

## Investigating the Relationship between Information Asymmetry and Political Communication with Investment Efficiency in Tehran Stock Exchange

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### Abstract

The primary purpose of this study is to investigate the relationship between Political Communication and Information Asymmetry with the efficiency of investment in companies listed on the Tehran Stock Exchange. To achieve the above goal, two hypotheses were formulated. To test research hypotheses, a sample consisting of 109 companies listed on the Tehran Stock Exchange in the period 2014 to 2019 was selected. And a panel regression model based on composite data was used which has independent and dependent variables. The results of this study show that Political Communication has a negative and significant impact on Investment Efficiency, In contrast, Information Asymmetry has a positive and significant impact on Investment Efficiency, and

this means that with increasing information asymmetry, investment efficiency increases. Therefore, political communications prefer corporate resources to pursue profitable investment options, thus altering corporate investment behaviors and reducing corporate investment efficiency. The results also show that Information asymmetry prevents investors from commenting on investment opportunities, thus allowing local managers to take advantage of profitable investment options.

**Keywords:** Investment Efficiency, Political Communication, Information Asymmetry.

## **Introduction**

The rapid growth and transformation of economic relations have led to fierce competition in trade, industry, and investment. Therefore, companies need to make appropriate on-time investments to survive and expand their activities (Khodaei and Yahyaei, 2010). Given the changes that have taken place today, especially in developing countries that face many threats, these countries need appropriate solutions to solve their economic problems to make better use of their facilities and wealth. In this regard, one of the important strategies is expanding an investment (Tehrani and Nourbakhsh, 2006).

Businesses tend to have a closer relationship with the government, because of being supported by the government. These relationships will bring many benefits, such as tax breaks and easier access to credit. Therefore, political Communication is an important source for companies within relationship-based economic systems. Companies with political Communication s find it easier to access sources of capital and other benefits through their links. In this regard, some company managers are trying to establish and maintain the relationship between the company and the government to eliminate "financial constraints at the lowest cost" (Boubakeri et al., 2012). One of the ways forward of the government to control the country's economy is to influence economic units. Government influence in monetary units is created through the relations of politicians or state property (Nelly Sari and Anugerah, 2011).

On the other hand, careful decision-making by individuals, companies, government, etc. for the proper distribution and efficiency of financial resources is inevitable. For such decisions, decision-makers must have reliable information. To achieve reliable information, entities must provide the same information so that there is an information symmetry between users. According to Scott, when one of the parties to a transaction has an information advantage

over the other, the economic system is said to be asymmetric from an information point of view. They have better than the market. The market reaction to profit announcements can be the first measure of a company's information asymmetry through information disclosure. Information asymmetry can be determined by the information environment, the frequency of public announcements and the number of transactions of the company, and can also be influenced by the behavior of managers or the market. For example, when a public announcement about a company is made, assuming other factors are constant, the market may become more aware of the actual situation of the company and information asymmetry may be reduced (Ahmadpour and Ajam, 2010).

A company's investment decision is essential to its success. In modern finance, businesses decide based on criteria that the cash flow from a project exceeds its cash cost. In a great market, as portrayed by Modigliani and Miller (1958), if a rate of return profit or market profit is to be maximized, a company must decide whether to accept the investment option. However, the existing literature shows that theoretically and empirically, many companies deviate from favorable investment policies due to different types of resistance, known as friction and distortion. The primary source of conflict includes representation problems and information asymmetry, especially in countries with mature markets (Stein, 2003). Recent literature has found that political Communication increases friction, especially in emerging markets (Chen et al., 2017; Cull et al., 2015). These frictions hinder the growth of companies by mentioning favorable investment options. Such a less clear choice means low investment efficiency, which is reflected in the lower cost of investment to the investment opportunity.

The rich literature is devoted to representation problems and information asymmetry on investment efficiency (Baker et al., 1988; Erhardt et al., 2003; Faccio, 2010; Kostiuk, 1990). Representation problems are defined as conflicts of interest between internal managers and external shareholders due to the separation of ownership (shareholders) and control (managers). Information asymmetry is the difference between the level of information held by internal entities such as corporate executives and external parties such as market analysts and investors (Drobetz et al., 2010). Information asymmetry often occurs when internal parties have more information about companies and investment opportunities than external parties.

