Do Institutional Investors Drive Financialization of Real Sectors?

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The trend that China's economy is being "off the real to the virtual" is a typical fact in recent years. A large number of firms invest and hold financial assets, the investing and profit-generating channels of the real sectors are becoming more and more financialized. By utilizing sample of Chinese A-share manufacturing firms from the year of 2007 to 2015, and using fixed effect model, this paper investigates the driving factor of the financialization of real sectors. The results show that: (1) institutional investors, overall, drive the financialization of real sectors; (2) institutional investors are heterogeneous, that is, long-term institutional investors do not show a significant correlation with the financialization of real sectors; however, short-term institutional investors significantly drive the financialization of real sectors; (3) the results of further investigation show that the driving effect of institutional investors on financialization is more significant in state-owned firms than that in private firms. The findings have implications as follows: guiding the investment behavior of institutional investors, leading financial sector to serve the real economy, promoting financial structure reform.

Keywords: institutional investors, "off the real to the virtual", real sectors, financialization

1. Introduction

In recent years, the development level of China's financial market has been significantly improved, and the structure of financial assets has been significantly perfected (Yi and Song, 2008), and financial deepening has also promoted economic development (Tan, 1999). However, in the capital market, there is a phenomenon of funds flowing out of the real economy and "idling" in the financial field. The financial industry and real estate industry are overheated and their return on net assets is significantly higher than that of the real economy. Figure 1 shows that since the financial crisis, the return on net assets of the financial and real estate industries

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has been significantly higher than that of manufacturing industries. Due to the significant difference of asset return rate among these industries, the "off the real to the virtual" of companies in real economy has become a typical fact. The relationship between financial sector and real economy is becoming more and more delicate. The financialization of economy is accelerating (Zhang and Zhang, 2015). A large number of domestic real companies are actively investing in financial assets. Figure 2 shows that the proportion of financial assets held by manufacturing companies has continued to rise since 2011, and the proportion of financial investment return to operating profit has also risen sharply since the financial crisis.

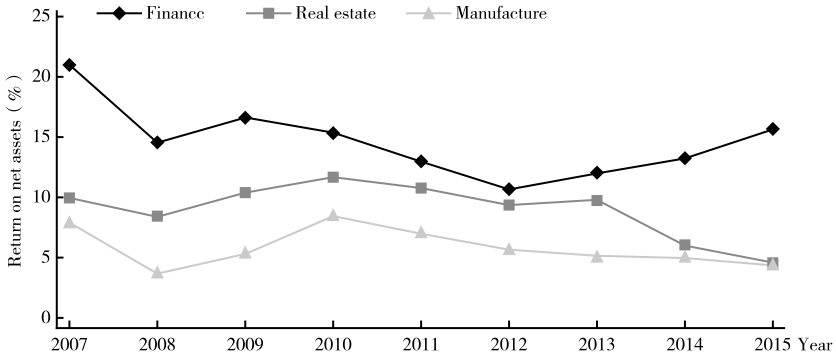

Figure 1. Return on Net Assets of the Industry

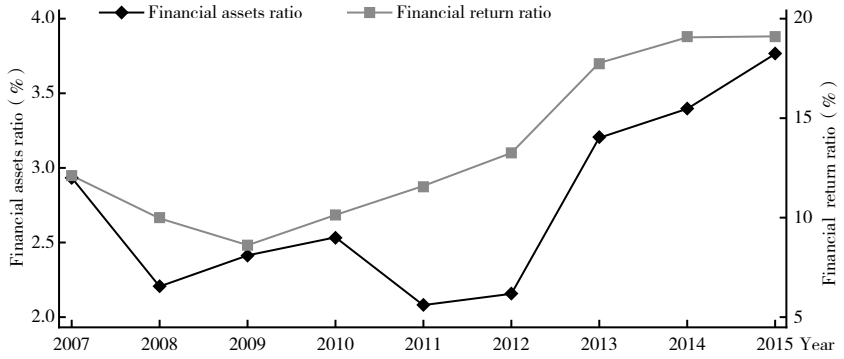

Figure 2. Financial Assets Ratio and Financial Return Ratio

Notes: The data of ROE in Figure 1 are from CSMAR Database. This paper calculates the average ROE of financial industry, real estate industry and manufacturing industry according to the industry classification guideline of the Securities Regulatory Commission of the 2012 edition. The original data in Figure 2 are from the CSMAR database, financial assets ratio is the proportion of financial assets to total assets, financial return ratio is the proportion of financial return to total operating profits. The specific algorithm can be found in the section "Definition and Calculation of Key Variables" below. Graphics are drawn by the author through Stata software.

Unlike mature foreign capital markets, institutional investors in China's capital markets mostly pursue short-term interests. As Chinese institutional investors are more

inclined to focus on short-term interests, their position turnover rate is higher, which brings pressure on companies with poor short-term performance to decrease their stock prices. Under the pressure of falling stock prices, managers will allocate more capital to financial assets with shorter profit cycles in order to maintain short-term performance. Therefore, from the short-sighted point of view of institutional investors, institutional investor ownership may drive corporate financialization. What impact will institutional investors have on corporate financialization? This is the focus of this paper.

