Managerial Overconfidence and Firm Value

Yu Gao[a], Kil-Seok Han[b], Kyoung-Hwa Chung[c]

[a] Department of Accounting, Qingdao University, China
[b] Department of Accounting, Jeonbuk National University, South Korea
[c] Graduate School, Jeonbuk National University, South Korea

Abstract

Purpose - Prior studies have found that the characteristics of managers, corporate governance structure, corporate social responsibility and so on affect firm value. This study explores whether managerial overconfidence affects firm value through empirical analysis.

Design/methodology/approach - Korean-listed non-financial companies from 2011‐2017 are collected as the research sample. Firm value is measured by Tobin's Q, and managerial overconfidence is measured using a composite index encompassing various financial data. OLS and fixed effect model are used to investigate the relationship between managerial overconfidence and firm value.

Findings - Managerial overconfidence is positively associated with firm value. Additional analysis reveals the following: (1) In the three subsamples of large, backbone, and small- and medium-sized enterprises, managerial overconfidence is beneficial to firm values. (2) Managerial overconfidence increases firm value on the t+1 year.

Research implications or Originality - We use a comprehensive index with higher trust and feasibility to measure manager overconfidence and empirically confirm that managerial overconfidence can become a factor to improve firm value. Thus, it is necessary for shareholders to adopt an objective and neutral attitude and reasonably understand the psychological characteristics of managers when selecting CEOs. In addition, it is necessary to continue to optimize the measurement method of managerial overconfidence.

Ⅰ. Introduction

Chief executive officers (CEOs) are at the core of firm decision-making, and managerial characteristics have far-ranging effects on business development. Overconfidence, an undeniably essential part of personal psychological traits, refers to people's tendency to overestimate their probability of success and underestimate their probability of failure. Psychological research indicates that overconfidence is a universal psychological attribute (Svenson, 1981; Alicke, 1985). In general, past success strengthens overconfidence in CEOs.

[a] First Author, E-mail: qdugaoyu@qdu.edu.cn
[b] Corresponding Author, E-mail: hks3030@jbnu.ac.kr
[c] Co-Author, E-mail: kotna@nps.or.kr

The relationship between managerial characteristics and firm values are topics of research. For example, multiple studies investigate the age, educational background, and work experience of company managers. However, the discussion of the relationship between the psychological characteristics of managers and their firm values is not comprehensive. The present paper explores the impact of managerial overconfidence on firm value.

The sample comprises information regarding companies listed on two stock markets in Korea from 2011 to 2017. Tobin's Q is used to measure firm value, and managerial overconfidence is measured using composite index from financial statistics. Analysis of the relationship between managerial overconfidence and firm values, shows that managerial overconfidence improves firm values. Further analysis reveals the following: (1) In the three subsamples of large, backbone, and small- and medium-sized enterprises (SMEs), managerial overconfidence is beneficial to firm values. (2) Managerial overconfidence increases firm value on the t+1 year. The conclusions still stand after robustness tests.

The primary contributions of the present study are as follows. First, no general cognition exists with regard to the relationship between managerial overconfidence and firm value. Our study provides new empirical evidence on the linkages between managerial overconfidence and firm value. Second, the credibility of the conclusions is reinforced through the use of a composite index to measure managerial overconfidence. Accurate measurement of this determinant is challenging in financial research involving large samples. Prior studies mostly use a single index, which has poor reliability and validity. Compared with the single index, the composite index has more advantages in reliability and validity, and improves the credibility of the research conclusion. Third, managerial overconfidence increases firm value, a finding that challenges the cognitive inertia on this subject and serves as a valuable reference for CEO selection.

The remaining parts of this paper are structured as follows. The second section summarizes prior literature and presents the hypothesis development. The third section concerns the research design, including sample selection, variable definition, and model setting. The fourth section presents the results from the empirical analysis, with the discussion of the descriptive statistics, t-test, correlation analysis, baseline regression analysis, additional analysis, and robustness test. The final section presents the conclusion and implications.

II. Literature Review and Hypothesis Development

Firm value has various influencing factors, Prior studies on such factors adopt the perspective of managerial characteristics (Cline et al., 2018), corporate governance (Zhu et al., 2016; Basu et al., 2016), and corporate social responsibility (Gao and Han, 2020). The discussion of firm value from the perspective of managerial characteristics constitutes a valuable research direction.

Managerial overconfidence is a psychological trait worth exploring. The relationship between Managerial Overconfidence and corporate value has attracted the attention of scholars. Under an early theoretical model established by Goel and Thakor (2008), overconfidence in risk-averse CEOs increases firm value to a certain extent, a nonlinear relationship. Bharati et al. (2016) find that overconfident managers considerably increase firm value through excess stock return performance and high-risk behavior.