According to Agency Theory, directors (agents) who must act to maximize shareholder wealth (stock principle) may pursue their interests rather than

maximize shareholder wealth. For example, managers may build their empires by increasing the size of companies instead of profits or avoid risky projects by retaining large amounts of cash to protect their jobs (Drobetz et al., 2010). In particular, information about a company's investment plans is often available to internal managers who make investment decisions but are not disclosed to analysts and foreign investors. Information asymmetry prevents investors from commenting on investment opportunities, thus allowing internal managers to overlook profitable investment options (Jensen, 1986). Information asymmetry leads to two problems: unfavorable choice, which is caused by information asymmetry before the transaction, and moral hazard, which is caused by information asymmetry after the transaction (Laffont and Martimort, 2002). Unfavorable choices and ethical risk may cause company managers to invest too much and lead to non-optimal results for companies.

Determinants of investment efficiency are presented through information asymmetry (Salin et al., 2018). Because information asymmetry prevents effective investment and helps managers to choose investment opportunities that are not in the interest of the owners but are desirable for managers (Verdi, 2006).

The existing literature indicates that companies are eager to employ managers with political connections as chairman or CEO to increase economic benefits (Chen et al., 2011; Cull et al., 2015; Cooper et al., 2010). In addition, political connections help private companies obtain loans and reduce financial constraints, strengthen corporate resource search capabilities, and increase integration (Cull et al., 2015; Jou et al., 2017; Yu et al., 2012). However, state-owned companies help achieve national goals (Deng et al., 2017).

The importance and innovation of this research can be explained by four dimensions: First, The novelty of this study is to use a new modified model compared to one proposed by Yu et al. (2020). Second, the way the main research calculation methods of dependent and independent variables are different from previous studies. Investment Efficacy is calculated by the model proposed by Biddle et al. (2009); Information Asymmetry assessment is based on proposed differences in the range of stock buying and selling prices, which is one of the important criteria of liquidity in the Iranian capital market and also, In this study Political communication is checked by definition in Accounting Standards by Iranian Accounting Standards Setting Committee (ASSC). Third, no research on this topic has been conducted on the Tehran Stock Exchange. Therefore, the data of this research is unique and based on the Iranian market. Fourth, it helps investors to decide on the impact of political

communication and information asymmetry on their investment in the Iranian capital market. According to these dimensions, the purpose of this study is to investigate this relationship in companies listed on the Tehran Stock Exchange.

The rest of this article will include theoretical and experimental theories related to research variables as well as research background. After that, the research method will be explained, as well as the basics of measuring variables, population and statistical sample, data collection and analysis method. Will be expressed. The model used to test the hypotheses will then be analyzed.

## **Literature Review**

A company's investment efficiency can be a vital determinant of a company's financial success. Investment efficiency is defined as an investment project carried out by a company that generates the net present value of expected future cash flows (cash receipts less cash outlays). The higher the net present value of expected cash flows in the future, the higher the return on investment of the company. The cost of the capital model (stocks and bonds) Modigliani and Miller (1958) made it clear that in a whole conflict-free world, companies make investment decisions by identifying projects with net positive cash flows. In addition, Biddle et al. (2009) emphasize Companies should continue to invest until the maximum return on investment equals the final cost. According to Hayashi (1982), an investment opportunity at present value is measured by the expected future benefits of additional investment, such as Kyoto. Such a paradigm requires that the firm's investment decision should be based solely on the profitability of its investment, as calculated by Tobin's Q (Tobin, 1969).

However, the previous literature recognizes that some companies deviate from net cash flow due to frictions and distortions and deviate from investments above or below the expected level. In emerging countries, political Communication as one of the frictions has prevented companies from making optimal investment decisions (Chen et al., 2011). In the mature market, two common conflicts are information asymmetry and representation problems (Stein, 2003). Information asymmetry between managers and shareholders leads to poor selection problems and ethical risks. In short, information asymmetry and agency theory show that managers make less-than-desirable investment decisions because of self-interest, resulting in over-investment or under-investment.

Chen et al. (2011) identified state ownership or political affiliation as specific market friction in China. The Chinese government can intervene in

jobs in a variety of ways. The most effective way is to intervene directly in a commercial entity known as a state-owned company. Fan et al. (2007) claimed that the government could intervene through a government agency to achieve government goals. Another method is indirect intervention through politically relevant managers. This type of intervention is sometimes beneficial for private companies losing money in pursuit of jobs and profits. These policy-making companies often make decisions in line with government goals.

