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# The Impact of Political Connection and Information Asymmetry on Investment Efficiency: Evidence from China

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Received: 4 June 2020; Accepted: 9 July 2020; Published: 12 July 2020



**Abstract:** This study investigates the impact of political connection and information asymmetry on the investment efficiency of firms in China. This paper employs a panel data regression analysis on a dataset comprising 4307 observations for listed companies from 2008 to 2015. The results indicate that if taken alone, neither political connection nor information asymmetry affects firms' investment efficiency. However, the interactive effect of both political connection and information asymmetry significantly reduces firms' investment efficiency. The results of this study help investors understand the forces that lead the Chinese firms to deviate from optimal investment decisions.

**Keywords:** political connection; information asymmetry; investment efficiency; China

## 1. Introduction

A firm's investment decision is essential to its success. In modern finance, businesses make investment decisions based on the criteria that the cash flows generated from a project exceed its cash outlay. In a perfect market, depicted by Modigliani and Miller [1], a firm should make a decision to accept an investment option if the rate of return on it maximizes firm profits or market value. The investment opportunity can be quantified and measured by Tobin's  $q$  [2]. However, the extant literature reveals theoretically and empirically that many companies deviate from optimal investment policies due to many types of resistance, known as frictions and distortions. The main source of frictions includes agency problems and information asymmetry, especially in countries with mature markets [3]. The recent literature has discovered that political connections increase frictions, particularly in the emerging markets [4,5]. These frictions hinder companies' growth by foregoing optimal investment options. Such a less-favorable choice means lower investment efficiency, which is manifested by lower responsiveness of investment expenditure to investment opportunity.

A rich literature has been devoted to the impact of agency problems and information asymmetry on investment efficiency [6–9]. Agency problems are defined as conflicts of interests between internal managers and external shareholders due to separation of ownership (shareholders) and control (managers). Information asymmetry is defined as the difference between the level of information held by internal parties, such as corporate managers, and that by external parties, such as market analysts and investors [10]. Information asymmetry often occurs when internal parties have more information about companies and investment opportunities than external parties.

Based on the agency theory, managers (agents), who should act to maximize the wealth of shareholders (principal), may pursue their own interests instead of maximizing shareholders' wealth. For example, managers may engage in building their own empires by increasing the size of corporations instead of the size of profit, or may avoid risky projects by retaining a large amount of cash to protect

their own jobs [10]. Specifically, information regarding a company's investment plans is often available to internal managers who make investment decisions but not disclosed to external analysts and investors. Information asymmetry prevents investors from expressing their opinions on investment opportunities, thus allowing internal managers to forgo more profitable investment options [11]. Information asymmetry leads to two problems: adverse selection, which is created by information asymmetry before a transaction occurs; and moral hazard, which is created by information asymmetry after the transaction [12]. Adverse selection and moral hazard may cause corporate managers to under- or overinvest, leading to suboptimal outcomes for firms.

We chose China as the country for this study for two reasons. First, China is the largest emerging market in the world. Although China is in the transition from a planned to a market economy, its government still exerts tight control over valuable resources such as land, energy, and loanable funds. Therefore, the Chinese government can easily direct investment behaviors of firms by guiding firms to allocate their funds in specific investment projects [13]. Javakhadze et al. [14] claimed that despite the continued efforts on privatization, political connection remains the most valuable social capital for businesses in China. Other researchers have asserted that although frictions preventing firms from reaching optimal investment decisions exist in different forms, political connection is the most pronounced in China [13–15]. However, Zhang et al. [16] argued that the government imposed on Chinese firms various political, economic, and social goals, thus weakening the firms' resource utilization efficiency.

Second, four large banks—Bank of China, Construction Bank of China, Agriculture Bank of China, and International Commercial Bank of China—dominate the country's financial markets. Thus, a Chinese enterprise has limited choices when they apply for bank loans. Therefore, political connections exercise great influence over Chinese listed companies because these companies can borrow money more easily through such connections.

The extant literature suggests that firms are eager to employ executives with political ties as chairman or chief executive officer (CEO) to enhance the firms' economic advantages [5,15–17]. Further, political connections help private enterprises obtain bank loans and alleviate financial constraints, strengthen firms' resource-seeking abilities, and increase mergers and acquisitions [5,18,19]. However, the politically connected firms help the government achieve the national goals [13].

Although political connections provide firms with economic benefits, firms become more obligated to help accomplish social and political goals such as reducing the unemployment rate, moderating the interest rate, lowering the inflation rate, contributing to regional development, and stabilizing the society, among others. [15]. Therefore, firms prioritize their resources to achieve government objectives rather than maximizing shareholders' profits. As a result, political connections crowd out firms' resources to pursue more profitable investment options, thus altering firms' investment behaviors and reducing firms' investment efficiency.