In subsequent empirical studies, researchers' cognition of the relationship between manager

overconfidence and firm value (financial performance) is not unified. Some researchers believe that manager overconfidence reduces enterprise financial performance (Park et al., 2013; Oh and Hwang, 2019). Park et al. (2013) observe that CEO narcissism is negatively correlated with corporate financial performance in Korean listed companies. But, we believe that there is a sample selection bias in the study. Oh and Hwang (2019) use Korean listed companies from 2013 to 2018 as the research sample and get a similar conclusion, that is, companies with managerial overconfidence reduce firm value. However, some researchers have obtained different conclusions. Kim et al. (2019) believe that companies with overconfident CEOs had higher net operating assets (RNOA) in American enterprises. Gao and Han (2020) take Korean listed companies as the research sample and find that managerial overconfidence would enhance firm value through corporate social responsibility. we find that although some studies on the relationship between managerial overconfidence and firm value (corporate financial performance) have been published, researchers have not formed a consistent view.

Here, we need to clarify several points: (1) There are differences between corporate financial performance and firm value. Corporate financial performance generally reflects the enterprise's short-term and accounting book indicators, while firm value generally selects market value indicators, which has long-term and market characteristics. Managerial overconfidence may increase the short-term expenditure of enterprises, affect the profitability of enterprises, and lead to poor financial performance indicators. Overconfidence inhibits under-investment and improves enterprise risk-taking, which is likely to bring high growth, be recognized by the capital market and investors, and obtain high market value. Therefore, we should distinguish between corporate financial performance and firm value. (2) There are obvious differences in the institutional environment and corporate governance among countries, which may lead to differences in the relationship between manager overconfidence and firm value in the different research set. (3) Even in the same research set, inconsistent research conclusions may be drawn due to the diversity of measurement methods of managerial overconfidence. Therefore, we believe that it is necessary to take Korean listed companies as the research set to discuss the relationship between manager overconfidence and firm value in the Korean context and provide new empirical evidence.

According to Hofstede's cultural dimension theory, Korea is characterized by high power distance (Hofstede et al., 2010). Hierarchical awareness is deeply embedded in corporate culture, and CEOs are at the core of the managerial decision-making process. Thus, CEOs' characteristics exert strong impacts on firm's decision-making and behavior.

In essence, enterprises are organizations that profit by risk-taking. Risk and profit are symmetrical and high risk-taking makes the enterprise have the possibility of high income. According to Yu et al. (2013), managerial overconfidence is significantly positively correlated with firm risk-taking. Overconfident managers dare to take risks and make more decisive decisions in the face of good investment opportunities. There is evidence that managerial overconfidence increases firm investment in R&D and innovation (Galasso and Simcoe, 2011; Hirshleifer et al., 2012). The above types of investment can improve the competitiveness of enterprises, and then improve the value of enterprises.

Moreover, studies indicate that managerial overconfidence can increase levels of corporate social responsibility (Kang and Cho, 2019; Gao and Han, 2018, 2020). Firms satisfy stakeholders' needs and thus gain their recognition by giving back to society. Such actions also improve customer loyalty and brand value. In sum, managerial overconfidence is beneficial to the pursuit of competitive advantage and the enhancement of firm value. Based on these analyses,

the following hypothesis is formulated:

H: Managerial overconfidence is positively associated with firm value.

Ⅲ. Research Design

1. Data and Sample Selection

Companies listed on the Korea Composite Stock Price Index (KOSPI) and Korea Securities Dealers Automated Quotations (KOSDAQ) stock market from 2011 to 2017 comprise the sample. The selection criteria are as follows:

(1) Only the firms with fiscal years from January 1 to December 31 are retained.
(2) Because of differences in financial statements, holding companies and firms in the finance domain are excluded.
(3) Enterprises with missing financial or stock data are excluded.
(4) Regarding the assessment of managerial overconfidence, regression must be performed on groups across industries and years. The industries with lower than 10 enterprises are excluded.

The annual data of the 7,944 enterprises in the final sample are examined. All the financial and stock data are collected from the DataGuide5 database. The industry classification is performed in accordance with the ninth revision of the Korean Standard Industrial Classification.