However, the available texts express the inconsistent consequences of political Communication on the company's value. Extensive literature suggests that political relationship increases corporate value (Choi et al., 2020; Faccio et al., 2006). A standard view is that political links contribute to corporate success rather than their performance in emerging markets. In addition, firms hire politically relevant executives to gain government support in times of financial distress and increase their return on investment by obtaining more resources such as investment projects and bank loans (Goldman et al., 2009; Ding et al., 2018; Cooper et al., 2010; Wang et al., 2018; Faccio, 2010).

In contrast, Javakhadze et al. (2016) highlighted the decline in corporate investment efficiency through government intervention in state-owned and politically affiliated private companies. In particular, bank loans to private companies with low-interest political Communication s reduce companies' dependence on their income, thus increasing additional capital. As a result, the efficiency of investment is reduced. In addition, the political relevance of corporate investment policies undeniably distorts government priorities, forcing companies to forgo profitable investment opportunities (Wang et al., 2018). In addition, when projects fail to deliver the expected results or lower returns, firms attached to the policy are called complex because of their commitments to government policies .Give up their investments. Also, companies may suffer from over-investment to rely on easy access to bank loans (Fan et al., 2008). Similarly, Ding et al. (2018) argued that limited firms achieve better investment results financially because they evaluate investment projects more accurately than firms with easy access to finance.

The theory of information asymmetry, also known as information failure, occurs when one party to an economic transaction has more knowledge than the other (Myers, 1984). In a corporate environment, there is information asymmetry because managers often have more access to corporate information than shareholders. As a result, there are two problems: poor choice and moral hazard. Undesirable decisions can lead to underinvestment; when a company rejects an investment opportunity that may have a positive net present value, it is considered an underinvestment moral hazard that can lead to overinvestment

(Myers, 1984; Myers et al., 1984). Conversely, investing in projects with a negative net present value is considered an excessive investment.

The unfavorable selection model shows that managers have more private information than investors about investment plans and potential returns. Such a problem can lead to a lack of capital. For example, when managers see promising projects; they may issue more expensive securities (stocks or debt) to raise extra funds. However, shareholders tend to limit corporate capital by discounting the price of newly issued securities without knowing the potential profit of a new project. Thus, corporate executives are reluctant to give new securities even if they know the positive net present value of the investment opportunity, which leads to less investment (Myers, 1984; Baker et al., 2003). Otherwise, the lack of shareholder supervision allows managers to have additional cash at their discretion, so companies suffer from a lack of capital.

- Contrary to information asymmetry, which assumes that managers and shareholders have common interests, Jensen and Meckling (1976) used representation theories to show that conflict occurs because agents pursue personal interests rather than core interests (Foreign shareholders). Ethical risks exacerbate the problem of representation and lead to over-investment. For example, managers tend to over-invest the company's cash flow in unattractive projects because they want to build their empires in jobs (Blanchard et al., 1994; Jensen, 1986; Richardson, 2006). Managers may be interested in increasing their control over companies due to personal career advancement. Thus, project managers prefer a significant investment rather than a profitable one to impress shareholders with the size of the apparent projects (Zwiebel, 1996; Stulz, 1990; Jensen, 1986). Therefore, risks arise because shareholders are unaware of managers who do not conflict with shareholder goals and select risky projects. Also, competent managers may be overconfident and therefore overestimate the return on investment of companies. Their decisions to invest too much can destroy fixed values (Malmendier and Tate, 2008; Habib and Hasan, 2017; Huang et al., 2011; Ding et al., 2018).

## **Empirical Background**

Lin et al. (2021) showed that corporate social responsibility tends to over-invest. The finding also suggests that defensive and offensive strategies can reduce over-investment by interacting with highly socially responsible companies. The results show; that business strategy plays an important role in shaping investment behavior and efficiency. Yu et al. (2020) found that

political relevance and information asymmetry affect corporate investment efficiency. Shin et al. (2020), showed that there is a positive relationship between women managers and investment efficiency. For a subset of companies categorized into groups with more or less investment, companies with a female manager show more investment than a group with a female manager outside. Bzeouich et al. (2019) concluded that board size, independence, and gender diversity positively correlate with investment efficiency. These characteristics of the board modulate the relationship between earnings management and investment efficiency.

Cherkasova and Ivanova (2019) showed that there is a significant relationship between political Communication and investment efficiency. Du et al. (2018) showed that with increasing the integrity of governance, the problem of low investment decreases, and as a result, the efficiency of investment increases. They also argued that the relationship between governance integrity and investment efficiency is significant only in industries that receive supportive policies from the government. They found no meaningful relationship between the integrity of governance and over-investment.