The purpose of this paper is to investigate whether political connection, information asymmetry, or the combination of both affect listed companies' investment efficiency in China. We formed three hypotheses by measuring firm investment efficiency against two frictions and the interaction between them. First, we examine whether political connections have an impact on investments by comparing firms both with and without political connections. As indicated in the literature, politically connected firms prefer alignment of government policies to firms' own interests [13,20,21]. In addition, the weak legal and economic framework in China allows firms to place a greater emphasis on political connections, which assists them in obtaining bank loans. This is consistent with Faccio's [22] arguments that underperforming firms are inclined to pursue advantages from politicians by establishing political relationships.

Second, we investigate the impact information asymmetry on firms' investment efficiency. We assume a negative correlation between information asymmetry and investment efficiency because information asymmetry is likely to cause firms to under- or overinvest. Third, we assess the impact of both political connection and information asymmetry on firms' investment efficiency.

We used a sample of China's listed firms from 2008 to 2015 to test the correlations among political connection, information asymmetry, and investment efficiency. We found that political connection or information asymmetry alone do not reduce Chinese listed firms' investment efficiency. However, a combination of political connection and information asymmetry significantly reduces firms' investment efficiency.

This study contributes to the literature in two aspects. First, our evidence adds to investors' knowledge of the impact of political connection on firms in China, the largest emerging market. Prior studies have focused mainly on the impact of agency problems or information asymmetry on firm performance in the mature markets. Few studies have examined the degree to which political ties distort firms' investment behavior in China.

Second, this study incorporates information asymmetry into the analysis in an attempt to understand whether information asymmetry, as commonly examined in mature markets, increases or decreases investment efficiency with political connections in China. The findings of the study indicate that political connections together with information asymmetry lower firms' investment efficiency. In other words, information asymmetry amplifies the negative effect of political connection on investment efficiency. There are two possible reasons for politically connected companies to widen information asymmetry between internal managers and external analysts/investors. First, political connections enable managers to acquire information on investment opportunities. Managers may feel reluctant to communicate with market analysts and investors about the investment opportunities stemming from such connections. Second, political connections allow firms to access bank loans, which lowers managers' needs to finance from shareholders. Thus, managers feel it unnecessary to disclose information to external analysts and investors. In both cases, external analysts are unaware of firms' investment projects and unable to predict a firm's earnings accurately. [5,10].

The rest of the paper is organized in the following orders. Section 2 describes the extant literature and the development of hypotheses. Section 3 presents the research models. Section 4 provides the empirical findings. Section 5 summarizes the main findings and concludes the paper.

## 2. Literature Review and Hypothesis

A company's investment efficiency could be a vital determinant of a firm's financial success. Investment efficiency is defined as an investment project undertaken by a firm, which produces positive net present values of expected future cash flows (cash receipts minus cash expenditures). The higher the net present value of the expected future cash flows, the higher the investment efficiency of the firm. The cost of a capital model (equity and bond) of Modigliani and Miller [1] illuminated that in a perfect world without frictions, firms make investment decisions by identifying projects with positive present values of net cash flows. Moreover, Biddle et al. [23] emphasized that firms should continue to invest until the marginal benefit of capital investment equals the marginal cost. According to Hayashi [24], an investment opportunity is measured by the present value of expected future profits from additional capital investment; that is, the marginal  $q$  (or Tobin's  $q$  [2]), with  $q$  being the summary statistic for the market's information about investment opportunities [3,25]. Such a model entails that a firm's investment decision should solely depend on the profitability of its investment as calculated by Tobin's  $q$  [2].

However, prior literature recognizes that some companies deviate from the forecast net cash flows and investment above or below the expected level due to a number of frictions and distortions. In emerging countries, political connection appeared as one friction preventing firms from achieving optimal investment decisions [15]. In the literature covering mature markets, two common frictions are information asymmetry and agency problems [3]. Information asymmetry between managers and shareholders leads to the problems of adverse selection and moral hazard. In short, information asymmetry and agency theory suggest that managers make suboptimal investment decisions due to self-interest, resulting in either over- or underinvestment.

### 2.1. Impact of Political Connections on Investment Efficiency

Chen et al. [15] identified government ownership or political connection as a specific market friction in China. The Chinese government can intervene in businesses through various means. The most effective way of intervention is direct ownership in a business entity, known as a state-owned enterprise (SOE). Fan et al. [26] claimed that the government can interfere through an SOE to achieve the government's objectives. The other method of intervention is indirect and through politically connected executives. This type of intervention is sometimes beneficial for private firms that have a disadvantage in pursuing businesses and profits. These politically connected firms often alter decisions in alignment with the government's objectives.

China is a typical *guanxi*-based (i.e., social networks) society, hence political connections are dominating in China [27]. A great number of businesses in China seek to establish relationships with the central or local governments because political ties contribute to firm success [5,26–29]. Moreover, Hu and Wang [27] argue that political ties that serve as an important type of informal institutional arrangement are widespread in China's current transitional economic system from emerging to mature markets.

