^{N}G_{l,t}+\frac{\mu_Y(\tau_{c,t}g)^2}{1-\tau_{c,t}g}\sum_{i=1}^{n}I_{i,t}+\frac{\mu_Y(\tau_{c,t}g)^2}{1-\tau_{c,t}g}\sum_{l=1}^{N}I_{l,t}-\frac{\mu_Y{\tau_{c,t}}^2g}{1-\tau_{c,t}g}\overline{G}_{c,t}\\+\frac{\mu_Y\tau_{c,t}g}{1-\tau_{c,t}g}\left(1+\frac{1}{m}\right)\Delta M_t-\frac{\mu_Y\tau_{c,t}g}{1-\tau_{c,t}g}\Delta L_{b,t}-\frac{\mu_Y\tau_{c,t}g}{1-\tau_{c,t}g}i_{t-1}B_{c,t-1}+\mu_Y\tau_{c,t}g\sum_{l=1}^{N}G_{l,t}+\mu_Y\tau_{c,t}g\sum_{i=1}^{n}I_{i,t}+\mu_Y\tau_{c,t}g\sum_{l=1}^{N}I_{l,t}-\mu_Y\tau_{c,t}\overline{G}_{c,t}+\\\mu_Y\left(1+\frac{1}{m}\right)\Delta M_t-\mu_Y\Delta L_{b,t}-\mu_Yi_{t-1}B_{c,t-1}-\mu_Y\overline{G}_t-\mu_\pi\left(\lambda_\pi\Delta M_t-\pi^*\right)^2-\mu_S\left(\lambda_S\Delta M_t-S^*\right)^2\end{array}\right\}.$$

Judging by the transition of monetary policy regulation, money supply regulation remains the dominant mechanism in recent times, and monetary policy still relies on quantitative instruments to some extent. Hence, the first-order derivative of this function with respect to ΔM_t is solved and made zero to obtain

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the optimal value of growth in money supply: $\Delta M_t = \dfrac{(\dfrac{\mu_Y}{1-\tau_{c,t}g})\left(1+\dfrac{1}{m}\right)+2\lambda_\pi\mu_\pi\pi^*+2\lambda_S\mu_S S^*}{2\mu_S\lambda_S{}^2+2\mu_\pi\lambda_\pi{}^2}$.

3.1.2 Local economic policy function

(1) Objective function

In comparison, most local economic policies are concerned with economic growth within their respective jurisdictions without obsessing about such goals as inflation and systemic financial risk (including local regional financial risk). Except for abnormal volatility in the prices of a few commodities, the regulation of inflation is normally closely correlated with the central bank's monetary policy, and local governments are not responsible for the effect of monetary financial expansion. The objective function of local economic policies is: $\max \mu_Y Y_{l,t}$. Assuming the correlation between output $Y_{l,t}$ at the locality l and local government spending satisfies the relational expression $Y_{l,t}=G_{l,t}+I_{l,t}-\overline{G}_{l,t}$, $G_{l,t}\geq\overline{G}_{l,t}$, where $\overline{G}_{l,t}$ is spending to maintain basic local government operation, and $I_{l,t}$ is investment of local enterprises in period t. Substitution into the objective function $\max \mu_Y\left(G_{l,t}+I_{l,t}-\overline{G}_{l,t}\right)$ gives us $\max \mu_Y\left(G_{l,t}+I_{l,t}-\overline{G}_{l,t}\right)$:

(2) Policy instruments and constraint equation

Local government public spending generally include: $G_{l,t}$ (such as spending on public works, public education, social protection and administrative expenses), payment of interest on local government bonds $i_{t-1}B_{l,t-1}$, and repayment of principal on earlier local government bonds $B_{l,t-1}$. Local government revenues primarily include taxation $\tau_l Y_{l,t}$ and the amount of local government bonds issued in the current period $B_{l,t}$. The constraint equation of local government budget is $G_{l,t}+i_{t-1}B_{l,t-1}=\tau_l\left(G_{l,t}+I_{l,t}-\overline{G}_{l,t}\right)+\Delta B_{l,t}$, where, local government bonds increased by $\Delta B_{l,t}=B_{l,t}-B_{l,t-1}$. Thus,

$G_{l,t}=\dfrac{\tau_l}{1-\tau_l}I_{l,t}-\dfrac{\tau_l}{1-\tau_l}\overline{G}_{l,t}+\dfrac{1}{1-\tau_l}\Delta B_{l,t}-\dfrac{1}{1-\tau_l}i_{t-1}B_{l,t-1}$ can be solved.

(3) Local government behaviors and economic decision-making

Before analyzing the equilibrium solution of local government behaviors and economic decisions, two financial decentralization variables need to be introduced: financial decentralization in the form of government bonds $f_{l,s,t}$ and financial decentralization in the form of bank loans $f_{l,b,t}$. $f_{l,s,t}$ is the increase of local government l's bonds as a share of nationwide government bonds, and $f_{l,b,t}$ is bank loans at locality l as a share of total nationwide bank loans.

