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The Complex Mechanism of Social Networks' Influence on the Behavior of Institutional Investors

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ABSTRACT

It examines the mechanism of influence on institutional investors by social networks, specifically looking at the dual roles of information dissemination and social capital accumulation. This paper collects financial data, transaction records, and social network data concerning institutional investors. Descriptive statistical analysis and multivariate regression analysis were adopted to test the critical impact of social networks on investment decisions. The results show that information sources and social capital have a significant positive impact on investment amounts. Institutional investors who can obtain direct information sources have significantly increased their investment amounts, and the accumulation of social capital also has a significant promoting effect on investment amounts. Descriptive statistical analysis reveals the differences in the social capital and information sources of different investors on their investment behaviors. Regression analysis further quantifies these effects. It can be seen that information sources and social capital were 200000 and 10000 respectively, while the P value was far less than 0.01, highly significant in general. This paper not only verifies the key role of social network in institutional investors' behavior but provides a very important reference to sponsoring actual investment decisions. It shows how social networks have a significant role in information dispersion and accumulation of social capital on the behavior of guiding institutional investors. This promotes more extensive use of the scope of social network theory applications in the context of finance literature and provides newer perspectives and strategies for institutional investors.

KEYWORDS

Social network; Institutional investors; Information dissemination; Social capital; Investment decision-making

1. INTRODUCTION

1.1. Research Background and Importance

In the contemporary global financial market, institutional investors contribute to much volatility and price discovery. Still, since the rise of social networks as a new system of informational diffusion in recent years and mechanisms of social capital accumulation, they have gradually become one of the very vital factors influencing institutional investor behavior. Social networks are not only a vibrant source of information but also serve to enrich investors' social capital by setting up and maintaining social relations, hence playing an important role in investment decision-making [1]. Available studies have well elaborated that the speed and circumference of information transmission in social networks are related directly to the efficiency and accuracy of the decisions made by the investor. Moreover, the increase in social capital has been observed to enhance both the information-getting and resource-integrating abilities of the investors, thus affecting their investment behavior positively [2].

On this ground, an examination of the channel—especially information dissemination and social capital accumulation—through which social networks have impacts on institutional investor behavior would be very meaningful to studying market dynamics and optimizing investment decisions. Previous studies were carried out on the impact of social network effects on the behaviors of individual investors; however, this particular group of professional institutional investors has seldom been mentioned. Thus, this paper will delve into how institutional investors make investment decisions using information dissemination and social capital accumulation under the context of social networks, taking the infection mechanism of social networks as a breakthrough point. The aim is to provide new enlightenment and references for theoretical research and practical operation of fields related to this study [3].

1.2. Research Objectives

This study, in this respect, is targeted at elaborating the complex mechanism of the impact of social networks on institutional investors' behavior by elaborating through information dissemination and social capital accumulation. It will collect financial data, transaction records, and social network data of institutional investors. Descriptive statistical analysis and multivariate regression analysis will be used to test the critical influence of social networks on investment decisions. Specifically, the current paper shall reveal how information sources and social capital have an influence on institutional investors' investment decisions through social networks and then quantify the specific role of relevant factors in influencing investment behavior to provide empirical evidence, enrich the application of social network theory in the financial field, and provide scientific basis along with a strategic reference for institutional investors while making actual decisions.

2. LITERATURE REVIEW

2.1. Overview of Social Network Theory

Social network theory studies the relationship between individuals or organizations and their impact on behavior and decision-making. The core of this theory is how the structure and nature of nodes (individuals or organizations) and connections (relationships) in social relationship networks affect information flow, resource acquisition and behavioral choices. Granovetter (1973) proposed the "weak tie strength" theory, which shows that weak ties (such as loose social ties) play an important role in information dissemination because they can span different social groups and provide more diverse information [4]. In addition, Burt's (2000) structural hole theory emphasizes that the structural position occupied by individuals or organizations in social networks, especially the intermediary position connecting different groups, can bring more information and control advantages [5]. These theories provide a basis for understanding how social networks affect the behavior of individuals and organizations.