However, the extant literature finds inconsistent consequences of political connection on firm value. A large literature suggests that political connections enhance firm value [30–32]. A common view is that political connection contributes more to firms' success than their operating efficiency in emerging markets. Moreover, firms employ politically connected executives to receive government support during times of financial distress and to increase their returns on investment by obtaining more resources, such as investment projects and bank loans [8,17,20,33–35].

In contrast, Chen et al. [14] highlighted the decline in firms' investment efficiencies by government intervention in SOEs and politically connected private firms. Specifically, bank loans of private firms with political connections at lower interest rates reduce the firms' reliance on their in-earnings, thus increasing excess investments. As a result, investment efficiencies are diminished. In addition, political connection inexorably distorts firms' investment policies to government priority, forcing firms to forgo profitable investment opportunities [35]. Moreover, when projects fail to reach anticipated results or yield diminishing returns, politically connected firms find it difficult to divest their investments due to obligations to government policies. Further, firms may suffer from overinvestment when they indulge themselves in easy access to bank loans [36]. Similarly, Ding et al. [20] argued that financially constrained firms achieve better investment results because they evaluate investment projects more carefully than firms with easy access to financing.

The theory of corporate investment reinforces the principle that firms should invest if the net present value is positive to maximize value. Political connections are prevalent in China because they give companies competitive advantages. However, it remains unclear whether political connection aids or harms investment efficiency. We aim to test the question by setting the first hypothesis below:

**Hypothesis 1 (H1):** *Politically connected firms have lower investment efficiency than non-politically connected firms.*

### 2.2. Impact of Information Asymmetry on Investment Efficiency

Information asymmetry theory, also known as information failure, occurs when one party involved in an economic transaction possesses greater knowledge than the other party [37]. In a corporate setting, information asymmetry exists because managers frequently have greater access to companies' information than shareholders, resulting in two problems: adverse selection and moral hazard. Adverse selection can lead to underinvestment, and moral hazard can lead to overinvestment [37,38]. When a company rejects an investment opportunity that would have produced a positive net present value, it is considered as underinvestment. Conversely, investing in projects with a negative net present value is regarded as overinvestment.

The adverse selection model suggests that managers have more private information than investors about investment schemes and potential returns. Such a problem can lead to underinvestment. For example, when managers see promising projects, they may want to issue more expensive securities (equity or debt) to raise excess funds. However, shareholders tend to restrict firms' capital by discounting the price of new securities issued without knowing the potential profits of a new project. Therefore, corporate managers are reluctant to issue new securities even though they know the positive net present values from investment opportunities, which leads to underinvestment [37–39]. Alternatively, lack of supervision from shareholders could cause managers to keep excess cash on hand at their own discretion, thus causing the firms to suffer from underinvestment.

In contrast to information asymmetry, which assumes that managers and shareholders share common interests, Jensen and Meckling [40] used agency theories to highlight that conflicts arise because agents (managers) are inclined to pursue personal interests rather than those of principals (external shareholders). Moral hazard further exacerbates the agency problem, leading to overinvestment. For example, managers tend to overinvest the company's excess cash flows in unattractive projects because they desire to build their own empires within the businesses [11,41–44]. Managers may be more interested in increasing their control over firms pursuant to personal career advancement. Thus, managers prefer a large—instead of profitable—investment project in order to impress shareholders with ostentatious project sizes [11,45,46]. Therefore, risks emerge as shareholders are unaware of managers who misalign with shareholders' goals and select risky projects. The lower interest rates from bank loans may further worsen the problem of overinvestment.

In addition, highly capable managers may be overconfident and thus overestimate the returns of corporate investments. Their decisions to overinvest could destroy firm values [20,21,47,48]. Therefore, we develop our second hypothesis, which surmises that firms with information asymmetry lower their investment efficiency.

**Hypothesis 2 (H2):** *Information asymmetry reduces firms' investment efficiency.*

### 2.3. Impact of Information Asymmetry and Political Connections on Investment Efficiency

Political connections allow the government to maintain indirect control over firms' decisions to be aligned with the government's policy. However, the extant literature varies on the consequence of firms having political connections. Prior research suggests that government intervention causes firms to lower the accuracy of financial reporting and transparency because these firms can easily obtain bank loans. As a result, firms with greater political support and fewer needs from investors widen information asymmetry between internal managers and external investors, reducing investment efficiency [49–51]. In addition, Chen et al. [51] found that market analysts experience greater difficulty in predicting the earnings of firms with political connections because these firms can be influenced easily by political events. The managers of these firms spend more time acquiring government-invested projects, government subsidies, or tax deductions than disclosing information to external investors. Consequently, political connections exacerbate information asymmetry between investors and managers [32,51].