Based on the sample data of A-share manufacturing companies from 2007 to 2015, this paper studies the driving factors of real companies' financialization from the short-sighted perspective of institutional investors. This paper may have the following contributions. Firstly, most of the existing literature focused on the measurement and economic consequences of financialization, but paid less attention to the driving factors of corporate financialization. This paper studies the driving factors of corporate financialization from the short-sighted perspective of institutional investors, which is a supplement to the literature on the driving factors of corporate financialization. Secondly, the results of this study show that short-term interest concerns of institutional investors will drive corporate financialization. Therefore, this paper also enriches the research on economic consequences of institutional investor ownership. Thirdly, the theoretical analysis and empirical evidence provided in this paper will help us to understand the impact of institutional investors' short-sighted behavior on corporate management's short-sighted financial investment behavior, which is of positive significance for regulatory authorities to guide institutional investors' investment behavior rationally, stabilize the market, actively guide the financial industry to return to the origin of supporting the real economy and promote the reform of financial structure.

2. Literature Review and Research Hypotheses

2.1. Literature Review

There is no strict and unified definition of financialization in academic circles. The definition of financialization varies with the scope of defining. It can be either financial deepening at the macro-level (Krippner, 2005) or the financialization of corporate investment channels at the micro-level (Demir, 2009). The perspective of this paper is micro-level financialization.

Since the 1980s, the investment and profit channels of companies have become more and more financialized in developed countries and some emerging market countries. Epstein and Jayadev (2005) took the non-financial enterprises of OECD member countries as samples, and found that in the early 20th century, more and

more non-financial enterprises invested in financial assets. Demir (2009) studied listed companies in Mexico, Argentina and Turkey, and found that firms' investment in fixed assets decreased significantly, but their investment in short-term financial assets increased significantly. Zhang and Zhang (2015) analyzed financial data of Chinese A-share non-financial and non-real estate listed companies from 2004 to 2013, and found that the proportion of non-financial enterprises' earnings from financial channels to net profits increased year by year and accelerating. It can be seen that the financialization of real sector companies is a common phenomenon in both developed capital markets and emerging markets.

As for the issue of corporate financialization in real sectors, the previous literature focuses more on how to design the measurement indicators of financialization, which can be summarized as macro-level measurement and micro-level measurement. At the macro-level, the existing literature mainly measures financialization from the perspectives of the proportion of employment in the industry, the proportion of output value in the industry and the proportion of profit in the industry (Krippner, 2005). At the micro-level, most of the existing literature measures the financialization of the economy from the perspective of investment channels and profit channels of non-financial companies (Demir, 2009; Song and Lu, 2015). This paper will measure the degree of corporate financialization in real sectors at the micro-level.

With increasingly obvious phenomenon of economic financialization in recent years, scholars have studied the influencing factors of economic financialization. Demir (2009) found that under the condition of uncertain macroeconomic risk, the difference between the income rate of financial assets and real assets is the cause of corporate financialization. Davis (2013) studied non-financial companies in the United States, and found that the deep-rooted values of shareholders, fluctuations in demand at the corporate level and the size of the company would affect the fixed asset investment rate of non-financial companies. At the same time, some scholars studied the financialization of China's non-financial companies. Zhang and Zhang (2015) put forward threefold motives of economic financialization: the decline of profit margin in traditional productive industries, the opening of trade and finance, and the aging of economy. Zhang and Sun (2014) studied the listed manufacturing companies in China and found that the mismatch between financial and real economic development and the increase of resources supply in financial sector are the reasons for the financialization of China's economy. Although some literature studied the influencing factors of financialization, most of them was based on macro-level analysis, and relatively few were based on micro-level research.

2.2. Research Hypotheses

It has been found that institutional investors are concerned about short-term

interests, so institutional investor ownership may drive short-sighted investment behavior of corporate management. In fact, there are two preconditions for institutional investors to focus on short-term interests to drive short-sighted investment behavior of corporate management. First, institutional investors are concerned about company's current earnings. After controlling momentum, institutional investors' trading behavior is very sensitive to earnings news (Lang and MacNichols, 1997). When the company's earnings fall, institutional investors are motivated to sell the company's shares because they are subject to fiduciary responsibility, as fund sponsors use earnings as a criterion to judge whether fund managers are smart in their investment strategies (Badrinath *et al.*, 1989). Because of information asymmetry, institutional investors often use current earnings as the value proxy of a company. They make trading decisions according to the changes of current earnings (Froot *et al.*, 1992). In China's capital market, Yao and Liu (2008), Cai and Song (2010), Liu and Xu (2012) found that the fundamental reason of institutional investors having increased the volatility of the securities market is that institutional investors pursue short-term interests. Second, the company's management is concerned about the stock price. Because falling stock prices may lead to undervaluation of companies, managers are motivated to adopt short-term investment strategies to maintain short-term performance to avoid undervaluation (Stein, 1988, 1989), such as reducing R&D expenditure (Bushee, 1998). As far as China's capital market is concerned, there are several reasons why managers are concerned about stock prices. (1) Listed companies often have the need to use open market for timing financing, too low share price is not conducive to corporate financing. (2) Managerial equity incentive is directly linked to stock price, and too low stock price will reduce managers' exercising benefits. In order to maximize exercising benefits, managers may implement opportunistic behavior. (3) Stock exchange is one of the common payment methods for mergers and acquisitions of listed companies in China (Sun *et al.*, 2013). Mergers and acquisitions often take place through stock exchange to a certain extent, or the actual transaction price is directly related to the stock price, so too low share price will make the acquisition operation cost too high, and may also make the company become the target of competitors' acquisition. Therefore, from the short-sighted perspective of institutional investors, the short-term interest concerns of institutional investors will cause pressure on corporate management to decrease stock prices; in order to avoid falling stock prices, managers will make short-sighted investment decisions and allocate more capital to financial assets with shorter earnings cycle. Based on the above analysis, this paper proposes the following hypothesis.

H1: There is a significant positive correlation between the proportion of institutional investor ownership and the degree of corporate financialization.