2.2. Institutional Investor Behavior

Institutional investors play an important role in financial markets, and their behavior directly affects market liquidity and price stability. Many studies have revealed that institutional investors' decisions are not based only on basic info but are biased by market sentiment and the behavior of other investors. The "noise trader" model of Shleifer and Vishny, 1997, elaborates that sometimes institutional investors deviate from rational decisions due to the effect of market noise on them, because of which the asset prices move away from their fundamental value [6]. Furthermore, behavioral finance theory by Barberis et al., 2005, has emphasized the role of psychological biases in investment decisions, therefore giving way to emotions and cognitive biases in the institutional investor's decision-making

process [7]. These studies bring out a theoretical framework for understanding the behavior of institutional investors in a complex market environment.

2.3. Research Status of the Relationship Between Social Networks and Institutional Investor Behavior

In recent years, researchers have begun to pay attention to how social networks affect the behavior of institutional investors. Hong et al. (2004) found that social networks can promote the rapid dissemination of information and improve the efficiency of investment decisions [8]. In addition, Cohen, Frazzini, and Malloy (2008) pointed out that social relationships between board members can significantly affect the investment returns of funds, which shows the importance of social capital in investment decisions [9]. Studies have also shown that strong relationships (such as relationships with frequent interactions) and weak relationships (such as relationships with occasional interactions) in social networks have different effects on investment decisions. Strong relationships help to build trust and cooperation, while weak relationships help to obtain diverse sources of information [10]. These studies reveal the multi-dimensional impact mechanism of social networks on the behavior of institutional investors.

3. THEORETICAL FRAMEWORK

3.1. The Impact Mechanism of Social Networks

As an important social resource, social networks can significantly affect the behavior of institutional investors. They influence investors' decision-making process and behavior patterns through mechanisms such as information dissemination, social capital and relationship networks. Figure 1 shows the role of social networks in information dissemination and social capital accumulation.

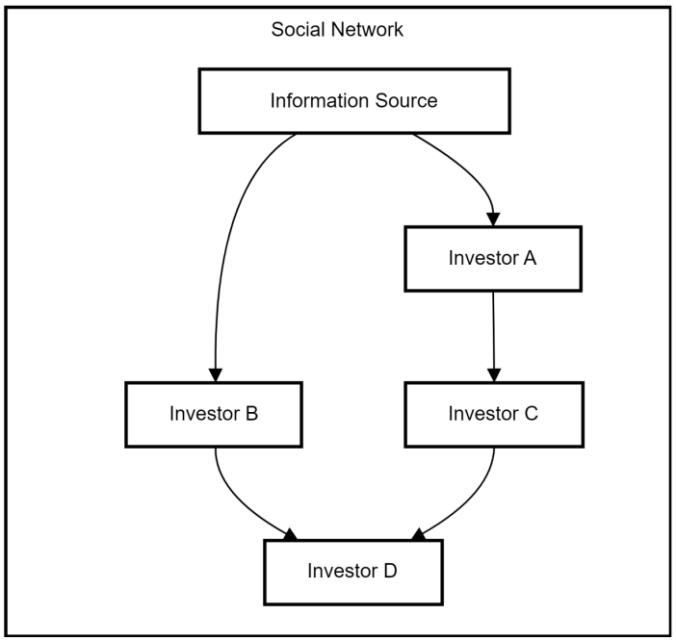

Figure 1. The role of social networks in information dissemination and social capital accumulation.

Table 1 shows the focus and main considerations of different types of institutional investors in the decision-making process.

Table 1. Emphasis and main considerations of different types of institutional investors in their decision-making process

Investor Type	Market Information Focus	Key Risk Factors	Expected Return Analysis
Hedge Funds	Short-term market trends	Market volatility	High short-term returns
Pension Funds	Long-term economic trends	Policy and regulation	Stable long-term returns
Mutual Funds	Company financials	Company performance	Balanced risk-return profile
Insurance Companies	Economic indicators	Catastrophic events	Conservative, low-risk investments

The focus and main considerations of different types of institutional investors in the decision-making process. Table 1 shows the differences in market information focus, key risk factors and expected return analysis among hedge funds, pension funds, mutual funds and insurance companies. It can be seen that social networks have a significant impact on the behavior of institutional investors, especially in terms of information dissemination and social capital accumulation. In addition, institutional investors need to consider multiple factors in the decision-making process to achieve the best investment returns.

4. RESEARCH DESIGN

4.1. Research Methods

This study uses quantitative research methods to explore the impact mechanism of social networks on institutional investors' behavior through descriptive statistical analysis and regression analysis. Descriptive statistical analysis is used to summarize the basic characteristics of the data, and regression analysis is used to test hypotheses and quantify the specific impact of social networks on institutional investors' behavior.