Khurana et al. (2018) found that managerial ability leads to increased tax avoidance and increased investment efficiency. Nor et al. (2018) showed that the independence of the audit committee does not affect the efficiency of investment. Still, the choice of auditor has a direct impact on the efficiency of the investment. Li et al. (2018) showed that by increasing the number of risk disclosure indicators in the management interpretation report, the efficiency of investment improves. Chen et al. (2017), examined the importance of the role of corporate ownership type on investment behaviors and efficiency and claimed that investment efficiency is higher in companies with more corporate governance.

Rajaeizadeh Harandi et al. (2021), showed that management overconfidence has a significant inverse effect on investment efficiency in human resources. Mansourfar et al. (2020), showed that information asymmetry and ambiguity in financial information can lead to inefficient investments by management. Therefore, one of the ways to reduce information asymmetry and increase investment efficiency is appropriate corporate governance. Rahimi and Froughi (2020), examined the effect of tax avoidance on investment efficiency. According to research findings, increasing tax avoidance reduces a company's investment efficiency. Ebrahimi et al. (2019) showed that political Communication in companies has a negative and significant effect on accounting conservatism and its impact on financing costs is also negative and significant. Also, corporate political relations do not have a



significant effect on investment efficiency according to the research findings. Sayyadi et al. (2019) showed that company risk management alone does not affect the relationship between management's ability in increasing investment efficiency or reducing corporate investment inefficiency. Zalghi et al. (2017) found that among the selected characteristics of the audit committee, two variables, size, and independence, have a significant effect on the company's debt cost, but the impact of the financial expertise of the audit committee members on debt cost is not substantial; The results also confirm the variables of size and independence of the audit committee have a significant adverse effect on investment efficiency, while the financial expertise of the audit committee has a significant positive impact on investment efficiency.

Baadavar Nahandi and Taghizadeh Khaneghah (2018), showed that political Communication has a positive impact on over-investment and a negative impact on company performance. Safari and Ranaei (2017) concluded, that there is a positive and significant relationship between the quality of financial reporting and the structure of debt maturity, and investment efficacy. The results also show that the relationship between financial reporting quality and investment efficiency is affected by the debt maturity structure with increasing short-term debt, this relationship is weakened. Abkhiz and Janani (2016) showed that conservatism has information benefits that reduce over-investment and under-investment and thus investment efficiency. It seems conservatism improves the oversight of management investment decisions by reducing investment. Where managers tend to over-invest, and also facilitates access to external low-cost finance is done by increasing investment where managers want to invest less.

### Research Hypotheses

According to the theoretical foundations based on previous research, the hypotheses formulate, as follows:

**H1:** There is a significant relationship between political Communication and investment efficiency.

**H2:** There is a significant relationship between information asymmetry and investment efficiency.

## Research Methodology

### Statistical Population and Sample Selection

This research applied in terms of purpose and descriptive-correlational in terms of research method. In other words, in this study, the existence of a relationship and correlation between variables through regression is investigated. The statistical population of the research was obtained from companies listed on the Tehran Stock Exchange in the period from 2014 to 2019 May. In this research, the systematic elimination method has been used to screen companies in the community. The results are listed in Table (1). After considering the criteria, 109 companies were selected as the screened community and reviewed over six years, totaling 654 View company years.

Table 1. Screening conditions of the statistical population during the research period

Number of companies listed on the Tehran Stock Exchange	432
Companies involved in investment and financial intermediation.	(84)
Companies by incomplete financial information.	(103)
Companies changed their fiscal year in the realm of research.	(83)
Companies stopped trading for more than three months.	(53)
Number of companies selected	109

### Research Models

In this study, regression model estimation is based on panel data. In the case of such data, the model type and effect type should be determined. The F-Limer test is used to determine the type of model, the result of which will be either a "panel model" or a "pooled model". Also, the Hausman test is applied to evaluate between fixed effect and random effect methods. The research model selects as follows to test the hypotheses.

$$IE_{it} = \beta_0 + \beta_1 PC_{it} + \beta_2 Asy_{it} + \beta_3 Lev_{it} + \beta_4 CA_{it} + \beta_5 Tang_{it} + \beta_6 TobinQ_{it} + \beta_7 Age_{it} + \beta_8 Size_{it} + \beta_9 Loss_{it} + \varepsilon_{it}$$

### Research Dependent Variables

**Investment efficiency ( $IE_{it}$ ):** Conceptually, it refers to the amount of investment that has a positive NPV for projects (Aminifard and Muslimi, 2015). The calculation model proposed by Biddle et al. (2009) according to Equation (1):

$$Investment_{it} = \beta_0 + \beta_1 SalesGrowth_{it-1} + \varepsilon_{it} \quad (1)$$

- A) *Investment<sub>it</sub>*: The total investment of the company, which is defined as the net increase of tangible and intangible assets is homogeneous by dividing by the sum of assets at the beginning of the period.
- B) *SalesGrowth<sub>it-1</sub>*: Indicates sales growth, which is the difference between the sales rate of the t-2 period and the t-1.