There is a linear correlation between increases in bank loans ΔL_t and money supply ΔM_t, and $f_{l,b,t}=\dfrac{\Delta L_{l,t}}{\Delta L_t}=\dfrac{\Delta M_{l,t}}{\Delta M_t}$. Investment $I_{l,t}$ at locality l in period t is in direct proportion to increase in local bank loans $\Delta L_{l,t}=L_{l,t}-(L_{l,t\text{-}1}-L_{b,l,t\text{-}1})$, and $L_{b,l,t\text{-}1}$ is the amount of bank NPLs at locality l in period t-1 with the increase of $L_{b,l,t\text{-}1}$ in period t being $\Delta L_{b,t}=\sum_{l=1}^{N}\Delta L_{b,l,t}=\sum_{l=1}^{N}(L_{b,l,t\text{-}1}-L_{b,l,t\text{-}1})$, where $L_{b,l,t}$ is the amount of bank NPLs for local SOEs. Hence the relational expression $I_{l,t}=f_{l,b,t}\Delta M_t$.

Since $B_{c,t}-B_{c,t-1}=\dfrac{1}{m}\Delta M_t$, the ratio between total local government debt $\sum_{l=1}^{N}\Delta B_{l,t}$ and central government bonds $\Delta B_{c,t}$ is η, $0<\eta<1$, so $\Delta B_{l,t}=f_{l,s,t}\times\left(\sum_{l=1}^{N}\Delta B_{l,t}+\Delta B_{c,t}\right)=f_{l,s,t}\times(\eta+1)\dfrac{1}{m}\Delta M_t$.

Based on the status of financial decentralization, the budgetary constraint equation of local government l is $G_{l,t}=\dfrac{\tau_l}{1-\tau_l}I_{l,t}-\dfrac{\tau_l}{1-\tau_l}\overline{G}_{l,t}+\dfrac{1}{1-\tau_l}f_{l,s,t}\times(\eta+1)\dfrac{1}{m}\Delta M_t-\dfrac{1}{1-\tau_l}i_{t-1}B_{l,t-1}$, which is

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substituted into $\max \mu_Y\left(G_{l,t}+f_{l,b,t}\Delta M_t-\overline{G}_{l,t}\right)$ to obtain:

$\max\left(\frac{\mu_Y}{1-\tau_l}f_{l,b,t}\Delta M_t+\frac{\mu_Y}{1-\tau_l}f_{l,s,t}\times(\eta+1)\frac{1}{m}\Delta M_t-\mu_Y\frac{i_{t-1}B_{l,t-1}+\overline{G}_{l,t}}{1-\tau_l}\right)$. Solving the first-order derivative of the objective function with respect to $f_{l,b,t}$ and $f_{l,s,t}$ gives us: $\frac{\partial U_{l,t}}{\partial f_{l,b,t}}=\frac{\mu_Y\Delta M_t}{(1-\tau_l)}>0$,

$\frac{\partial U_{l,t}}{\partial f_{l,s,t}}=\frac{\mu_Y(\eta+1)}{(1-\tau_l)}\frac{1}{m}\Delta M_t>0$.

The first-order derivative condition has the following economic implications: First, in case that the variable of fiscal decentralization τ_l cannot be changed, when local economic aggregate is below a certain level and tax sharing below the necessary amount to maintain local government spending, local governments may boost local output through financial decentralization (by competing for bank loans and increasing local government bonds), and the degree of such increase is subject to growth in money supply ΔM_t, the output coefficient of government spending μ_Y, and the ratio of local government bonds η. The implication is that if local governments cannot finance for their expenditure by raising public bonds, they must try to access loans from the banks, and more loans from state-owned banks within their jurisdictions make it easier to ease pressures on their financial resources. When risks are incompatible with benefits, therefore, local governments will be incentivized to compete for financial resources, and such behaviors will, to some extent, trigger the risks of bank NPLs and local government liabilities. Second, local governments may boost the growth of local bank loans $\Delta L_{l,t}=L_{l,t}-(L_{l,t\text{-}1}-L_{b,l,t\text{-}1})$ and $f_{l,b,t}$ to raise output in their jurisdictions by encouraging enterprises to default on bank loans $L_{b,l,t\text{-}1}$ in their jurisdictions. Bank NPLs $L_{b,l,t\text{-}1}$, once tolerated by too many local governments to occur in their jurisdictions, will give rise to systemic financial risk, prompting the central bank to raise $\lambda_S\Delta M_t$ to resolve such NPLs, thereby increasing ΔM_t, magnifying the local output growth effect of financial decentralization, and intensifying nationwide inflationary pressures. The expansion of local government debt has similar economic effects.