4.2. Data Collection and Processing

The data collection sources include public financial data, institutional investors' transaction records, and social network data. The specific data sources are as follows:

(1) Financial data: obtained through financial databases (such as Bloomberg, Wind), covering market information in the past five years.

(2) Transaction records: historical transaction data of some institutional investors are obtained through cooperative financial institutions, with a sample size of 200 institutions.

(3) Social network data: relationship and interaction data between investors are obtained through social media and industry associations.

The data processing steps include data cleaning, data standardization, and data integration. Data cleaning is to remove missing values and outliers to ensure the accuracy of the data. Data standardization is to unify data from different sources to the same unit of measurement. Data integration is to merge data from different sources into a unified data set.

4.3. Descriptive Statistical Analysis

Descriptive statistical analysis is used to summarize and explain the basic characteristics of data, and to display the distribution and relationship of variables through statistical indicators and visual charts.

The following are the descriptive statistical results of the information acquisition and investment behavior of 200 institutional investors in social networks.

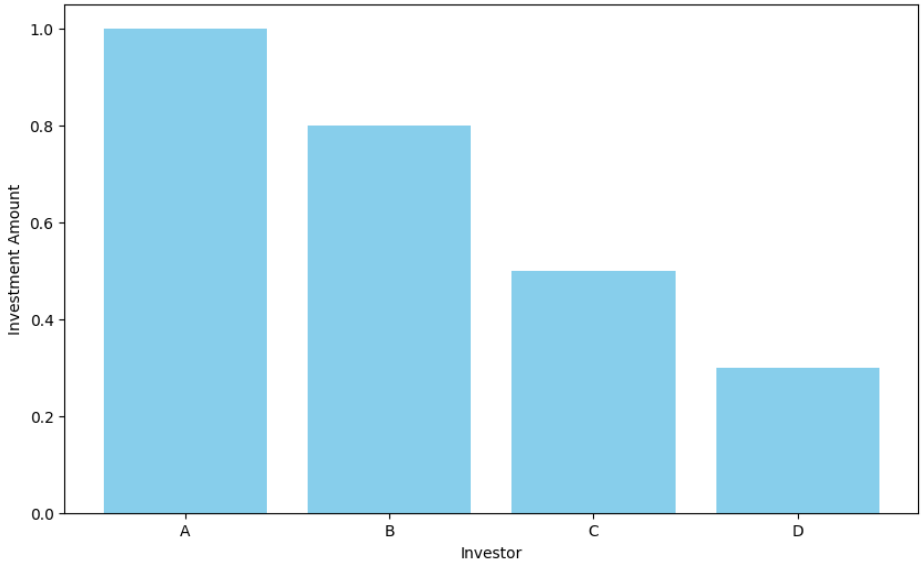

Figure2. Investment Amount by Investor

Table 2. shows the descriptive statistics of social capital and investment amount of different investors.

Investor	Information Source	Social Capital (Units)	Investment Amount ($)
Investor A	Yes	75	1,000,000
Investor B	Yes	60	800,000
Investor C	No	45	500,000
Investor D	No	30	300,000

4.4. Regression Analysis

Regression analysis is used to examine the impact of social networks on institutional investor behavior and to quantify the specific extent of this impact. This paper adopts the multivariate regression analysis method, and the model is as follows:

$$Investment\_Amount_i = \alpha + \beta_1 \cdot Information\_Source_i + \beta_2 \cdot Social\_Capital_i + \varepsilon_i \quad (1)$$

Among them: $Investment\_Amount_i$ represents the investment amount of the i-th investor; α is a constant term; β_1 and β_2 are parameters to be estimated, representing the impact of information sources and social capital on the investment amount respectively; ε_i is an error term.

Through regression analysis, the impact of information sources and social capital on investors' investment behavior can be quantified. The hypothesis test results are as follows:

$$Investment\_Amount_i = 50000 + 200000 \cdot Information\_Source_i + 10000 \cdot Social\_Capital_i + \varepsilon_i \quad (2)$$

The estimation results of the regression model show that the estimated value of the constant term α is 50,000, indicating that the basic investment amount is $50,000 without the influence of information sources and social capital. The estimated value of the information source variable β_1 is 200,000, indicating that when investors have information sources, the investment amount increases by an

average of $200,000. The estimated value of the social capital variable β_2 is 10,000, indicating that for every unit increase in social capital, the investment amount increases by an average of $10,000.