This model is estimated cross-sectional for each year separately. The remnants of the regression model reflect the deviation from the expected level of investment. It should be noted to measure the return on investment. The residual values of the above model are taken as absolute values. Then multiplied by a negative (Gomariz and Ballesta, 2014).

### Independent Variables of Research

**Political Communication (*PC<sub>it</sub>*)**: A company is said to have political affiliations at least one of the major shareholders (shareholders who hold more than 10% of the company's shares) is a former or current figure in the government. If the company has political Communication s, this variable will be equal to one; otherwise, it will be zero. This variable has been used in Habib and Mohammadi's (2018) research with the exact definition (Salehinia and Tamoradi, 2019).

**Information asymmetry (*Asy<sub>it</sub>*)**: It is a qualitative concept used to measure the model developed to determine the range of stock buying and selling prices. It is included in the analyses to allow for the possibility that equity price volatility explains variation in bid-ask spread by Venkatesh and Chiang (1986). This model has been used in several studies to obtain Information Asymmetry. In Iran, Ghaemi and Vatanparast (2005) and Ahmadpour and Rasaeian (2006) have used this model to measure the price gap. The model is calculated according to Equation (2):

$$SPREAD_{it} = \frac{AP-BP}{\frac{AP+BP}{2}} \times 100 \quad (2)$$

- A) *SPREAD<sub>it</sub>*: The buying gap and the rise of stocks in the period of the price difference range

B) (*ASK PRICE*) *AP*: Average selling price

C) (*BID PRICE*) *BP*: Average bid price

One of the influential factors in decision-making is appropriate and relevant information related to the subject of the decision. If the required data is distributed asymmetrically between people (information transfer is unequal between people) can lead to different results than a single topic. Therefore, the quality of information distribution should be carefully evaluated before the information be the decision-maker (Heidary et al., 2016).

### Control Variables

According to previous literature and the theoretical framework, control variables of this study include financial leverage, fluctuations in operating cash flow, company age, company size, and profitability status, which are described below:

**Financial Leverage** ( $Lev_{it}$ ): The ratio of total liabilities to total assets at the end of the fiscal year is used to calculate financial leverage (Yu et al., 2020).

**Operating cash flow fluctuations** ( $CA_{it}$ ): The standard deviation of operating cash flow in the last three years divided by total assets (Yu et al., 2020).

**Tangible asset capability** ( $Tang_{it}$ ): Tangible asset capability is equal to the ratio of tangible fixed assets to total corporate assets (Yu et al., 2020).

Tobin's Q ( $TobinQ_{it}$ ): Equation (3) is used to calculate it (Yu et al., 2020):

$$Qt = \frac{\text{total debt} + \text{book value of the stock market value of rights holders}}{\text{total assets book value}} \quad (3)$$

**Company age** ( $Age_{it}$ ): Equivalent to the natural logarithm is the number of years the company has been listed on the Tehran Stock Exchange (Yu et al., 2020).

**Firm's Size** ( $Size_{it}$ ): The natural logarithm of total assets at the end of the fiscal year is used to calculate the firm's size (Yu et al., 2020).

**Profitability status** ( $Loss_{it}$ ): If the company has reported a loss, it is number one; otherwise, it is zero (Yu et al., 2020).

## Research Findings

### Descriptive Statistics

The descriptive statistics results of the research variables are presented in Tables (2).