In contrast, Chen et al. [4] argued that political connections enable firms to become timely and transparent in order to maintain government support, thus preventing corporate managers from deviating from optimal investment decisions. Moreover, Deng et al. [13] asserted that the Chinese government provides firms with loans, subsidies, and credit lines and modifies policies to support businesses during financial crises. These stimulus programs aid firms with political connections to increase liquidity and investments during difficult times [52,53].

Prior literature seems to diverge on opinions regarding the effect of political connection and information asymmetry on investment efficiency. Therefore, we investigate whether or not political connection together with information asymmetry creates another form of friction. The literature suggests that internal managers are reluctant to disclose information of their firms having political

connections to investors. The enlargement of information asymmetry hinders firms from achieving optimal investment decisions in the unique market of China, with the prevalence of political connections in the capital market. Therefore, we develop our third hypothesis by presuming that a combination of political connection and information asymmetry harms a firm's investment outcome.

**Hypothesis 3 (H3):** *Political connections together with information asymmetry lower firms' investment efficiency.*

### 3. Methods

#### 3.1. Model and Tests

To test our hypotheses, we modified the model proposed by Chen et al. [15] by employing the two variables of political connection and information asymmetry in testing the sensitivity of investment expenditure to investment opportunities, which is investment efficiency. We use Tobin's q [2] to measure investment efficiency. To avoid the potential problem of endogeneity, this study uses lagged values of independent variables in the model. We aim to validate the three hypotheses that the sensitivity of investment expenditure to investment opportunities is significantly lower in firms with political connections than in those without such connections. In other words, we hypothesize that politically connected firms have significantly lower investment efficiency than non-politically connected firms due to information asymmetry.

The research model is expressed in Equation (1):

$$\begin{aligned} \text{Inv}_{i,t} = & \beta_0 + \beta_1 \text{TQ}_{i,t-1} + \beta_2 \text{PC}_{i,t-1} + \beta_3 \text{Asy}_{i,t-1} + \beta_4 \text{TQ}_{i,t-1} \times \text{PC}_{i,t-1} \\ & + \beta_5 \text{PC}_{i,t-1} \times \text{Asy}_{i,t-1} + \beta_6 \text{TQ}_{i,t-1} \times \text{Asy}_{i,t-1} \\ & + \beta_7 \text{TQ}_{i,t-1} \times \text{PC}_{i,t-1} \times \text{Asy}_{i,t-1} + \beta_8 \text{CFO}_{i,t-1} + \beta_5 \text{Lev}_{i,t-1} \\ & + \beta_6 \text{SEO}_{i,t-1} + \beta_7 \text{Size}_{i,t-1} + \beta_8 \text{Listage}_{i,t-1} + \text{Firm fixed effect} + \varepsilon_{i,t}, \end{aligned} \quad (1)$$

where  $i$  represents the  $i$ -th company,  $t$  denotes current year,  $t - 1$  denotes the  $t-1$ th year, and  $\varepsilon_i$  is the error term.

#### 3.2. Definition of Variables

The financial data of the Chinese listed companies are expressed in the Chinese yuan or renminbi (RMB).

##### 3.2.1. Investment Expenditure (Inv)

Inv is a dependent variable, indicating a firm's investment expenditure in a year. This variable is measured as cash payments for fixed assets, intangible assets, and other long-term assets minus cash receipts from selling these assets, as net cash flow from investing activities provided in the cash flow statement, then divided by the beginning balance of total assets. This variable is expressed as a fraction.

##### 3.2.2. Tobin's q (TQ)

TQ is an independent variable, representing a firm's investment opportunity, which is measured as the market value of tradable shares, the book value of non-tradable shares and liabilities, divided by the book value of total assets. This variable is expressed as a multiple. Following Chen et al. [15], we used the book value of non-tradable shares to compute TQ due to their illiquidity. Such shares are usually bought and sold at a price close to the book value of equity in over-the-counter markets.

##### 3.2.3. Political Connection (PC)

A company is defined as politically connected if the chairman of the board, an internal or external board member, an independent member, or a special assistant of the secretary of the board is a current or former committee member of the Chinese People's Political Consultative Conference (CPPCC)

which is a political advisory body in China, or a current or former government official at or above the county-level government [8,26–32,54,55]. This is a dummy variable. A company has a dummy value of one (1) if it has a political connection; otherwise, a company has zero (0).

### 3.2.4. Information Asymmetry (ASY)

Information asymmetry is measured as the standard deviation of the analysts' earnings forecast, expressed in percentage (%) [10,56]. Following the study of Drobetz, Gruminger, and Hirschvogal [10], we measure information asymmetry by using the dispersion of the standard deviation of one-year earnings per share (EPS) forecasts across market analysts associated with a particular listed company. Information asymmetry occurs when a company fails to distribute all relevant information about its future investment plans to external parties. Therefore, greater information asymmetry leads to a higher discrepancy among the market analysts regarding EPS forecasts [57]. Drobetz, Gruninger, and Hirschvogal [10] used one-year consensus forecasts of earnings per share provided by the Institutional Brokers Estimate System (I/B/E/S) and calculated the average of the monthly dispersions in each year. We obtained the one-year EPS forecasts from the China Stock Market and Accounting Research (CSMAR) database which includes a sub-database titled "Analyst Forecasts".