The existing literature shows that institutional investors are heterogeneous (Bushee,

1998; Chen *et al.*, 2007). The proportion of short-term institutional investors in a company is higher, the management will reduce R&D expenditure to avoid the decline of current earnings level (Bushee, 1998). Only institutional investors with independence and long-term investment in companies can play a supervisory role (Chen *et al.*, 2007). Meanwhile, institutional investors in China's capital market also are heterogeneous. Short-term institutional investors exacerbate market volatility while long-term institutional investors play a role in stabilizing the market to a certain extent (Liu and Xu, 2012). In this regard, this paper argues that the long-term institutional investors hold shares for a relatively longer time and pay more attention to the long-term value of the company, so they will not drive corporate financialization; while the short-term institutional investors hold shares for a relatively shorter time and pay more attention to the current performance of the company, which will drive the company's financialization. Based on the above analysis, this paper proposes the following hypotheses.

H2a: There is no significant correlation between the proportion of long-term institutional investor ownership and the degree of corporate financialization.

H2b: There is a significant positive correlation between the proportion of short-term institutional investor ownership and the degree of corporate financialization.

The difference of property rights is a typical feature of Chinese listed companies. The operating objectives of companies with different property rights are different, which determines the significant difference in behavior decision-making between state-owned enterprises and private enterprises. In addition to pursuing economic benefits, state-owned enterprises also need to bear social responsibilities such as employment, taxation, earthquake relief and so on. It is also the main tool for the implementation of macro-control and industrial policy. Therefore, state-owned enterprise executives can not only focus on current earnings. Compared with private enterprises, the executives of state-owned enterprises are more insensitive to the changes of current earnings. Therefore, in state-owned enterprises, institutional investor ownership will play a smaller role in driving the financialization of companies, while in private enterprises, the driving role will be greater. Based on the above analysis, this paper proposes the following hypothesis.

H3: Compared with the state-owned enterprises, the positive correlation between the proportion of institutional investor ownership and the degree of corporate financialization is more significant in private enterprises.

3. Research Design

3.1. Sample Selection and Data Sources

This paper chooses all manufacturing companies in China's A-share market from

2007 to 2015 as the research sample. [1]At the same time, this paper uses the existing research (Bushee, 1998; Song *et al.*, 2012; Cai and Rao, 2015) to reflect the level of institutional investor ownership by using the proportion of fund holdings in the listed companies' outgoing shares. The financial data of listed companies are from CSMAR database. Detailed data of fund shareholding are from Reiss database, and half-yearly data are used. Property right data are from CCER database. The office addresses of listed companies and fund management companies are from the Wind database. The M2 growth rate data are from the official website of the People's Bank of China. This paper deals with the data as follows. (1) In order to control the impact of abnormal value, this paper excludes the sample of companies whose asset-liability ratio is greater than 1; (2) Excludes the sample of missing key variables; (3) Shrinks the tail of continuous variables on the scale of 1% and 99%. After the above data processing, totaling 6770 companies, annual observations of 1156 A-share manufacturing companies are obtained in this paper.

3.2. Model Design

In order to analyze whether institutional investor ownership drives corporate financialization, this paper constructs the following fixed-effect models for empirical testing by synthesizing the existing literature on the driving factors of corporate financialization (Song and Lu , 2015; Xie *et al*., 2014; Zhang and Zhang, 2015):

$$FinAsstRt_{it} = \alpha + \beta O_{it}\left(LIO_{it}, SIO_{it}\right) + \gamma Controls + FIRM + YEAR + \varepsilon_{it} \quad (1)$$

Among them, subscriptions *i* and *t* represent company *i* and the year *t* respectively; $FinAsstRT_{it}$ represents the proportion of financial assets held by the company; IO_{it} represents the total proportion of institutional investor ownership; LIO_{it} represents the proportion of long-term institutional investor ownership; SIO_{it} represents the proportion of short-term institutional investor ownership. [2] *Controls* represent all control variables.

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[1] The basis of sample selection is as follows. Firstly, since 2007, China has implemented new accounting standards for enterprises. There are great differences between the old and new accounting standards. In order to maintain the comparability of data, the data after 2007 are selected as the research sample. In addition, the detailed data of "other liquid assets" and "long-term equity investment" subjects which are the basic data for calculating the financialization of real sector companies have been disclosed in the annotations to the annual report since 2007. Secondly, Huang (2017) put forward a framework for the classification of real economy. The first level of real economy is manufacturing industry, which is the core of real economy. Therefore, this paper uses Huang's division method and uses manufacturing industry to represent the real economy.

[2] In column (1)~(3) of Table 3, *IO*, *LIO* and *SIO* are used as explanatory variables. In order to further compare the impact of long-term and short-term institutional investor ownership on financialization, this paper refers to Yan and Zhang (2009), Liu and Xu (2012). In the model of column (4), *LIO* and *SIO* are used as explanatory variables to examine whether there are differences in the impact of long-term and short-term institutional investor ownership on financialization.

Song and Lu (2015) found that there was a U-shaped relationship between corporate financialization and the return on operating assets. Therefore, this paper includes the return rate on operating assets and its square term in the control variables. Demir (2009) found that the difference between the return rate of financial assets and real assets was the cause of corporate financialization. Zhang and Zhang (2015) also believed that the long-term decline of profit rate of traditional productive industries was one of the main reasons for the financialization of real economy. Therefore, the difference between the average *ROE* of financial industry and real estate industry and the average *ROE* of manufacturing industry is included in the control variables. Zhang and Zhang (2016) found that monetary policy would affect the industrial investment rate of companies (corresponding to the investment in financial assets). Therefore, the growth rate of M2 is included in the control variables in this paper. Meanwhile, referring to the existing literature on the driving factors of corporate financialization (Song and Lu, 2015; Xie *et al.*, 2014; Demir, 2009), this paper includes the relevant corporate characteristics variables into the control variables, such as enterprise size, asset-liability ratio, net cash flow of business activities, growth rate of business income. The specific names and definitions of all variables in the model are shown in Table 1. *FIRM* represents the firm's individual fixing effect, *YEAR* represents the time fixing effect, and ε_{it} represents the interference item.