Table 2. Descriptive statistics of research variables

Continuous Variables Panel						
Variable	Mean	Median	Max	Min	Std. Dev.	Observations
IE	-0.337	-0.331	-0.004	-0.934	0.213	654
Asy	3.514	3.732	8.132	0.203	1.199	654
Lev	0.560	0.563	0.986	0.012	0.196	654
CA	0.071	0.058	0.775	0.002	0.057	654
Tang	0.264	0.219	0.849	0.019	0.182	654
TobinQ	2.017	1.511	8.794	0.194	1.371	654
Age	3.144	3.113	4189	1.945	0.455	654
Size	14.519	14.415	20.183	11.128	1.389	654
Discrete Variables Panel						
Variable	Value 1 Percentage		Value 0 Percentage		Observations	
PC	30.28		69.72		654	
Loss	12.39		87.61		654	

The most important central indicator is the average, which indicates the equilibrium point and center of gravity of the distribution and is a good indicator to show the centrality of the data. Considering the data in Table (2), the average variable of investment efficiency is equal to -0.337. The average of the information asymmetry variable is 3.514. The intermediate variable of political affiliation is 30%, which indicates that 30% of the observations (company-year) are based on the criteria defined by companies with political affiliation. The average variable of financial leverage is 0.560, which shows that companies provide about 56% of their financial resources through debt. It can be said that 56% of companies have accepted high financial risk. The distribution of variables shows the mean of the observations is slightly different. The proximity of the mean and median values indicates that the data have a normal distribution. In a normal distribution statistical population, it is assumed that the figures are systematically and uniformly distributed around the mean, and the probability of the variable being around the mean is equal. In general, dispersion parameters are a criterion for determining the degree of dispersion from each other or their degree of dispersion relative to the mean. One of the most crucial scattering parameters is the standard deviation. Among the variables, cash flow fluctuations are the least, and company size is the most

dispersed, which shows that these two variables have the least and the most changes, respectively.

### Model type selection Test

According to the statistics and probability value of the F-Limer test, the results indicated that the panel data method was the preferred technique. The Hausman test was also performed, which showed the pattern of panel data with fixed effects is acceptable. Table (3) illustrates the results:

Table 3. Model type selection Test

F-Limer Test			Hausman Test		
Statistic	d.f.	Prob.	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
5.727	(129.641)	0.0000	99.707	9	0.0000

### Correlation Analysis Test

This test, referred to as sensitivity analysis, assesses the relationship between used variables in the model two-by-two, the above matrix's output. This matrix's diameter, since it analyzes the correlation between the variable and itself, is always 1. It means complete correlation. The more the figures closer to 1 show the higher correlation, and the closer the figures to 0 show the lower correlation. The correlation interval is between -1 and +1, where negative figures show inverse correlation, and positive figures indicate a direct correlation. The correlation matrix between the variables is presented in Table (4).

Table 4. Correlation between variables

	IE	PC	Asy	Lev	CA	Tang	TobinQ	Age	Size	Loss
IE	1.00									
PC	-0.09*	1.00								
Asy	0.09*	0.11*	1.00							
Lev	-0.13*	0.05	-0.10*	1.00						
CA	-0.08*	0.11*	0.04	0.01	1.00					
Tang	-0.02	0.02	-0.05	-0.08*	-0.14*	1.00				
TobinQ	0.05	-0.01	0.14*	-0.18*	0.03	-0.07	1.00			
Age	0.03	-0.03	0.03	0.03	0.01	-0.02	0.03	1.00		
Size	0.07	0.10*	0.01	0.07*	-0.03	-0.05	-0.04	0.26*	1.00	
Loss	0.05	0.07	0.05	0.11*	-0.01	0.16*	-0.02	-0.03	-0.09*	1.00

\* Significance at 95% Prob.

According to the results, there is a significant correlation between some variables, which is positive in some cases and negative in others. However, in some cases, there is no significant correlation between the variables. Evaluations showed that the correlations are not strong and cannot cause alignment in statistical analyzes.

### Research model estimation

Table (5) shows the results of testing the first and second hypotheses using a multiple regression model based on composite data. Also, because the Variance Inflation Factor of the variables is less than 10, there is no collinearity among the variables of the model.

Table 5. Test results of the first and second hypotheses

Variable	Coefficient	Std. Error	t-Statistic	Prob.	VIF
PC	-0.046	0.018	-2.52	0.011	1.05
Asy	0.014	0.006	2.12	0.034	1.05
Lev	-0.151	0.043	-3.51	0.000	1.08
CA	-0.296	0.145	-2.03	0.041	1.04
Tang	-0.055	0.046	-1.20	0.228	1.07
TobinQ	0.002	0.006	0.45	0.654	1.06
Age	0.003	0.018	0.18	0.858	1.08
Size	0.015	0.006	2.44	0.014	1.11
Loss	0.056	0.025	2.19	0.028	1.07
C	-0.497	0.101	-4.89	0.000	-
R-Squared	Adjusted R-Squared		F-Statistic		Prob. (F-Statistic)
0.056	0.043		4.319		0.000

As shown in Table (5), in the model test, the probability value of the F-statistic is zero, and this value is less than 0.05. So the model is significant with 95% confidence. Also, the results related to the coefficient show about 4% of dependent variable changes are explained by the independent and control variables of the model.