3.2 Intrinsic Logic of Financial Decentralization and Financial Risk under Fiscal Decentralization

Based on the above analysis, it can be found that systemic or major financial risk appears to be a direct result of financial decentralization under fiscal decentralization. Meanwhile, financial reform and development require a certain level of financial decentralization for the market to play a decisive role in allocating financial resources. This brings out an unavoidable question: Why does the deepening of financial decentralization intensify financial risk? To answer this question, this paper further analyzes the intrinsic rationality of financial decentralization in the process of China's market-oriented reforms and the financial risk effects.

3.2.1 Financial decentralization and market-based reforms

(1) There is a significant positive correlation between government-market financial decentralization and market-oriented reforms. As shown in historical evolution, China's fiscal decentralization is relatively explicit, and the central government follows a market-based reform orientation. When the central government devolves more powers of resource allocation to financial institutions and markets, financial decentralization between the government and market becomes deepened. The transition from "letting the market to play a *basic* role in resource allocation" to "letting the market play a *decisive* role in resource allocation" reflects a substantive change and deepening of China's market-based reforms. Government-market financial decentralization, therefore, is in positive correlation with market-oriented reforms, as manifested in the "function curve" of "government-market financial decentralization and

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market-oriented reforms" in Figures 7, 8 and 19.

(2) Financial decentralization between various levels of government may either promote or inhibit market-oriented reforms. The correlation between financial decentralization at various levels of government and market-oriented reforms is complex and falls into the following three circumstances:

First, when the deepening of financial decentralization between central and local governments is appropriate, local governments will have certain powers for financial regulation, financial resource allocation and administration over financial companies. Local governments may further deepen financial decentralization and enhance market-based and efficient resource allocation by improving local financial environment, increasing the efficiency of market-based financial resource allocation, and enhancing financial governance. In this case, financial decentralization between central and local governments and between the government and market will be consistent with market-oriented reforms, and the synergy of financial decentralization will be consistent with market-oriented development, as shown in the function curves for the synergy of financial decentralization and market-oriented reforms in the [0, Fg] interval in Figures 7 and 10.

Second, when the financial decentralization between central and local governments is excessive, local governments will have very high powers for financial regulation, financial resource allocation and administration over financial companies. Scramble for financial resources and intervention in financial resource allocation by local governments to maximize local interest will impede market-based resource allocation. In this case, financial decentralization between central and local governments will diminish the role of the market in resource allocation, as shown in the function curves for central-local financial decentralization and market-based reforms in Figure 8 and Figure 10 (after Fg). Experience and research have proven that some local officials tend to wield administrative power to expand local economic aggregate as a condition for their career advancement. At this moment, city commercial banks become an important financing vehicle for local governments (Ji, *et al.*, 2014). Pressures for career advancement will lead to more mid- and long-term loans, real estate loans and risk concentration, giving rise to NPLs (Qian, *et al.*, 2011). Moreover, when the majority shareholder wields greater control, bank NPL ratio will increase, and banks in which local governments are majority shareholders will report greater NPL ratios (Zhu *et al*, 2012). At this moment, deepening financial decentralization between central and local governments will be negatively correlated with market-oriented reforms to some extent.

Third, when the function curve for the central-local decentralization and marketization crosses with the function curve for the government-market financial decentralization and marketization (horizontal coordinate Fp in Figure 10), the positive effect of financial decentralization on marketization

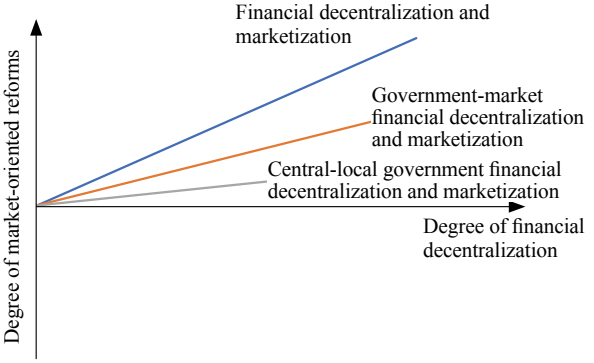


Figure 7: Central-Local and Government-Market Financial Decentralization

Financial decentralization and marketization share a consistent direction

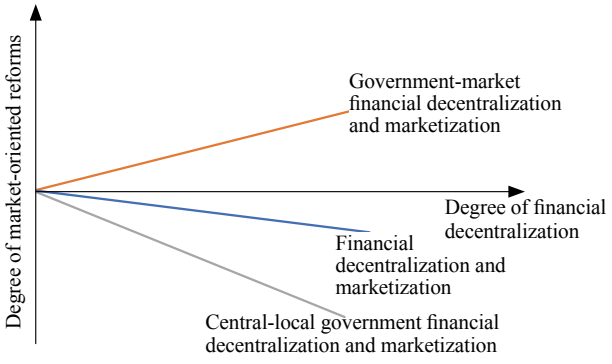


Figure 8: Central-Local Financial Decentralization

Financial decentralization and marketization are in opposite directions

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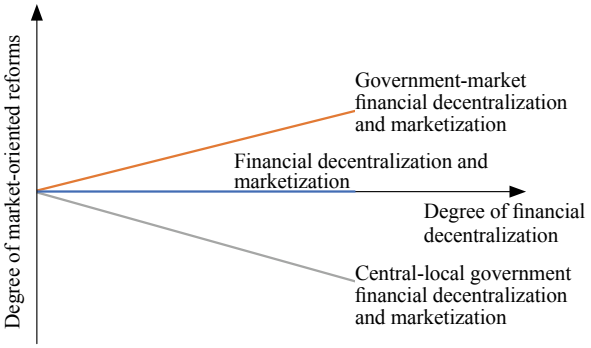