Table 1. Name and Definition of Variables

Signs	Name of variables	Definition of variables
FinAsst	financial assets	transactional financial assets + derivative financial assets + net sellable financial assets + net holding to maturity investment + net long-term creditor's rights investment + trust loans + financial products + trust product investment balance + investment real estate + equity holding of financial institutions
FinAsstRt	proportion of financial assets held	total financial assets/total assets
FinInc	financial return	interest income + investment return from holding various types of financial assets + long-term equity investment return from financial institutions + fair value change return from transactional financial assets and transactional financial liabilities as well as investment real estate
FinIncRt	proportion of financial return	total financial return/total operating profit
IO	institutional investor ownership ratio	institutional investor stock holdings/total outgoing stocks of listed companies
LIO	long-term institutional investor ownership ratio	long-term institutional investor stock holdings/total outgoing stocks of listed companies
SIO	short-term institutional investor ownership ratio	short-term institutional investor stock holdings/total outgoing stocks of listed companies

Signs	Name of variables	Definition of variables
OprtAsstRn	return on operating assets	(operating profit-financial return)/(total assets-financial assets)
$OprtAsstRn^2$	square term of return on operating assets	return on operating assets×return on operating assets
ROE_Diff	difference of profit rate in industry annually	average return on net assets in finance and real estate-average return on net assets in manufacturing industry
Size	natural logarithm of total assets	ln(total assets)
Lev	asset-liability ratio	total liability/total assets
Growth	growth rate of business income	(current operating income-last operating income)/last operating income
CFO	net cash flow ratio of operating activities	net cash flow of operational activities /total assets
SOE	nature of property right	SOE, *SOE*=1; Non-SOE, *SOE*=0
EPS	earnings per share	current net profit attributable to common shareholders / weighted average of common shares issued out
M2Grwth	M2 growth rate	current M2/last M2

In the model of formula (1), if the coefficient β of IO_{it} is significantly positive, institutional investor ownership drives corporate financialization. Furthermore, in view of the heterogeneity of institutional investors, this paper divides institutional investors into long-term and short-term institutional investors, and then makes regression analysis of the above model.

3.3. Definition and Calculation of Key Variables

3.3.1. Definition of the Proportion of Financial Assets Holding and the Proportion of Financial Return

Referring to the methods of Song and Lu (2015), this paper strips financial assets from assets and financial return from returns. The proportion of financial assets to total assets is used to indicate the degree of financialization of the company. Let the proportion of financial assets held in company i in year t be $FinAsstRT_{it}$, which is equal to the total financial assets $FinAsst_{it}$ divided by total assets $TtLAsst_{it}$ in year t of company i. Among them, total financial assets $FinAsst_{it}$ includes the following parts:

$$FinAsst_{it} = FinTrd_{it} + FinRcnt_{it} + FinRl_{it} + FinEty_{it} \quad (2)$$

Among them, $FinTrd_{it}$ represents transactional financial assets, including subjects such as transactional financial assets, derivative financial assets, net financial

assets available for sale, net investment held to maturity, net investment in long-term creditor's rights. $FinRcnt_{it}$ represents a relatively large number of new types of financial assets in recent years, including entrusted loans, financial products, investment balance of trust products, $FinRl_{it}$ represents investment real estate, $FinEty_{it}$ represents ownership of financial institutions' stock right.

In addition, this paper uses $FinIncRt_{it}$ to express the proportion of financial return to total operating profit. Financial return $FinInc_{it}$ is defined as follows:

$$FinInc_{it} = Interest_{it} + Invest_{it} + FairVl_{it} \tag{3}$$

Among them, $Interest_{it}$ represents interest income, $Invest_{it}$ represents the financial-related part of investment return, specifically including investment return obtained by holding various types of financial assets, long-term equity investment return obtained by holding financial institutions, $FairVl_{it}$ represents fair value change return, including fair value change returns of transactional financial assets, transactional financial liabilities and investment real estate.

3.3.2. The Division of Long-Term and Short-Term Institutional Investors

Referring to the existing methods (Yan and Zhang, 2009; Liu and Xu, 2012; Li and Lu, 2015), this paper divides institutional investors into long-term institutional investors and short-term institutional investors. The calculation steps are as follows:

Firstly, calculate the total purchase or sale of institution k:

$$CR\_buy_{k,t} = \sum_{\substack{i=1 \\ S_{k,i,t} > S_{k,i,t-1}}}^{N_k} |S_{k,i,t}P_{i,t} - S_{k,i,t-1}P_{i,t-1} - S_{k,i,t-1}\Delta P_{i,t}| \tag{4}$$

$$CR\_sell_{k,t} = \sum_{\substack{i=1 \\ S_{k,i,t} \le S_{k,i,t-1}}}^{N_k} \left|S_{k,i,t}P_{i,t} - S_{k,i,t-1}P_{i,t-1} - S_{k,i,t-1}\Delta P_{i,t}\right| \tag{5}$$

Among them, $CR\_buy_{k,t}$ and $CR\_sell_{k,t}$ respectively represent the total purchase and total sale of institution k in the t period, $P_{i,t}$ and $\Delta P_{i,t}$ respectively represent the difference between the price of institution k holding stock i in the t period and the price in the previous period. When $S_{k,i,t} > S_{k,i,t\text{-}1}$, it represents institution k buying stock in in the t period, and when $S_{k,i,t} \leqslant S_{k,i,t\text{-}1}$, it represents that institution k sold stock i in the t period.