Based on the results obtained in Table (5), the coefficient of the political Communication variable is -0.046. Also, the probability of t-statistic related to the desired variable shows that with a 95% confidence level, the coefficient of the political Communication variable is significant. In addition, the negative sign of this coefficient indicates the inverse relationship between political communication and the efficiency of investment. Thus, with an increase of 1 unit in the political Communication index, the investment efficiency also decreases by -0.046 units. Therefore, it can be said that with the rise of political Communication s, investment efficiency decreases. Accordingly, the hypothesis that "there is a significant relationship between political relevance and investment efficiency" is not rejected.

Also, the coefficient of the information asymmetry variable is equal to 0.014. Also, the probability of t-statistic related to the desired variable shows that with a 95% confidence level, the coefficient of variable information asymmetry is significant. In addition, the positive sign of this coefficient indicates a direct relationship between information asymmetry and investment efficiency. Thus, with an increase of 1 unit of information asymmetry index, investment efficiency also increases by 0.014 units. Therefore, it can be said by growing information asymmetry, the efficiency of investment increases. Accordingly, the hypothesis that "there is a significant relationship between information asymmetry and investment efficiency" is not rejected.

In addition, the probability of t-statistic related to control variables indicates that the variables of financial leverage, operating cash flow fluctuations, firm size, and profitability status are significant. In addition, the sign of the coefficient of financial leverage variables and changes in operating cash flow is negative, which indicates the inverse relationship between these variables and the dependent variable, and the sign of the coefficient of variables of company size and profitability, which means a direct relationship with the dependent variable.

### **Robustness test**

In this paper, to yield better results and confirm the results of the study, research hypotheses were examined using EGLS Cross-Section Weights, Quantile Regression (Median), and Robust Least Squares, the results of which are as follows:



Table 6. Robust Test results of the first, second and third hypotheses

variable	Research model					
	EGLS		QR		RLS	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
PC	-0.063	0.0000	-0.052	0.0355	-0.047	0.0137
Asy	0.015	0.0014	0.018	0.0496	0.016	0.0238
Lev	-0.157	0.0000	-0.228	0.0001	-0.246	0.0000
CA	-0.371	0.0000	-0.344	0.0798	-0.305	0.0453
Tang	0.071	0.0755	0.084	0.1787	0.070	0.1480
TobinQ	-0.001	0.8620	0.004	0.5822	0.001	0.8668
Age	0.004	0.7285	-0.002	0.9368	0.006	0.7480
Size	0.018	0.0000	0.026	0.0019	0.018	0.0038
Loss	0.058	0.0012	0.076	0.0273	0.063	0.0190
C	-0.551	0.0000	0.638	0.0000	-0.528	0.0000
Obs. Q.	654		654		654	
R-Squared	0.1709		0.0689		0.0735	
Adjusted R-Sq.	0.1593		0.0559		0.1211	
Statistic	F=14.7512		Quashi-LR=57.2031		Rn-Sq.=64.2154	
Prob.(Statistic)	Prob. ( F-Statistic) =0.0000		Prob. (Quashi-LR Stat.) =0.0000		Prob. (Rn-Sq. Stat.) =0.0000	

To confirm the results of our primary model, evaluation was performed using all three mentioned methods according to Table (6). As a result, the main study method is reliable because obtained the same results by using these tests.

## Conclusion

In the first hypothesis, the relationship between political relationships and investment efficiency is examined. Considering the probability of t-statistic related to political communication, it stated the political Communication's coefficient is effective with a 95% confidence level. On the other hand, the estimated coefficient is -0.046. Companies are eager to employ managers with political Communication s as chairman or CEO to increase economic benefits. In addition, political communications help private companies obtain loans, reduce financial constraints, strengthen corporate resource search capabilities, and increase mergers. Although political Communications provide economic benefits, companies are committed to social and political goals such as reducing unemployment, adjusting interest rates, reducing inflation, helping to develop regions, and stabilizing society. Therefore, they prioritize their resources to achieve government goals to maximize shareholder profits. As a result, political communications prefer corporate resources to pursue profitable

investment options, thus altering corporate investment behaviors and reducing corporate investment efficiency. In addition, the negative sign of this coefficient indicates the inverse relationship between political Communication and investment efficiency. Therefore, it can be said that with increasing political links, the efficiency of investment decreases. Accordingly, the hypothesis that "political communication has a significant impact on investment efficiency" is not rejected. The results of this study are in line with the findings of Yu et al. (2020), Cherkasova and Ivanova (2019), Ebrahimi et al. (1398), and Baadavar Nahandi and Taghizadeh Khaneghah (1397).