Figure 9: Offsetting Marketization Effects of Central-Local Financial Decentralization and Government-Market Financial Decentralization

will reach the maximum value. When the "central-local intergovernmental financial decentralization and marketization" function takes a dive, the effect of government-market financial decentralization policies enacted by the central government becomes exhausted by the restrictive effect that central-local intergovernmental financial decentralization has on marketization, and financial decentralization starts to reduce the level of marketization (after horizontal coordinate Fp in Figure 10). Within the interval (Fb, Fe), the interventions of many local governments have almost offset the effect of government-market financial decentralization policies enacted by the central government, and at this moment, financial decentralization is generally not correlated with marketization; after Fe, the correlation between financial decentralization and marketization is significantly negative, as shown in Figure 9 and Figure 10.

3.2.2 Effects of excessive financial decentralization and marketization on financial risks

Without a doubt, financial decentralization and marketization are not in a simple linear relationship with financial risk and economic quality. When government-market financial decentralization and financial marketization reach a certain level, continuing to deepen financial decentralization and marketization may exacerbate market competition, increase financial risk, and even trigger a financial crisis. For instance, bank closures during the Great Depression, 1982-1986 and 2009-2011 were all accompanied by excessive financial decentralization between government and the market.

Bank risks will be reduced only when external regulation by regulatory authorities and the value of access-restricting licenses reach a certain equilibrium (Gary Gordon, 2011). Bank licenses can be deemed as part of bank capital since they may generate monopolistic profits to banks. The value of business licenses effectively incentivizes bank owners to avoid risky behaviors detrimental to their license qualifications, and greatly induces banks to edge closer to the social goal of banking system stability while pursuing high-risk investments. Marketization has greatly reduced the value of bank licenses, intensifying financial competition. To cope with competitive pressures, traditional banks have to either lower bank interest rates, engage in high-risk investment, or avoid financial regulation. By reducing the value of bank licenses, marketization and liberalization will not only dent monopolistic profits and prompt banks to divert capital to businesses outside the regulatory horizon, thus giving rise to a "shadow banking system," but also disincentivize self-regulation within the banking system and create spillover effects that aggravate the burden of regulatory authorities and dependence on external supervision (Zhang, 2017). With deepening financial decentralization between government and the market, banks' operating efficiency will increase and financial risks will decrease in the initial stage, but beyond a certain limit, excessive bank competition will intensify financial risk, and excessive devolution of financial powers to the market will inflate financial risk, as shown in Figure 11.

In this sense, although fiscal decentralization is intended to motivate local governments, advance

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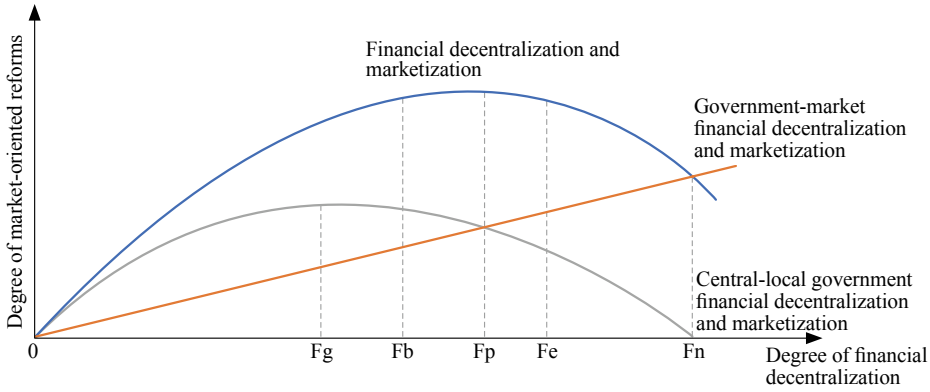