2. Explanation of Variables

2.1. Measurement of Managerial Overconfidence

The accurate measurement of managerial overconfidence as a psychological characteristic in large-sample studies is pivotal. The most commonly used measurement methods are as follows: (a) reports on CEOs in financial media (Malmendier and Tate, 2005; Hribar and Yang, 2016); (b) holding and exercise of stock options (Malmendier and Tate, 2008, 2011; Campbell et al., 2011; Schrand and Zechman, 2012; Hribar and Yang, 2016; McCarthy et al., 2017); (c) examination of CEOs' net stock purchases (Campbell et al., 2011; Liang, 2015); (d) earnings forecasts (Lin et al., 2005; Jiang et al., 2009); (e) assessment of levels of firm investment (Schrand and Zechman, 2012); (f) examination of capital investment (Ahmed and Duellman, 2013); (g) examination of CEO characteristics (Jiang, 2010; Yu et al., 2013); and (h) a composite method that is based on multiple financial indexes (Schrand and Zechman, 2012).

Of course, all these methods have shortcomings, and the optimal approach remains elusive. The single indexes used in methods (a)−(g), whereas the composite index measurement method (h) considers multiple indexes and therefore more information. With satisfactory reliability and validity, this is the optimal method and improves the credibility of study conclusions. Consequently, this method is used to measure managerial overconfidence. In addition, considering the problem with the availability of data on Korean companies, firm investment level is assessed as a secondary determinant of managerial overconfidence.

The composite index measurement method proposed by Schrand and Zechman (2012) is based on multiple financial indexes. In essence, five variables are independently assessed, and then the composite value is determined. The main steps are as follows. First, if overinvest-

ment occurred in an industry year, a value of 1 is assigned; otherwise, a value of 0 is given. Regression analysis is conducted for every industry. If the obtained residual is larger than the industry median, this indicates overinvestment. Second, if the net mergers and acquisitions acquisition cost is larger than the industry median, a value of 1 is assigned; otherwise, a value of 0 is given. Third, the ratio of total liabilities over the owner's equity is calculated. If this ratio exceeds the industry median, a value of 1 is assigned; otherwise, a value of 0 is given. Fourth, if the company issues convertible bonds or preferred stocks, a value of 1 is assigned; otherwise, a value of 0 is given. Finally, if the company has cash dividend distributions, a value of 1 is assigned; otherwise, a value of 0 is given. The total score is the sum of these values. Scores ≥ 3 and < 3 are assigned values of 1 and 0 and indicate the presence and absence of overconfidence, respectively.

The second substitution variable is the measurement of firm investment level. Regression is conducted in every industry category for each year, with rates of sales growth and total asset growth as the independent and dependent variables, respectively. If the residual is larger than zero, the increase in investment ratio of the company exceeds the mean of the same industry in that year, and the CEO is considered overconfident. The formula used is as follows:

$$\text{rates of sales growth t} = \beta 1 \text{rates of total asset growth t} + \varepsilon \qquad (1)$$

$$\text{rates total asset growth t} = (\text{total assets t} - \text{total assets t-1}) / \text{total asset t-1} \qquad (2)$$

$$\text{rates of sales growth t} = (\text{sales t} - \text{sales t-1}) / \text{sales t-1} \qquad (3)$$

2.2 Measurement of Firm Value

The Tobin's Q is used to determine firm value. Tobin's Q is obtained by dividing the sum of the total market value of common stocks, the total market value of preferred stocks, and the book value of debt by the book value of total assets. The concrete calculation formula is as follows:

Tobin's Q = (total market value of common stock + total market value of preferred stock)
        / total assets

2.3 Control Variables

With reference to the literature (Song, 2018; Han et al., 2020), we select the following control variables: capital market(MARKET), corporate size (SIZE), leverage ratio (LEV), sales growth rate (SG), firm age (AGE), board size (BSIZE), foreigner ownership ratio (FOR), the industry dummy variable (IND), and the year dummy variable (YEAR).

Regarding the capital market that each company belongs to (MARKET), the value of the companies listed on the KOSPI and the KOSDAQ market is given values of 1 and 0, respectively. Corporate size (SIZE) is obtained by calculating the natural logarithm of the total assets. The leverage ratio (LEV) is determined by dividing total liabilities by total assets. The sales growth rate (SG) is calculated by dividing the difference between the net sales of the current year the previous year by the net sales of the current year. Firm age (AGE) is obtained by subtracting the founding year of the enterprise from the current year and then calculating the natural logarithm of the difference. The board size (BSIZE) equals the number of board members. FOR

is of the foreigner ownership ratio. IND and YEAR are the dummy variables of industry and year, respectively.