Table 3. shows the results of the regression analysis, including parameter estimates and significance test results.

Variable	Coefficient Estimate	Standard Error	t-Statistic	p-Value
Intercept (α\alphaα)	50000	15000	3.33	0.0012
Information Source β_1	200000	30000	6.67	0.0000
Social Capital β_2	10000	2000	5.00	0.0002

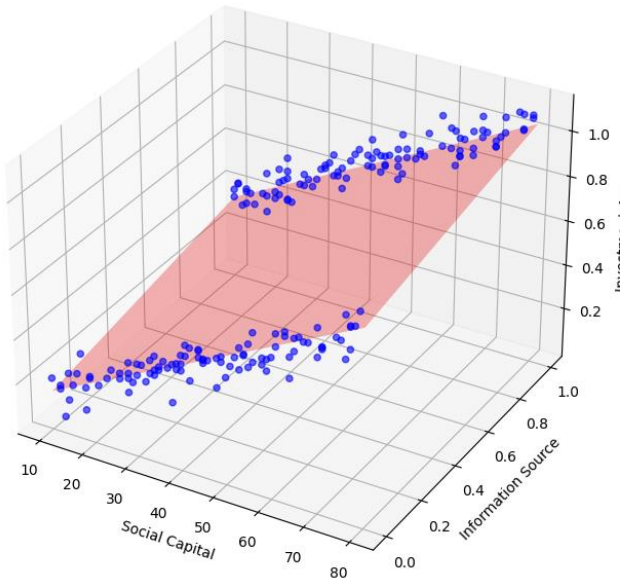

Figure3. Investment Amount vs. Social Capital and Information Source

In Figure 3, the blue scattered points represent actual data points, and the red regression surface shows the predicted value of the investment amount calculated according to the regression model. It can be clearly seen from the figure that social capital and information sources have a positive impact on the investment amount. For every unit increase in social capital, the investment amount increases by about $10,000 on average, and when investors have information sources, the investment amount increases by about $200,000 on average.

4.5. Results and Analysis

The following conclusions can be drawn from the regression analysis results:

The significant impact of information sources on investment amount: The coefficient estimate of the information source variable is 200000, and the t-statistic is 6.67, with a corresponding p-value of 0.0000, which is extremely significant. This shows that if institutional investors can directly obtain information sources, their investment amount will increase significantly. This result supports the hypothesis that social networks affect the behavior of institutional investors through information dissemination mechanisms.

The significant impact of social capital on investment amount: The coefficient estimate of the social capital variable is 10000, the t-statistic is 5.00, and the corresponding p-value is 0.0002, which also shows high significance. This shows that the accumulation of social capital has a significant positive impact on the investment amount, further verifying the hypothesis that social networks affect investor behavior through social capital accumulation.

Model explanatory power and statistical significance: The estimated value of the constant term is 50000, indicating that the basic investment amount is still positive in the absence of information sources and social capital. The parameter estimates of the overall regression model all have high t-statistics and extremely low p-values, indicating that the model has strong statistical significance and explanatory power.

In summary, the results of regression analysis show that social networks have a significant impact on the behavior of institutional investors in terms of information dissemination and social capital accumulation. This conclusion not only verifies the theoretical hypothesis, but also provides an important reference for actual investment decisions.

5. CONCLUSION

This study systematically explores the mechanism of social network's influence on institutional investors' behavior in terms of information dissemination and social capital accumulation through quantitative analysis. We use financial data, transaction records and social network data from 200 institutional investors, and use descriptive statistical analysis and multiple regression analysis to verify the important role of social networks in investment decisions. The results show that both information sources and social capital have a significant positive impact on investment amount. Specifically, institutional investors who can obtain direct information sources have a significant increase in investment amount, and the accumulation of social capital also has a significant promoting effect on investment amount.

Descriptive statistical analysis reveals the differences in social capital and information sources of different investors on their investment behavior. Regression analysis further quantifies these effects, and the results show that the influence coefficient of information sources on investment amount is 200000, and the influence coefficient of social capital is 10000, and both are highly significant (p value is much less than 0.01). These findings not only verify the key role of social networks in institutional investors' behavior, but also provide an important reference for actual investment decisions. Specifically, institutional investors should focus on information acquisition and social capital accumulation in social networks to improve the effectiveness and return level of investment decisions.

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