Figure 10: Financial Decentralization Structure and Market-Oriented Reforms

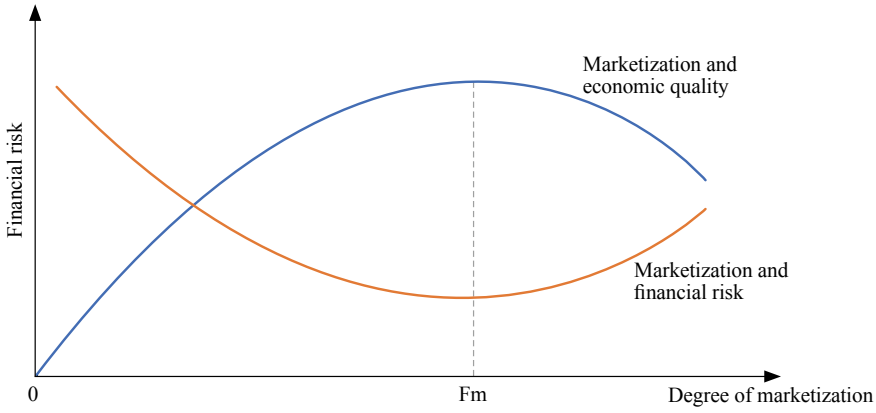


Figure 11: Degree of Financial Marketization and Financial Risk

market-oriented reforms and increase resource allocation efficiency, it has also enhanced the powers of local governments for resource allocation in markets within their jurisdictions. Due to significant differences in policy goals and instruments, local governments are motivated and empowered to compete for financial resources, increasing the financial centralization of local governments vis-à-vis the market. Within a certain period or a certain region, when deepening financial decentralization between central and local governments exerts a negative impact on market-oriented reforms that outweighs the positive effect that financial decentralization between the central government and market has on market-oriented reforms, the deepening of financial decentralization will impede market-oriented reforms and the development of the market economy, and impede the effectiveness of financial functions and the allocation of financial resources, giving rise to financial risk accumulation and compromising the quality of economic development.

4. Relationship between Fiscal Decentralization and Financial Decentralization and Its Effects on Economic Development

As can be learned from the above analysis, fiscal decentralization and financial decentralization are two critical drivers of economic development. There are certain correlations and significant differences between the two, which are unified under the framework of macroeconomic policies. Fiscal decentralization and financial decentralization, if well-coordinated, will reinforce each other and jointly

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promote economic development; and if contradictory with each other, will distort economic structure and impede economic development. In economic reality, the relationship between fiscal decentralization and financial decentralization and their effects on economic development are manifested in the following two aspects:

4.1 Market Rules Are the Fundamental Determinant of the Relationship between Fiscal Decentralization and Financial Decentralization

By influencing economic decision-making at various levels of government, economic systems and market rules cause fiscal decentralization to significantly influence financial decentralization. Such effects are reflected at three progressive levels:

First, the contradiction between explicit local fiscal revenue decentralization and vague spending boundary. Despite a clear demarcation of fiscal revenues between central and local governments, the boundary of fiscal spending between the two is nebulous with inexplicit local government responsibilities, spending structure and prioritization of spending items. Under the pressures to stabilize growth and secure public welfare, revenue-seeking motivations of local government and the consequent crowding-out effect on public finance functions led to a shortfall of public spending (Xu, *et al*., 2010).

Second, given the different economic policy goals between central and local governments, significant differences also exist in terms of the orientation of fiscal and financial behaviors and optimal choices. The optimal choice of local governments is to transfer local fiscal and investment risks to the national financial system. For the purposes of stabilizing economic development, easing the policy burden of SOEs (Gong and Xu, 2008) and preventing systemic and regional financial risks, the central government may bail out, subsidize and guarantee individual entities (International Monetary Fund, 2014). Bailouts against systemic financial risk will enhance local governments' risk transfer expectation and encourage their risky behaviors.

Third, fiscal decentralization will increase local fiscal autonomy, which in turn will reinforce and realize local financial decentralization. Empirical research suggests that increase in the ratio of tax sharing will enable and motivate local governments to increase their liabilities, and implicit financial decentralization will weaken the financing constraint of local governments, making it easier to expand local liabilities (Mao *et al*., 2019). While fiscal decentralization promotes economic growth, explicit financial centralization will lower financial risk and promote economic growth, but implicit financial decentralization will heighten economic risk. As a vehicle for realizing local government land transfer revenues and debt financing, implicit financial decentralization has weakened the positive economic growth effects of fiscal decentralization and explicit financial centralization (Yu and Zhu, 2019).

4.2 Mutual Conversion between Public Finance and Financial Intermediation as Two Resource Allocation Methods Is a Specific Embodiment of the Effects of Fiscal and Financial Decentralization

Given that local governments wield control over financial resources and seek to maximize local economic interest, fiscal decentralization inevitably influences financial decentralization via financial intermediation. Combinations of fiscal decentralization and financial decentralization in various stages reflect the mutual conversion between fiscal and financial methods for resource allocation, as manifested in the following two aspects:

First, the transmission of local fiscal maneuvers to financial intermediation. By supporting local financial institutions, influencing the allocation of their credit resources and expanding implicit liabilities, some local governments have accessed financial resources and allocated such resources to local fiscal programs; some local governments incentivized financial institutions to ramp up financial support to local economic development by a combination of fiscal methods such as fiscal deposits and subsidies and political methods such as rewards for the appointment and dismissal of senior executives and the offering of political resources.