3. Empirical Model

To test the hypothesis, we employ the following model to link managerial overconfidence with firm value. FV is the dependent variable which that captures the firm value. The independent variable is managerial overconfidence(OC). If the estimated coefficient of OC is positive and significant, and then the hypothesis is supported.

$$FV = \beta_0 + \beta_1 OC + \beta_2 MARKET + \beta_3 SIZE + \beta_4 LEV + \beta_5 SG + \\ \beta_6 AGE + \beta_7 BSIZE + \beta_8 FOR + \sum IND + \sum YEAR + \epsilon$$

FV	Firm value, which is measured by Tobin's Q
OC	Managerial overconfidence
MARKET	KOSPI=1, KOSDAQ=0
SIZE	Corporate size =Ln (total assets)
LEV	Leverage ratio = (total liabilities / total assets)
SG	Sales growth rate= ((sale t+1 - sale t) / sale t)
AGE	Corporate age= Ln (current year - founding year)
BSIZE	Board size = Number of directors on the Board of Directors
FOR	Foreign investor ratio
IND	Industry dummy variables
YEAR	Year dummy variables

IV. Empirical Results

1. Descriptive Statistics

⟨Table 1⟩ presents the descriptive statistics of our samples. It can be seen from ⟨Table 1⟩ that the sample includes 7,944 observations. The firm value is measured by Tobin's Q. The average and median of Tobin's Q are 1.37 and 1.06, respectively. OC1 represents the proxy variable of managerial overconfidence under the composite index, which is a dummy variable. The average of OC1 is 0.31, which means that 31% of managers have an overconfidence tendency. The average of OC2 is 0.43, which means that 43% of managers are overconfident. At the same time, the descriptive statistical results of other control variables are also reported in ⟨Table 1⟩.

Table 1. Descriptive Statistics

Variables	N	Mean	S.D.	Min	P25	Median	P75	Max
Tobin's Q	7,944	1.37	1.14	0.31	0.83	1.06	1.50	33.36
OC1	7,944	0.31	0.46	0.00	0.00	0.00	1.00	1.00

OC2	7,944	0.43	0.50	0.00	0.00	0.00	1.00	1.00
MARKET	7,944	0.39	0.49	0.00	0.00	0.00	1.00	1.00
SIZE	7,944	16.65	1.36	13.38	15.76	16.38	17.23	23.71
LEV	7,944	0.40	0.20	0.01	0.25	0.40	0.55	0.99
SG	7,944	0.07	0.52	-0.97	-0.08	0.03	0.14	20.24
AGE	7,944	3.23	0.62	0.00	2.83	3.30	3.71	4.79
BSIZE	7,944	5.60	2.01	1.00	4.00	5.00	7.00	19.00
FOR	7,944	0.06	0.11	0.00	0.00	0.02	0.07	0.90

2. Correlation Analysis

〈Table 2〉 reports the results of correlation matrix analysis among variables. As expected, we find that Tobin's Q is positively and significantly related to OC1 and OC2, providing a correlation between managerial overconfidence and firm value. In addition, Tobin's Q is negative(positive) associated with MARKET, SIZE, LEV and AGE (SG, BSIZE, and FOR), revealing that it is appropriate to control the above variables in our empirical model.

Table 2. Correlation Analysis

Variables	Tobin's Q	OC1	OC2	MARKET	SIZE	LEV	SG	AGE	BSIZE	FOR
Tobin's Q	1.000									
OC1	0.052***	1.000								
	(0.000)									
OC2	0.062***	0.344***	1.000							
	(0.000)	(0.000)								
MARKET	-0.139***	0.029**	-0.044***	1.000						
	(0.000)	(0.011)	(0.000)							
SIZE	-0.144***	0.176***	0.039***	0.515***	1.000					
	(0.000)	(0.000)	(0.001)	(0.000)						
LEV	-0.083***	0.445***	-0.037***	0.115***	0.181***	1.000				
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)					
SG	0.071***	0.025**	-0.003	-0.029***	-0.020*	0.013	1.000			
	(0.000)	(0.025)	(0.789)	(0.009)	(0.078)	(0.248)				
AGE	-0.129***	-0.054***	-0.062***	0.375***	0.244***	0.049***	-0.062***	1.000		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
BSIZE	0.040***	0.076***	0.045***	0.179***	0.253***	0.061***	0.005	0.067***	1.000	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.652)	(0.000)		
FOR	0.078***	-0.016	0.069***	0.238***	0.494***	-0.128***	0.000	0.072***	0.198***	1.000
	(0.000)	(0.148)	(0.000)	(0.000)	(0.000)	(0.000)	(0.985)	(0.000)	(0.000)	

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

3. T-test

〈Table 3〉 presents the results of the t-test. Group 1 represents the overconfidence group and Group 2 represents the non-overconfidence group. In the t-test for Tobin's Q, the mean value of overconfidence group is 0.129 larger than that of non-overconfidence group, and it is significant at 1% level. The results of t-test show that the enterprises with the overconfidence of managers have higher firm value. In addition, there are significant differences in SIZE, LEV, SG, AGE, and BSIZE between the two groups.