Information asymmetry is computed as a natural logarithm using Equation (2):

$$\text{Asy} = \ln\left(1 + \frac{\text{standard deviation of analysts forecasts}}{|\text{median forecasts}|}\right) \quad (2)$$

Higher level of information asymmetry means higher discrepancies among analysts' forecasted earnings in the prior year for a firm compared with the actual earnings in the current year.

### 3.2.5. Other Control Variables

Based on Chen et al. [14], we incorporate several control variables into our study. In order to eliminate the problem of endogeneity, we use one-year lagged values of these independent variables in our analysis. A firm's net cash flow from operating activities (CFO), expressed as a fraction, indicates the amount of cash flow a firm brings in from its regular business activities. We compute CFO as the net cash flow from a firm's operating activities divided by beginning total assets. Larger operating cash flow gives a firm more available funds for investment. Therefore, we expect this variable to have a positive coefficient.

Then, we include both variables for external financing: debt and equity. A firm's leverage (Lev) is measured by cash proceeds from bank loans or other borrowed funds divided by total assets, expressed as a fraction. A firm with a higher leverage ratio pays more interest and finds it more difficult to obtain debt financing, both of which restrict a firm's ability to invest. However, Jensen [10] expects debt financing to reduce overinvestment to some degree. We thus expect a negative coefficient for Lev.

A firm's seasoned equity offering (SEO) is a source of external equity financing. It is a dummy variable. If the company issues new additional shares in the current year, the dummy value is one (1). If the company does not issue additional shares, the dummy value is zero (0).

A firm's asset size is measured by the natural logarithm of a firm's total assets, expressed as a number. Larger firms are likely to own more resources for investment. Hence, we expect a positive correlation between Size and Inv. A firm's listing age (Listage) means the number of years a firm has been publicly listed. The high number of years a firm has been listed probably signifies that this firm is in the mature or declining stage of its business life cycle, which tends to reduce its investment activity. Hence, we expect a negative coefficient for this variable. We test our hypotheses by examining the interactions between TQ and PC, TQ and Asy, and among TQ, PC, and Asy.

### 3.3. Sample and Data

This study collects data from listed A-share firms from the CSMAR database from 2008 to 2015. We chose 2008 as the starting year because the Chinese government initiated the reform of the share-trading business of the listed companies in China in 2006 and completed the program near 2008. The reform required companies or major shareholders who own large non-tradable shares to compensate shares to tradable shareholders in order to make all shares tradable. Hence, we used the data after the reform in 2008 so that the data covering companies and their shares are not distorted. Then, we manually checked the executive profile of each company from the CSMAR database to determine if a particular company has a politically connected board member and assistant.

The key variables in this study are TQ, PC, and Asy. The data have both longitudinal and cross-sectional properties. Following the work of Opler et al. [58], we apply the regression analysis on panel data to measure TQ against PC and Asy. We obtain 4307 observations for each variable of non-financial company stocks. This sample has approximately 70% of the listed companies as politically connected.

## 4. Results

### 4.1. Descriptive Statistics

Table 1 gives the mean (column 3) and median (column 4) value for each variable of the full sample.

**Table 1.** Descriptive statistics of full sample.

Variables	Obs.	Mean	Median	Maximum	Minimum	Std. Dev.
Inv (fraction)	4307	0.015	0.008	0.363	−0.238	0.023
TQ(−1) (multiple)	4307	0.003	0.002	0.870	0.000	0.014
PC(−1) (dummy)	4307	0.707	1.000	1.000	0.000	0.455
Asy(−1) (number)	4307	0.392	0.326	4.846	0.000	0.404
CFO(−1) (fraction)	4307	−0.002	0.002	1.329	−2.763	0.080
Lev(−1) (fraction)	4307	0.496	0.499	8.642	0.015	0.255
SEO(−1) (dummy)	4307	0.386	0.000	1.000	0.000	0.487
Size(−1) (number)	4307	22.570	22.331	30.637	15.275	1.512
Listage(number)	4307	11.380	12.000	26.000	1.000	5.798

Table 2. contains the correlation coefficients of each variable for the full sample. The correlation coefficient values range between 0.4 and −0.2, indicating nonexistence of collinearity.