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Second, the conversion of local financial maneuvers to national fiscal maneuvers, as reflected in the transmission of local financial risk to national fiscal relief. Since the capital networks of the financial system are linked with the assets and liabilities networks, regional financial risks accumulated at various localities are highly likely to evolve into systemic financial risks, which require a national fiscal bailout to maintain financial stability. In this manner, local financial maneuvers are indirectly transmitted into national fiscal maneuvers.

4.3 Mutual Contagion between Fiscal and Financial Risks Results from the Relationship between Fiscal Decentralization and Financial Decentralization

4.3.1 Contagion from local fiscal risks to financial risks

Disorderly financial competition behaviors - such as competition for financial resources via various conduits - by local governments have led to diverse and complex financial risks, excessive local government implicit liabilities, a high leverage ratio of enterprises, and a shift of non-financial enterprises from the real economy to the virtual economy. Such risks are spirally transmitted into the financial sector via local debt risk (Xiong and Jin, 2018), financial investments by non-financial enterprises create risk for a stock market crash (Peng, 2018), and risks are transmitted from shadow banks and highly leveraged enterprises to commercial banks. Risk contagion intensifies systemic financial risk. Ultimately, major financial risks are relieved by the central bank or fiscal injection of capital.

4.3.2 Transmission of financial risks to fiscal risks

After local fiscal risk converts into financial risks, regional financial risk or financial risk in critical areas will intensify to some extent, and such risks will convert into central fiscal burdens if they affect the functioning of the financial system or the implementation of major financial reforms. First, financial risk can be eliminated with fiscal funds. According to incomplete statistics, China's financial capital injection exceeded 4 trillion yuan over the period of 1998-2008 (Meng, 2007; Miao, 2018); in 2015, the Ministry of Finance issued the first wave of local government bonds worth one trillion yuan to swap local government bonds as existing local liabilities. Second, the transmission of financial risk to fiscal risk will reduce fiscal revenue and increase government debt pressures, leverage ratio and financial risk. Empirical research suggests that financial sector risk becomes transmitted into local government debt risk via the direct balance sheet and general equilibrium effect conduits, and the historical status of the two is highly correlated: Policy to prolong debt maturity will magnify the economic recession effect of local government default risk via the conduit of financial risk (Xiong and Jin, 2018).

In the same year, the Ministry of Finance, the People's Bank of China (PBC) and the China Banking and Insurance Regulatory Commission (CBIRC) jointly issued a policy document to include local government bonds into the scope of collaterals of central treasury cash management and local treasury cash management in pilot regions and the scope of collaterals for the PBC's standing lending facility (SLF), medium-term lending facility (MLF) and pledged supplementary lending (PSL) to enhance local government credit and prompt commercial banks to continue purchasing or holding local government bonds.

Under fiscal revenue decentralization, therefore, the mutual conversion between fiscal and financial risks boils down to the transmission of local fiscal spending risk to national financial risk and the conversion of national financial risk to central fiscal obligations.

4.4 Coordination between Fiscal and Monetary Policies Is a Macroscopic Reflection of Fiscal Decentralization and Financial Decentralization

Significant interactions exist between fiscal and monetary policies, and the level of coordination between the two is a key reflection of fiscal decentralization and financial decentralization at the

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macroscopic level. Their effects include the effect of treasury bonds on base money and the effect of treasury bond interest rates on the interest rate policy.

In most cases, central government bonds are held by the central bank, which issues and recoups money by buying and selling treasury bonds and central bank bills via open market operations. That is to say, treasury bonds are an important instrument for monetary policy regulation, and the amount, maturity structure and interest rate structure of treasury bonds have a significant effect on the implementation of monetary policy. If the amount of treasury bond issuance is relatively small, monetary policy will not have a sufficient intensity of open market operations to regulate money supply. The maturity structure of treasury bond issuance, if unreasonable, will affect banks' deposit structure, require the money creation process and quantity to be re-estimated, and result in a uniform structure of monetary policy instruments. Treasury bond interest rates, if set too high or too low, will affect the determination of monetary policy benchmark interest rate and compromise the efficiency of the entire interest rate system's transmission mechanism.

In the practice of macroeconomic governance, if the amount and maturity of treasury bonds are determined solely based on fiscal functions and only serve the needs to reduce fiscal deficits, balance budgets and lower distribution cost without considering the financial attribute of treasury bonds and their important role in financial market operations and monetary policy regulation, the treasury bond yield cannot fully function as the pricing benchmark for financial markets (Xu, 2018).

5. Creating a Macroeconomic Governance System Based on Fiscal Decentralization and Financial Decentralization

Since the institutional arrangements for fiscal decentralization and financial decentralization are an important determinant of science-based and effective market economic governance, it is necessary to create a macroeconomic governance system based on fiscal decentralization and financial decentralization and thus effectively prevent major financial risks and promote economic development with high quality.