Secondly, the transaction flow rate (CR, Churn Rate) of each institution k can be calculated:

$$CR_{k,t} = \frac{\min\left(CR\_buy_{k,t}, CR\_sell_{k,t}\right)}{\sum_{i=1}^{N_k} \frac{S_{k,i,t}P_{i,t} + S_{k,i,t-1}P_{i,t-1}}{2}} t \tag{6}$$

Thirdly, average flow rate of institution k in the past year can be calculated:

$$AVG\_CR_{k,t} = \frac{1}{2}\left(CR_{k,t} + CR_{k,t-1}\right) \tag{7}$$

Institutional investors are divided into three groups according to the size of $AVG\_GR_{k,t}$, the lowest group is long-term institutional investors, and the highest group is short-term institutional investors.

Fourthly, for the company i in the sample, the proportion of all long-term institutional investors is added up and expressed by LIO_{it}. Similarly, the proportion of short-term institutional investors in company i can be obtained and expressed by SIO_{it}.

4. Empirical Results and Analysis

4.1. Descriptive Statistics

Table 2 shows descriptive statistics of major variables. As can be seen from Table 2, the average holding ratio of financial assets is 2.6%, and the maximum value is as high as 35.3%. The average share-holding ratio of institutional investors is 6.1% and the maximum is 53%. This shows that the average share-holding ratio of institutional investors in China has reached the level of influencing the company. Further, the average share-holding ratio of long-term institutional investors and short-term institutional investors is 1.3% and 2.5% respectively, and the maximum is 25.6% and 27.9% respectively. Therefore, on average, short-term institutional investors hold a larger proportion of shares in China's institutional investors. The average return on net assets of financial industry and real estate industry is 5.6 percentage points higher than that of manufacturing industry (*ROE_Diff*), which indicates that the return on net assets of real sector industry is also far from that of finance and real estate industry.

Table 2. Descriptive Statistics of Variables

Variables	Sample	Mean	SD	Min.	Median	Max.
FinAsstRt	6770	0.026	0.057	0.000	0.004	0.353
IO	6770	0.061	0.076	0.000	0.031	0.530

Variables	Sample	Mean	SD	Min.	Median	Max.
LIO	6770	0.013	0.022	0.000	0.005	0.256
SIO	6770	0.025	0.036	0.000	0.010	0.279
OprtAsstRn	6770	0.047	0.064	−0.210	0.041	0.236
ROE_Diff	6770	0.056	0.012	0.044	0.051	0.082
Size	6770	22.040	1.117	19.980	21.880	25.320
Lev	6770	0.422	0.195	0.044	0.424	0.826
Growth	6770	0.179	0.340	−0.414	0.128	2.009
CFO	6770	0.051	0.069	−0.141	0.047	0.251
SOE	6770	0.431	0.495	0.000	0.000	1.000
EPS	6770	0.407	0.483	−0.850	0.313	2.460
M2Grwth	6770	15.658	3.894	12.309	14.689	26.500

4.2. The Impact of Institutional Investor Ownership on Corporate Financialization

In order to investigate the impact of institutional investor ownership on corporate financialization, this paper makes regression analysis according to the benchmark model in formula (1). The estimated results are shown in column (1)~(4) of Table 3.[1]The results of column (1) show that the regression coefficient of total institutional investor ownership (*IO*) is significantly positive at the level of 5%, which shows that institutional investor ownership drives company financialization, therefore, H1 has been verified. The results of column (2) show that the regression coefficient of *LIO* is not significant which shows that there is no significant correlation between long-term institutional investor ownership ratio and corporate financialization, and H2a has been verified. The results of column (3) show that the regression coefficient of short-term institutional investor ownership ratio (*SIO*)

[1] In view of the rationality of model selection, this paper makes a series of statistical tests. Firstly, we test whether there is individual fixation effect. Through *F*-test, the *p* values of column (1)~(4) in Table 3 are all 0.00, therefore, we can reject the original assumption that there is no individual fixed effect, that is, the individual fixed effect model should be adopted instead of the mixed OLS regression model. Secondly, the time-fixed effect is tested. Through *F*-test, the *p* values of column (1)~(4) in Table 3 are all 0.00, so the original hypothesis without time fixed effect can be rejected. Thirdly, using the fixed effect model, the values of *p* obtained in column (1)~(4) of Table 3 are all 0.65, which shows that the variance of disturbance items mainly comes from the variation of individual effects, which further illustrates the rationality of choosing the fixed effect model in this paper. Fourthly, if the individual effects are not correlated with the disturbance terms, the random effects model will be more efficient than the fixed effects model. Therefore, this paper conducts Hausman test to decide to use the fixed effects model or the random effects model. The Hansman test of column (1)~(4) in Table 3 has the *p* value of 0.00, so the original hypothesis that individual effects are not related to disturbance terms is rejected, that is, the fixed effect model should be used instead of the random effect model.

is significantly positive at the level of 5%, which shows that short-term institutional investor ownership drives the company's financialization, and H2b has been verified. In addition, the results of column (4) show that the regression coefficient of short-term institutional investor ownership is still significantly positive at the level of 10% under the control of long-term institutional investor ownership ratio, which further verifies H2a and H2b. [1]In addition, the regression results of column (1)~(4) in Table 3 also show that the regression coefficients of $OprtAsstRtrn^2$ (the square term of return on operating assets) are significantly positive at the level of 1%, which shows that there is a U-shaped relationship between the proportion of financial assets held by the company and the operating rate of return, which verifies the research conclusions of Song and Lu (2015).