**Table 2.** Correlation coefficients of full sample.

Variables	Inv	TQ (−1)	PC (−1)	Asy (−1)	CFO (−1)	Lev (−1)	SEO (−1)	Size (−1)	Listage (−1)
Inv	1.000								
TQ(−1)	0.008	1.000							
PC(−1)	0.005	−0.033	1.000						
Asy(−1)	0.015	−0.014	0.006	1.000					
CFO(−1)	0.062	−0.045	0.031	−0.019	1.000				
Lev(−1)	−0.017	0.133	−0.001	0.157	−0.153	1.000			
SEO(−1)	0.010	0.043	0.015	−0.015	−0.010	−0.066	1.000		
Size(−1)	−0.041	−0.166	0.103	−0.040	0.068	0.318	−0.045	1.000	
Listage(−1)	−0.061	0.022	−0.039	0.021	0.005	0.215	−0.117	0.099	1.000

Table 3 presents the mean (Panel A) values and median (Panel B) values for the variables in the full sample, separated by PC and non-PC firms. We observe that the PC firms have a significantly higher mean and median (0.012, 0.009) than the non-PC firms (0.010, 0.008) regarding investment expenditure

(Inv). In terms of information asymmetry (Asy), PC firms have a higher mean (0.394) and median (0.331) than that of non-PC firms (0.390, 0.315), respectively. However, the difference is insignificant.

**Table 3.** Test results for means and medians of variables of politically and non-politically connected firms.

<i>Panel A Mean Values</i>				<i>Panel B Median Values</i>			
Variables	All Sample			Variables	All Sample		
	PC	NPC	Difference		PC	NPC	Difference
Inv	0.012	0.010	0.002 ***	Inv	0.009	0.008	0.001 ***
Asy	0.394	0.390	0.004	Asy	0.331	0.315	0.018
TQ	0.013	0.005	0.007	TQ	0.002	0.002	0.000
CFO	−0.007	−0.008	0.001	CFO	0.003	0.000	0.003
Lev	0.569	0.580	−0.011	Lev	0.502	0.495	0.007 ***
SEO	0.290	0.260	0.030 ***	SEO	0.000	0.000	0.000 ***
Size	21.803	21.622	0.181 ***	Size	22.404	22.231	0.173 *
Listage	11.250	12.080	−0.830 ***	Listage	12.000	12.000	0.000 ***

Note: \* and \*\*\* denote the 10%, 5%, and 1% significance level, respectively.

According to Table 3, the PC firms have a higher mean investment opportunity (TQ) (0.013) than non-PC ones (0.005), but the difference is insignificant. The two types of firms also differ in other control variables. The PC firms have significantly higher medium bank borrowings (Lev) (0.502) than non-PC ones (0.495). The PC firms raise significantly more capital from the seasoned offering in the secondary market (SEO) (0.290) than the non-PC ones (0.260). The PC firms are significantly larger in asset size (21.803, 22.404) than the non-PC ones (21.622, 22.231). Finally, the PC firms are significantly younger (11.250) than the non-PC ones (12.080).

#### 4.2. Results of Multivariate Analysis

This study uses panel data regression analysis to investigate the impact of political connection and information asymmetry on investment efficiency. We adjusted the robust standard error of the estimation for clustering at the firm level to ensure the rigor of the test. The empirical results are presented in Table 4, with Models 1 to 3 representing the outcomes of the three hypotheses, respectively.

**Table 4.** Empirical results of impact of political connection and information symmetry on investment efficiency.

Variable	Model 1	Model 2	Model 3
Constant	0.033 (0.007)	0.033 *** (0.007)	0.031 *** (0.007)
TQ(−1)	0.003 (0.009)	0.029 (0.018)	0.015 (0.017)
PC(−1)	0.001 (0.001)		−0.001 (0.001)
Asy(−1)		0.001 (0.001)	0.001 (0.002)
TQ(−1) * PC(−1)	0.003 (0.103)		0.384 (0.250)
TQ(−1) * Asy(−1)		−0.110 (0.090)	−0.054 (0.107)
PC(−1) * Asy(−1)			0.001 (0.002)

Table 4. Cont.

Variable	Model 1	Model 2	Model 3
TQ(−1) * PC(−1) *			−0.574 *
Asy(−1)			(0.301)
CFO(−1)	0.020 ***	0.020 ***	0.0241 ***
	(0.006)	(0.006)	(0.006)
Lev(−1)	0.002	0.002	0.002
	(0.001)	(0.002)	(0.002)
SEO(−1)	0.001	0.002	0.001
	(0.001)	(0.001)	(0.001)
Size(−1)	−0.001 **	−0.001 **	−0.001 **
	(0.001)	(0.001)	(0.001)
Listage(−1)	−0.001 ***	−0.001 ***	−0.001 ***
	(0.001)	(0.001)	(0.001)
Yearly effect	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.008	0.008	0.008
F-statistic	3.696	4.475	3.368
Sample size	4307	4307	4307

Notes: 1. the robust standard errors of the estimations adjusted for clustering at the firm level are given in parentheses. 2. \*, \*\*, and \*\*\* denote the 10%, 5%, and 1% significance levels, respectively.