5.1 Increase the Accuracy of Fiscal Policy and Monetary Policy Orientation and Coordination and Promote Science-based Macroeconomic Policy-Making for More Effective Macroeconomic Governance

Fiscal and monetary policies are important instruments for the government to regulate the market and compensate for market failures and key methods for macroeconomic governance. The achievement of macroeconomic stability hinges upon the coordination between fiscal and monetary policies. The government should further clarify the orientations of fiscal and monetary policies, as well as the boundary of monetary and fiscal reliefs offered by the central government to local governments.

(1) The monetary policy should aim to maintain price (currency value) stability and provide a monetary and financial environment of balanced aggregates for high-quality economic development. The monetary policy should focus on price stability and regulate the equilibrium between short-term aggregate demand and aggregate economic volume. Monetary relief offered by the central government to local governments should also be conducted under this framework. At the fundamental level, this monetary policy orientation establishes the principles for countercyclical regulation and its coordination with fiscal policy.

(2) Fiscal policy should follow the orientation of public finance to serve as an automatic regulator for high-quality economic development. Fiscal policy should focus more on compensating for market failure, increasing public expenditure, and stabilizing economic growth at the service of mid- and long-term economic development strategies. Notably, fiscal policy no longer serves as a regulatory instrument of frequent use. Instead of serving as the main engine of a country's economic growth, fiscal policy

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should act as a potent stimulus only when recession sets in for a mid- and long-term economic cycle. This fiscal policy orientation determines the principles of its cross-cyclical regulation and coordination with monetary policy.

(3) Mechanisms for coordinating fiscal and policies at such levels as policy goals, policy instruments and policy transmission should be designed to increase the accuracy of macroeconomic regulation and coordinate with employment, industrial, environmental protection and other macroeconomic policies. (i) In terms of policy goals, the government should seek an alignment of fiscal and monetary policy objectives and integrate fiscal, monetary and macroprudential policies under a unified framework. (ii) Substitute the equation of policy instruments into the unified objective function framework to solve the equilibrium. Meanwhile, targeted instruments should be employed for the variables of the common objective function not included into fiscal and monetary policies. Another priority is to calculate more precisely the effects of policy instruments on policy objectives and other macroeconomic variables and increase the coordination of policy instruments through constant trials and errors. (iii) In terms of the transmission mechanism, we should enhance expectation management, improve macroeconomic policy-making and implementation, shorten the time lag of policy perception, formulation and implementation, and enhance science-based policy regulation.

5.2 Clarify the Main Functions and Behavioral Boundary of Local Governments, Reduce the Ratio of Local Fiscal Spending While Increasing the Ratio of Local Fiscal Revenue, Enhance the Effects of Macroeconomic Policies at the Implementation Level, and Increase the Effectiveness of Macroeconomic Governance

Based on the theme of socialist market economic development with Chinese characteristics, we should clearly define local government responsibilities and boundary of behaviors as the prerequisites for reforming financial systems and developing the macroeconomic governance system.

(1) Main responsibilities of local governments. In China, the government primarily serves such functions as economic regulation, market supervision, social administration, public services and ecological and environmental development (Jiang, 2020). The central government has dominant advantages and responsibilities for strategic national projects in aviation and aerospace, quantum information and artificial intelligence (AI), and local governments are required to bolster local public services. According to the principles set forth at the Third Plenum of the 18th CPC Central Committee, local government responsibilities are threefold: (i) to enhance and optimize local public services such as compulsory education, public health and healthcare, social protection, and public employment services; (ii) to enhance market supervision, maintain market order, ensure fair competition, inspire market dynamism, safeguard the interests of market players, increase local fiscal revenues in the long run, and ensure the performance of primary government responsibilities; (iii) to compensate for market failures, promote sustainable economic development, and strive for common prosperity. These principles have defined the boundary of local government responsibilities. By fulfilling those responsibilities at the three levels, local governments are tasked with promoting high-quality local economic development.

(2) Boundary of local government fiscal spending. Based on the three levels of local government responsibilities and the initial demarcation of government administrative powers by the *Decisions*, we may further identify the primary and secondary local government fiscal expenditures and their boundary. Specifically, these local government fiscal expenditures include: (i) fiscal spending for local governments to fulfill their primary responsibilities; (ii) fiscal spending for maintaining market order, safeguarding fair competition, and local market supervision, such as necessary spending on legislative, administrative and judicial institutions; (iii) fiscal relief to reduce income inequality and poverty and fund public infrastructures such as water supply, electric power, natural gas and communications; (iv) spending on administrative affairs entrusted by the central government to local governments through transfer payments. Local government fiscal spending should be compatible with fiscal revenue, prioritizing

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primary responsibilities over other responsibilities. By clarifying the boundary of local government responsibilities and optimizing the structure of local government expenditures, it becomes easier to regulate local government liabilities and coordinate fiscal and monetary policies at the implementation level.