However, institutional investor ownership may be an endogenous variable. There may be a reverse causal relationship between the behavior of institutional investors holding stocks of listed companies and the return of financial assets. Institutional investors will analyze financial situation of listed companies when making stock investment choices. Long-term institutional investors may be more inclined to invest in companies with low degree of financialization, while short-term institutional investors may be more inclined to invest in companies with high degree of financialization. Therefore, this paper uses panel instrumental variable method to alleviate endogenous problem. Referring to the existing research (Song *et al.*, 2012; Cai and Rao, 2015), this paper uses the geographical distance between the office address of institutional investors and the office address of corporate headquarters as instrumental variable of institutional investor ownership. The specific method is to find the longitude and latitude of the office address of each company and institutional investors who hold the company's shares through Baidu Map, and then to calculate the geographical distance between company *i* and institutional investor *j* by using the following formula:

$$Distance = \frac{2\pi r}{360}\arccos\left\{\begin{array}{l}\cos(lat_i)\cos(lon_i)\cos(lat_j)\cos(lon_j) \\ +\cos(lat_i)\sin(lon_i)\cos(lat_j)\sin(+\sin(lat_i)\sin(lat_j)\end{array}\right\} \quad (8)$$

Among them, r is the equatorial radius with a value of 6378 km; lat_t and lon_i

[1] There is probably an economic link between the investment behavior of long-term institutional investors and short-term institutional investors. The investment behavior of long-term and short-term institutional investors may be affected by each other, which may lead to the collinearity between *LIO* and *SIO*. This paper examines the variance expansion factors of *LIO* and *SIO* in column (4) of Table 3, and finds that the variance expansion factors (*VIF*) of long-term institutional investors'shareholding ratio (*LIO*) and short-term institutional investors' shareholding ratio (*SIO*) are 1.67 and 1.36, respectively. In addition, the maximum *VIF* of all explanatory variables is 9.28, and the average value is 2.84. Therefore, the multi-collinearity problem has little influence on the hypothesis inference in this paper.

represent the latitude and longitude of the company's office address respectively; lat_j and lon_j represent the latitude and longitude of the institutional investors' office address respectively. Because the company may be held by many institutional investors, this paper uses weighted average distance weighted by the proportion of institutional investors as instrumental variable of institutional investor ownership. Then the regression analysis is carried out according to the model in formula (1). Firstly, the first stage regression is carried out with the proportion of institutional investors as explained variable, the geographical distance *Dist_w(DistLIO_w* and *DistSIO_w)* [1]as explanatory variable, and the exogenous variables in the second stage are controlled; then the second stage regression is carried out. The regression results are shown in column (5)~(8) of Table 3. The results of column (5)~(7) show that the regression coefficients of institutional investor ownership ratio and short-term institutional investor ownership ratio are significantly positive at the level of 10%, while the regression coefficients of long-term institutional investor ownership ratio are not significant. This shows that short-term institutional investors focusing on short-term interests drive the financialization of companies, which is consistent with the previous analysis. The results of column (8) show that the regression coefficients of short-term institutional investors are still significantly positive at the level of 5% under the condition of controlling the proportion of long-term institutional investors, which further verifies H2a and H2b. Therefore, after considering the problem of endogeneity the conclusion of this paper is still robust.

Table 3. The Impact of Institutional Investment Ownership on Corporate Financialization

Variables	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE-IV	(6) FE-IV	(7) FE-IV	(8) FE-IV
IO	0.022**				0.190*			
	(2.25)				(1.93)			
LIO		0.047		0.035		0.111		0.322
		(1.12)		(0.83)		(0.52)		(0.37)
SIO			0.033**	0.029*			1.920*	2.30**
			(2.07)	(1.77)			(1.95)	(2.20)
OprtAsstRn[2]	0.374***	0.384***	0.379***	0.376***	0.567***	0.586***	0.476***	0.470***
	(3.51)	(3.57)	(3.56)	(3.52)	(2.87)	(3.93)	(4.55)	(4.10)

[1] *Dist_w* is the weighted average distance between all institutional investors and listed companies, *DistLIO_w* is the weighted average distance between long-term institutional investors and listed companies, and *DistSIO_w* is the weighted average distance between short-term institutional investors and listed companies.

Variables	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE-IV	(6) FE-IV	(7) FE-IV	(8) FE-IV
OprtAsstRn	−0.015	−0.012	−0.013	−0.014	−0.017	−0.071	0.006	−0.153
	(−0.86)	(−0.67)	(−0.75)	(−0.82)	(−0.27)	(−1.51)	(0.19)	(−0.01)
ROE_Diff	0.289***	0.272**	0.303***	0.285***	0.153	2.143*	0.312	0.104
	(2.64)	(2.47)	(2.77)	(2.58)	(0.43)	(1.70)	(1.63)	(−0.01)
Size	0.003	0.003	0.003	0.003	−0.001	−0.002	−0.002	−0.007
	(1.08)	(0.99)	(1.05)	(1.05)	(−0.17)	(−0.86)	(−0.85)	(−0.71)
Lev	−0.022***	−0.021***	−0.022***	−0.022***	0.018	0.009	0.016	0.423
	(−3.33)	(−3.20)	(−3.25)	(−3.31)	(1.01)	(0.65)	(1.31)	(0.51)
Growth	−0.003*	−0.003*	−0.003*	−0.003*	0.000	0.001	0.000	0.200
	(−1.80)	(−1.72)	(−1.81)	(−1.77)	(1.12)	(1.50)	(1.24)	1.01)
CFO	0.003	0.004	0.003	0.003	−0.000	0.000	0.000	0.002
	(0.43)	(0.48)	(0.43)	(0.43)	(−0.32)	(1.14)	(0.20)	(0.84)
M2Grwth	−0.002***	−0.002***	−0.002**	−0.002***	−0.003	−0.002	0.004	−0.005
	(−2.59)	(−2.62)	(−2.47)	(−2.59)	(−1.14)	(−1.17)	(1.25)	(−1.25)
_cons	−0.004	0.002	−0.005	−0.003	−0.055*	0.096**	−0.015**	−0.101*
	(−0.07)	(0.03)	(−0.07)	(−0.04)	(1.93)	(2.24)	(2.24)	(1.90)
YEAR/ FIRM	YES	YES	YES	YES	YES	YES	YES	YES
N	6770	6770	6770	6770	6770	6770	6770	6770
adj. R^2	0.047	0.046	0.046	0.046	0.051	0.042	0.066	0.068