#### 4.2.1. Impact of Political Connection on Investment Efficiency

Model 1 in Table 4 presents the test results of H1, which postulates that PC firms have lower investment efficiency than non-PC firms. The results show that although the PC firms have higher investment efficiency than non-PC ones, the difference is insignificant. However, a positive correlation exists between political connection and investment efficiency as evidenced by the coefficient of the interaction between the two variables (0.003). The direction of the correlation is different from expectation. The positive correlation indicates that higher political connection increases investment efficiency, yet insignificantly. Therefore, H1 is rejected.

The insignificant and positive correlation between political connection and investment efficiency is consistent with the literature that firms seek to build political connections in order to achieve greater success by gaining access to more resources such as bank loans [47]. However, the advantages of political connection seem to be offset by firms' resource allocation to accomplish government objectives [48]. Overall, PC firms are not significantly better off than non-PC ones in investment efficiency.

#### 4.2.2. The Impact of Information Asymmetry on Investment Efficiency

Model 2 of Table 4 provides the test results of H2, which assumes that information asymmetry reduces firms' investment efficiency. The coefficient of the interaction between TQ and Asy is insignificantly negative (−0.110). This outcome indicates that information asymmetry decreases investment efficiency, but insignificantly. Therefore, H2 is rejected.

The insignificant and negative correlation between information asymmetry and investment efficiency implies that the agency problem is not prevalent in China. The managers do not seem to over or under-invest in projects regardless of the degree of information disclosure to the external analysts and investors. These internal managers still attempt to make optimal investment decisions even though the managers have more knowledge about investment projects than the external analysts and investors do. Such an outcome is probably because these companies need to rely on their own investment judgments rather than political connections to increase profits.

### 4.2.3. The Impact of Political Connection and Information Asymmetry on Investment Efficiency

Model 3 of Table 4 presents the test results of H3, which conjecture that political connections together with information asymmetry lower firms' investment efficiency. The coefficient of the interaction among TQ, PC, and Asy is significantly negative at the 10% level ( $-0.574$ ,  $p = 0.10$ ). This outcome suggests that the interaction of political connection and information asymmetry acerbates investment inefficiency. Specifically, when firms have both political connections and information asymmetry simultaneously, these firms experience lower investment efficiency. Based on such evidence, H3 is validated.

### 4.3. Robustness Tests

To examine the robustness of our models, we use an alternative definition of political connection [22–26,54]. This broad definition expands the original meaning of political connection to include politically connected CEOs, general managers, presidents, vice presidents, vice-general managers, etc. Table 5 displays the empirical results with the alternative meaning of political connection. The number of observations is 3061 for the re-defined PC firms and 3045 for the original PC ones. The difference represents a slight increase of 0.5%. The mean value is 0.711 for the re-defined PC firms and 0.707 for the original PC ones. The mean value increases by 0.57%. Additionally, the standard deviation is 0.454 for the re-defined PC firms and 0.455 for the original PC ones. The standard deviation decreases by 0.22%.

**Table 5.** Results of robustness test on the impact of political connection and information asymmetry on investment efficiency.

Variable	Model 1	Model 2	Model 3
Constant	0.033 *** (0.007)	0.033 *** (0.007)	0.031 *** (0.007)
TQ(−1)	0.004 (0.009)	0.029 (0.018)	0.015 (0.017)
PC(−1)	0.001 (0.001)		−0.001 (0.001)
Asy(−1)		0.001 (0.001)	0.002 (0.002)
TQ(−1) * PC(−1)	0.004 (0.103)		0.385 (0.250)
TQ(−1) * Asy(−1)		−0.110 (0.089)	−0.054 (0.107)
PC(−1) * Asy(−1)			−0.001 (0.002)
TQ(−1) * PC(−1) * Asy(−1)			−0.575 * (0.300)
CFO(−1)	0.020 *** (0.006)	0.020 *** (0.007)	0.021 *** (0.006)
Lev(−1)	0.002 (0.001)	0.002 (0.002)	0.002 (0.002)
SEO(−1)	0.001 (0.001)	0.001 (0.001)	0.001 (0.01)
Size(−1)	−0.001 ** (0.001)	−0.001 ** (0.001)	−0.001 ** (0.001)
Listage(−1)	−0.001 *** (0.001)	−0.001 *** (0.001)	−0.001 *** (0.001)
Yearly effect	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes
Ajusted R <sup>2</sup>	0.008	0.008	0.008
F-statistic	3.679	4.475	3.382
Sample size	4307	4307	4307

Notes: 1. the robust standard error of the estimations adjusted for clustering at the firm level are given in parentheses. 2. \*, \*\*, and \*\*\* denote the 10%, 5%, and 1% significance levels, respectively.

Models 1 to 3 in Table 5 show consistent results with that in Table 4. Based on Table 5, political connection has a positive correlation with investment efficiency (coefficient 0.004), but it is insignificant. Information asymmetry has a negative correlation with investment efficiency (coefficient  $-0.110$ ), yet insignificantly. The interaction effect of both political connection and information asymmetry has a significantly negative correlation with investment efficiency ( $-0.575^*$ ). The results of the robust test reconfirm our previous rejections for H1 and H2, and validation of H3.