5.3 Moderately Decentralize Financial Powers on the Basis of Clarifying Local Government Responsibilities for More Effective Macroeconomic Governance and Policy Implementation

Financial governance system with moderate decentralization will enhance the coordination of fiscal, monetary, employment, industrial and other economic policies at the transmission level. Based on financial decentralization categories, China's financial governance system development can be strengthened at the following levels:

(1) Moderate decentralization of financial resource allocation and financial governance. The rule of law and marketization are the two prerequisites for the government to appropriately decentralize financial powers. From the perspective of financial markets, there are three levels of basic laws and regulations. First, fair and explicit laws and regulations should be established to clarify the rules of financial transactions, ensure fair and open opportunities of transaction, and clearly share risk responsibilities and rights. All market players should be held accountable for their behaviors, increase the level of information disclosure, and participate more in financial markets. Financial risks should be defused and financial contract disputes settled in accordance with precise and equitable laws, which should be timely updated amid financial development. Second, equitable and rigorous law enforcement procedures should be established for the prompt, objective and fair rulings of financial risk events, ensuring that those violating the rules are held accountable. Third, entities liable for causing financial risk events and systemic financial risks should be held accountable to compensate for the consequent losses. Marketization is primarily manifested in explicit property rights, clear rights and responsibilities, separation between government administration and enterprise management, and science-based management, which are also the key elements of financial marketization.

(2) Moderate decentralization of power for regulation over financial companies and financial governance. Improving governance of financial companies entails two aspects of work: First, the boundary between shareholder responsibilities and operational responsibilities of local governments should be made clear. Local governments should refrain from intervening in the daily operations of financial institutions even if they are majority shareholders, and the appointment and dismissal of senior management personnel should be left to the board of directors. Government administration should be separated from enterprise operation and from government responsibilities as the owner of state assets. Certain business operations should be subject to regulatory licensing. Corporate governance structure with effective checks and balances should be created for financial companies. Second, the boundary between the shareholder responsibilities of local governments and financial regulation should be clarified. As the state capital contributors of some financial institutions, local governments should be responsible only for improving the governance of financial companies as their shareholders, devolve powers, and incentivize professional financial managers to dutifully operate their businesses for the maintenance and appreciation of the value of state assets.

(3) Moderate decentralization of financial regulation and financial governance. In devolving financial regulatory powers, the central government should clarify the scope of local financial regulation and enhance local government capacity for financial regulation. First, local governments assume primary responsibilities for regional financial market regulation, including the review and approval of corporate licenses for and daily supervision over financial companies in which local governments are not controlling shareholders or the biggest shareholders, as well as the standardization of their daily operations. Second, the improvement of local government financial regulation. The key for local governments to enhance financial regulation is to assess and control regional financial risks.

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Financial risk assessment should be designed in terms of the organization, scope and undertaking of the assessment.

(4) Moderate decentralization of financial stability and governance. On the basis of enhancing local government financial regulation, the central government should devolve certain powers of financial stability to local governments and under the principles of matching benefits with responsibilities and reducing local government adventurous impulses and cost transfer expectations, clarify local government responsibilities for financial risk prevention and solution and establish a mechanism for sharing local financial risk relief responsibilities.[7] For instance, local financial stability funds and local financial asset management companies with local government investments should be established to defuse major financial risks of local financial institutions and markets.

6. Concluding Remarks

In the new era of socialism with Chinese characteristics, a key step for addressing key economic challenges in the new era is to improve macro-economic governance. Fiscal and financial decentralization will influence the synergy between fiscal and monetary policies as key method for macroeconomic governance. Amid its transition from the planned economy to a market-based one, China has increasingly clarified and improved central-local fiscal decentralization. Intertwined financial decentralization between various levels of government, between the government and market, and between various departments of government at the same level have caused explicit financial centralization and implicit financial decentralization to be incompatible with fiscal decentralization.

Under the two levels of central and local government entities, significant differences exist in the objectives and instruments of central and local economic policies. While promoting market-oriented reforms and incentivizing local governments, those differences have also reinforced local government powers for resource allocation in markets within their jurisdictions, and motivating and empowering them to fight for financial resources. Some local governments impeded market-oriented reforms, giving rise to more financial risks.

To create a science-based macroeconomic governance system and enhance macroeconomic governance, efforts should be taken to: increase accuracy in the orientation and coordination of monetary and fiscal policies and promote science-based macroeconomic policy-making at the top-down level; clarify the main responsibilities and boundary of behaviors of local governments and reduce the ratio of local spending while increasing the ratio of local fiscal revenue to enhance macroeconomic policy effectiveness; and moderately decentralize financial powers on the basis of clarifying main local government responsibilities for more effective macroeconomic governance policies at the level of transmission mechanism.

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Refer to the "Politburo of the CPC Central Committee held a meeting to analyze current economic situation and economic work, listen to the report on the third national land survey, and deliberate the *Ordinance of the Communist Party of China Organizational Work*," *People's Daily*, May 1, 2021, page 1.

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