Notes: The *t* value in brackets is the standard error of clustering robustness at the company level. * means $p < 0.1$, ** means $p < 0.05$, and *** means $p < 0.01$. Similarly hereinafter.

4.3. The Regulating Effect of Property Right Nature

In order to test H3, this paper groups the models in formula (1) according to the nature of property rights and conduct regression again. The estimated results are shown in panel A of Table 4. The results of panel A in columns (2) and (6) show that the regression coefficients of total institutional investor ownership (*IO*) and short-term institutional investor ownership (*SIO*) are significantly positive at the level of 10% in the private enterprise group. However, the results of panel A in columns (1) and (5) show that in state-owned enterprises, the regression coefficients of total institutional investor ownership (*IO*) and short-term institutional investor ownership *(SIO)* are not significant.

This shows that in private enterprises, institutional investor ownership significantly drives the financialization of companies, while the driving role is not significant in state-owned enterprises. Therefore, H3 has been verified. Moreover, the results of panel A's columns (7) and (8) show that after controlling the long-term institutional investor ownership ratio *(LIO)*, the regression coefficient of the short-term institutional investor ownership ratio *(SIO)* is still significant only in the private enterprise group, which further verifies H3. In order to test the robustness of the results in panel A, this paper also makes regression of panel instrumental variables with different samples. The results are shown in panel B of Table 4. The results in panel B are similar to those in panel A, so we will not repeat them.

Table 4. The Regulating Effect of Property Right Nature

Panel A Regression results of fixed effect model								
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SOE	PE	SOE	PE	SOE	PE	SOE	PE
IO	0.013	0.024*						
	(1.07)	(1.85)						
LIO			−0.002	0.097			−0.012	0.090
			(−0.04)	(1.25)			(−0.28)	(1.15)
SIO					0.028	0.025*	0.030	0.013*
					(1.22)	(1.87)	(1.30)	(1.69)
	(−3.70)	(−1.39)	(−3.63)	(−1.33)	(−3.73)	(−1.29)	(−3.70)	(−1.37)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
YEAR/ FIRM	YES	YES	YES	YES	YES	YES	YES	YES
N	2921	3849	2921	3849	2921	3849	2921	3849
R^2_adj.	0.035	0.047	0.035	0.061	0.035	0.060	0.035	0.061
Panel B Regression results of panel instrumental variables								
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SOE	PE	SOE	PE	SOE	PE	SOE	PE
IO	−0.441	0.404*						
	(−0.10)	(1.83)						
LIO			0.278	3.081			0.934	1.663
			(0.22)	(0.33)			(0.40)	(0.06)

Panel B Regression results of panel instrumental variables								
Variables	(1) SOE	(2) PE	(3) SOE	(4) PE	(5) SOE	(6) PE	(7) SOE	(8) PE
SIO					−0.322	1.480**	0.194	1.460*
					(−0.26)	(2.10)	(0.18)	(1.71)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
YEAR/ FIRM	YES	YES	YES	YES	YES	YES	YES	YES
N	2921	3849	2921	3849	2921	3849	2921	3849
R^2_adj.	0.211	0.127	0.317	0.264	0.169	0.122	0.362	0.308

Notes: Due to space limitation, this table only reports the results of the core explanatory variables, while the panel tool variable method in Panel B only reports the estimation results of the second stage. Details are available.

4.4. Substitution Effect of Corporate Financialization

Song and Lu (2015) found that owing to the poor performance of the company, the return of financial assets is more attractive than that of operating assets, so holding more financial assets has a "substitution effect". If corporate financialization does produce this substitution effect, then corporate financialization will be conducive to restraining the decline of short-term performance of the company, and then restraining the stock price decline caused by the shareholding reduction of institutional investors. In order to identify this impact mechanism, this paper uses counter-factual framework identification strategy (Rubin, 1974), and uses bias correction matching estimators (Abadie *et al.*, 2004; Abadie and Imbens, 2011) to estimate the processing effect of corporate financialization.

This paper sets whether a company is financialized as a processing variable which is expressed in *D*. When the company holds financial assets in that year, the value of *D* is 1, or is 0. *EPSdecr* is a virtual variable, when the company's earnings per share declines from the previous period, the value is 1, or is 0; *EPSr* is a continuous variable, indicating that in the current sub-sample of earnings per share declining from the previous period, the company's earnings per share declines from the previous period (absolute value). This paper compares whether there are significant differences between financialized and non-financialized companies in *EPSdecr* and *EPSr*. If there are expected differences, it can be concluded that the differences originate from corporate financialization. In this paper, PATE is used to represent overall average processing effect; PATT is used to represent average processing effect of financial companies in general; SATE is used to represent average processing effect of samples;

SATT is used to represent average processing effect of financial companies in samples. At present, there is no uniform standard for the selection of sample matching quantity. In this paper, different matching methods are used. [1]Because SATT and PATT are relatively more important (Abadie *et al.*, 2004), this paper focuses on SATT and PATT.