## 5. Discussion

The empirical evidence of this study indicates that Chinese listed firms that build political connections while actively disclosing information to external parties tend to pursue optimal investment opportunities. This result implies that because these listed firms do not conceal information from investors, they serve in the best interest of the shareholders. Moreover, firms that do not build political connections also seek profitable investment options even though they do not disclose adequate information to external parties. This result suggests that firms that do not rely on political connections to increase profits tend to pursue optimal investment opportunities although the firms do not emphasize information disclosure to external parties.

In contrast, the reinforcement of information asymmetry on investment inefficiency of firms with political connections, as evidenced by the coefficient ( $-0.574$ ,  $p = 0.10$ ), could be interpreted in two ways. First, Hung et al. [59] argued that politically connected firms have wider information asymmetry because political connections enable managers to acquire investment projects. Thus, managers may feel reluctant to communicate with market analysts and investors about their investment opportunities which stem from such connections. In addition, corporate managers of politically connected firms follow government policies when making investment decisions probably due to government pressure instead of self-motivation [60]. Thus, corporate managers are reluctant to disclose to investors relevant investment information involving government relationships and intervention [61]. Second, political connections help firms to obtain bank loans, which lowers managers' needs to finance from shareholders. Consequently, managers feel less obligated to disclose information on investment projects to external analysts and investors. Furthermore, managers at politically connected firms become overconfident due to easy access to bank loans. As a result, these managers tend to overinvest in projects without carefully evaluating the payoffs and choose not to disclose such information to equity investors who play less important roles in funding firms [29,60]. For these two reasons, managers can easily make decisions at their own discretion without maximizing shareholders' profits. When these managers make unwise investment decisions and suffer from poor returns, they tend to conceal such information in order to maintain government ties. Therefore, political connections aggravate information asymmetry, with managers both feeling it unnecessary and being unwilling to disclose investment information to investors whose opinions can be valuable in non-PC firms. The enlarged information asymmetry as a result of political connection further reduces investment efficiency.

In summary, the results from Table 4 reject Hypothesis 1 and 2 and validate Hypothesis 3. The results provide two implications. First, political connection or information asymmetry alone do not affect firms' investment efficiency. Second, when political connection and information asymmetry exist at firms simultaneously, the interaction effect of the two variables significantly reduces firms' investment efficiency.

## 6. Conclusions

In this study, we present evidence on the impact of political connection and asymmetry on firms' investment behavior using a sample of China's listed non-financial A-share firms from 2008 to 2015. We first determine the political connection by the composition of board members. We find that the politically connected firms do not have significantly lower investment efficiency than the non-politically connected firms. This outcome implies that those Chinese companies that build relationships with the government but still disclose adequate information to external parties tend to focus on high investment

efficiency, which contradicts the literature that political connections act as frictions in lowering firms' optimal investment decisions.

Second, we examine the impact of information asymmetry on firms' investment efficiency. We find out that information asymmetry does not significantly reduce firms' investment efficiency. This outcome suggests that when companies do not rely on political connections to increase profits, they pursue optimal investment opportunities even though insufficient information is disclosed to external analysts and investors.

Third and finally, political connections together with information asymmetry lower firms' investment efficiency. In other words, the interaction effect of both political connection and information asymmetry significantly reduces firms' investment efficiency. This outcome suggests that companies that build political relationships but fail to disclose adequate information to external analysts and investors at the same time tend to make sub-optimal investment decisions. These companies are likely to allocate more resources to accomplish government goals rather than maximizing shareholders' profits.

Our findings add new evidence to the investment literature that distortional investment behavior not only stems from agency conflicts and information asymmetry, resulting in adverse selection between owners (shareholders) and managers in mature markets, but also exists in an emerging and transitional economy, such as China, in the form of political connection. Investors must understand the institutional differences, such as the political system, debt market, regulatory agencies, and legal framework, that affect the financial decisions of firms in developed countries and emerging markets (OECD [62]). The main findings of this study are that political connection or information asymmetry alone do not lower firms' investment efficiency. These firms continue to make optimal investment decisions. However, when companies build political connections but fail to disclose sufficient information to external analysts and investors, these companies tend to make sub-optimal investment decisions. The findings of this study provide investors with insights on the dissimilar investment behavior of firms in the transitional economy of China, with the driving forces of political connection and information asymmetry.

**Author Contributions:** Conceptualization, H.-F.Y.; methodology, H.-F.Y. and T.-J.L.; software, Y.-H.W.; validation, H.-F.Y. and T.-J.L.; formal analysis, H.-F.Y. and H.-Y.C.; writing—original draft preparation, H.-Y.C. and Y.-H.W.; writing—review and editing, H.-F.Y. and T.-J.L.; project administration, H.-F.Y. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflict of interest.

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