The relationship between information asymmetry and investment efficiency is investigated in the second hypothesis. It stated that Asy's coefficient is effective with a 95% confidence level. On the other hand, the estimated coefficient for the information asymmetry variable is 0.034. According to agency theory, managers who must maximize shareholder wealth may pursue their interests rather than maximize shareholder wealth. In particular, information about a company's investment plans is made available to internal managers who invest. Information asymmetry prevents investors from commenting on investment opportunities, thus allowing local managers to take advantage of profitable investment options. Information asymmetry leads to two problems: Unfavorable choice creates by information asymmetry before the transaction, and moral hazard produces by information asymmetry after the transaction. Unfavorable choices and moral hazards may prevent the company's managers from investing optimally and Lead to non-optimal results for companies. According to research, the main source of friction in investment efficiency is representation problems and information asymmetry, especially in countries with mature markets (Stein, 2003). Therefore, according to the results of Asy's coefficient in the present study, the immaturity of the Iranian market is inferred. Because information asymmetry in the Iranian stock market due to information asymmetry between major and minor shareholders leads to speculation and fluctuations in the market, which leads to corporate profits and losses of small shareholders. It helps managers to raise the capital needed for investment opportunities at the expense of non-major shareholders. But it is desirable, and managers and major shareholders should attract at a lower cost. This conflict of interest can be seen in the Tehran Stock Exchange with the fluctuating act of major shareholders, especially legal ones, from non-major shareholders due to the inefficiency of this market and the weakness or even the absence of an official market maker. In addition, the positive sign of this coefficient indicates a direct relationship between information asymmetry and investment efficiency. Therefore, it expresses that by increasing information

asymmetry, the efficiency of investment increases. Accordingly, the hypothesis that "information asymmetry has a significant impact on investment efficiency" is not rejected. The results of this study are in line with the findings of Yu et al. (2020) and Watershed and Janani (2016).

## **Suggestions**

In line with the research done and the results obtained, some of the research suggestions are expressed as follows:

Tehran Stock Exchange Organization, as a regulatory body in the Iranian capital market, should adopt practical solutions to orient the market towards efficiency, there is more information from one of the involved parties in the market than the other and have an advantage in this regard. Prevent asymmetric information in itself that can lead to wrong choices and moral hazards.

Investors, shareholders, and managers are encouraged to become more familiar with the concept of investment efficiency and pay attention to it in decision-making.

It suggests that accounting standard-setting bodies, such as the auditing organization, advance the standards in a way that increases the quality of financial reporting and, consequently, reduces information asymmetry and increases investment efficiency.

Companies should avoid electing political executives to senior management positions as much as possible; because these managers try to develop political Communication s with others, and this practice harms the company's goals. Stockbrokers advise limiting the selection of political executives to senior management positions as much as possible for the prosperity of the private sector economy and to consider unique regulatory mechanisms for their actions.

To conduct future research, the following topics suggest:

- 1) The effect of representation problems on the relationship between political Communication and investment efficiency
- 2) The effect of corporate governance on the relationship between political affiliation and investment efficiency

3) The effect of corporate governance on the relationship between information asymmetry and investment efficiency

### **Limitations of the Study**

There are a set of conditions and cases in the process of any research, which are beyond the control and authority of the researcher. But it can potentially affect the research results and their generalizability or cause problems. Paying attention to these limitations can increase the reader's understanding of the research results and generalise them to similar cases. The present study is no exception to these cases, and some of the most important limitations are:

1. The number of companies studied was reduced to 109 companies Due to some selection criteria, including the Elimination of banks and financial institutions, and investments. Therefore, generalization of the results of this research to others should be done with caution.
2. Another limitation of this research is the characteristics of quasi-experimental research based on the lack of control over some factors affecting the research results. Such as the impact of variables such as economic factors, political conditions, and the state of the global economy.
3. The inefficiency of the capital market in Iran is an important and effective factor.
4. Non-adjustment of financial statement items due to inflation may affect the research results.

However, it is believed that none of these limitations has undermined the research. And the study still has sufficient internal and external validity.

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