Table 5 reports the results of matching estimation. The number of sample matches does not affect the estimation results. The estimated results of SATT and PATT in Table 5 show that compared with the companies without financialization, the probability of the current performance decline of the financialized companies is significantly lower, and the proportion of the decline of the financializing companies is also significantly lower in the subsamples where the performance decline has occurred. This shows that under the pressure of institutional investor ownership interest concerns, the company's holding of financial assets has indeed improved short-term performance.

Table 5. Average Processing Effect of Corporate Financialization: Counterfactual Framework

Variables	M=3				M=6			
	SATT	PATT	SATE	PATE	SATT	PATT	SATE	PATE
EPSdecr	−0.036*	−0.036*	−0.040**	−0.040**	−0.038*	−0.038*	−0.040**	−0.040**
	(−1.81)	(−1.82)	(−2.19)	(−2.21)	(−1.97)	(−1.98)	(−2.27)	(−2.29)
EPSr	−1.166***	−1.166***	−0.930***	−0.930***	−1.105***	−1.105***	−0.857***	−0.857***
	(−4.24)	(−4.24)	(−3.87)	(−3.82)	(−4.31)	(−4.18)	(−3.81)	(−3.65)
Matching	*Size Lev ROE Growth CFO Age Dual MgHldShr DrcSize SOE year*							

5. Robustness Test

In order to examine the robustness of empirical results above, this paper makes the following four robustness tests.[2]

Firstly, the model in formula (1) is re-estimated by using the lag period of explanatory variables, and the results are consistent with the previous ones.

Secondly, long-term and short-term institutional investors are reclassified according to the median of the average transaction flow rate (*CR*, Churn Rate) of institutional investors in the past year. The group less than the median of the average transaction

[1] The matching variables used in this paper are company financial characteristics variables (scale, asset-liability ratio, ROE, growth, net operating cash flow), company age, corporate governance variables (integration of two positions, management shareholding, board size), property rights nature and year. Moreover, the matching methods of 1 to 1, 1 to 2, 1 to 3, 1 to 4, 1 to 5 and 1 to 6 are used in this paper, and the results are consistent. In order to save space, only 1 to 3, 1 to 6 are reported.

[2] Due to space constraints, this paper does not report the results of robustness test in the text. Details are available.

flow rate is long-term institutional investors, and the group larger than the median of the average transaction flow rate is short-term institutional investors. Then the regression analysis of the model in formula (1) is conducted again, and the results are consistent with the previous ones.

Thirdly, the samples are grouped according to whether there is a decline in performance, and then the model in formula (1) is subdivided into sub-sample regression analysis. A dummy variable *SD* (Small Decrease) is introduced here, when the company's operating profit declines from the previous period, but the decline can be compensated by financial investment return, *SD* is 1; otherwise, *SD* is 0. If the short-term interest concerns of institutional investors do drive the financialization of companies, and the motivation of holding financial assets is to avoid the decline of short-term performance, the positive correlation between institutional investor ownership and the proportion of financial assets held by companies should be more significant in the *SD*=1 sample. The regression results confirm this theoretical expectation.

Fourthly, grouping regression analysis is carried out according to the proportion of institutional investor ownership. If the short-term interest concerns of institutional investors affect the investment decisions of corporate management, the proportion of institutional investors should reach an influential level. For the total proportion of institutional investors, referring to Bushee (1998), this paper chooses 5% as the critical value of influential shareholding level; for the long-term and short-term proportion of institutional investors, this paper chooses 3% as the critical value. If the short-term interest-focused behavior of institutional investors does drive the financialization of companies, then the driving role should be more significant in the samples whose shareholding level is higher than the critical value. The regression results confirm this theoretical expectation.

6. Conclusion and Implication

Under the background of the increasing financialization of real companies, this paper studies the driving factors of the financialization of real companies from the perspective of institutional investors' short-sightedness, and uses the sample data of A-share manufacturing companies from 2007 to 2015 to study the relationship between institutional investor ownership and the financialization of real companies. The results show that institutional investor ownership drives the financialization of real companies, but the driving force mainly comes from short-term institutional investors. Further research finds that institutional investor ownership plays a more significant role in driving corporate financialization in private enterprises. The empirical results of this paper show that when institutional investors only focus on short-term performance, it will put pressure of falling stock prices on the company's management. In order

to maintain short-term performance, the management will allocate more capital to financial assets with shorter period to achieve returns. Based on the above conclusions, the following policy implications are obtained.

Firstly, we should adhere to the principle of "combining virtual with real" and enhance the vitality of economy. In order to fundamentally reverse the phenomenon of "off the real to the virtual", we must accelerate the transformation and upgrading of the real economy and actively promote the strategy of innovation and development. In addition, we should guide the rational development of virtual economy. The development of virtual economy is a double-edged sword. The existence and development of virtual economy has a significant pulling effect on the development of real economy, but as a speculative economy, excessive development will lead to macro risks such as bubble economy.

Secondly, we should restrain institutional speculation and encourage long-term value investment. Therefore, regulators should actively guide institutional investors to make long-term value investments. In order to avoid excessive speculation by institutional investors, regulators need to improve the market system and create an overall market environment in which value investment does not suffer losses. Specific measures include: to urge listed companies to increase the proportion of dividends, to give long-term shareholding of institutional investors trading stamp tax concessions, and to levy high transaction tax on short-term speculative institutional investors.

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