Table 3. T-test

Variables	Group	N	Mean	Difference	T-value
Tobin's Q	1	2,465	1.462	0.129	4.637***
	2	5,479	1.333		
SIZE	1	2,465	17.002	0.515	14.806***
	2	5,479	16.487		
LEV	1	2,465	0.534	0.188	49.595***
	2	5,479	0.345		
SG	1	2,465	0.094	0.028	2.103**
	2	5,479	0.066		
AGE	1	2,465	3.177	-0.071	-4.601***
	2	5,479	3.248		
BSIZE	1	2,465	5.828	0.331	6.679***
	2	5,479	5.497		
FOR	1	2,465	0.060	0.004	1.456
	2	5,479	0.064		

Notes: 1. *, **, and *** denote the significance at 10%, 5%, and 1% level, respectively.
　　　　2. Difference = mean(1) – mean(2)

4. Baseline Regression

〈Table 4〉 reports the regression analysis results of hypotheses and shows that managerial overconfidence is positively and significantly associated with firm value. Columns (1-2) show the regression results of Tobin's Q as the dependent variable, and OC1 is the composite index of managerial overconfidence. As shown in Columns (1-2) of 〈Table 4〉 , the coefficient estimates for OC1 are significantly positive (0.129 with t=3.33; 0.191 with t=5.49), revealing that managerial overconfidence is positively and significantly associated with firm value.

Table 4. Baseline Regression

Variables	(1) Tobin's Q	(2) Tobin's Q
OC1	0.129***	0.191***
	(3.33)	(5.49)
MARKET		-0.110**
		(-2.18)
SIZE		-0.156***
		(-7.08)
LEV		0.021
		(0.19)
SG		0.113**
		(2.42)
AGE		-0.155***
		(-4.32)
BSIZE		0.049***
		(4.37)
FOR		1.694***
		(4.48)
IND		yes
YEAR		yes
Constant	1.333***	3.767***
	(49.57)	(10.10)
Adj.R^2	0.003	0.189
N	7,944	7,944

Notes: 1. *, **, and *** denote the significance at 10%, 5%, and 1% level, respectively.
      2. t statistics in parentheses.
      3. The estimation is based on heteroskedasticity robust standard error.
      4. All VIF values are less than 10.

5. Additional Analysis

According to the size of Korean listed companies, the listed companies are divided into three types: large enterprises, backbone enterprises, and SMEs. In the additional analysis, we test the association between managerial overconfidence and firm value in different corporate sizes. 〈Table 5〉 shows the regression analysis results. The results of column (1-3) show that managerial overconfidence are significantly and positively related to firm value in large enterprises, backbone enterprises, and SMEs.

Table 5. Sub-sample Regression

Variables	(1) Large	(2)Backbone	(3) SMEs
		Tobin's Q	
OC1	0.189**	0.067*	0.260***

	(2.34)	(1.83)	(4.13)
MARKET	-0.039	-0.058	-0.133
	(-0.28)	(-1.27)	(-1.53)
SZIE	-0.168**	-0.011	-0.451***
	(-2.53)	(-0.30)	(-6.67)
LEV	0.140	0.202	-0.013
	(0.47)	(1.64)	(-0.07)
SG	0.469***	0.060	0.166***
	(4.48)	(1.12)	(2.86)
AGE	-0.116	-0.119***	-0.195**
	(-1.20)	(-3.57)	(-2.46)
BSIZE	0.017	0.012	0.073***
	(0.75)	(1.05)	(3.77)
FOR	2.810***	1.036***	2.935**
	(2.79)	(3.54)	(2.43)
IND	yes	yes	yes
YEAR	yes	yes	yes
Constant	4.108***	1.429**	8.100***
	(3.53)	(2.34)	(7.24)
Adj.R^2	0.401	0.252	0.204
N	921	3,612	3,411

Notes:1. *, **, and *** denote the significance at 10%, 5%, and 1% level, respectively.
    2. t statistics in parentheses.
    3. The estimation is based on heteroskedasticity robust standard error.
    4. All VIF values are less than 10.

Managerial overconfidence will affect the enterprise operation decision, and then affect the firm value, but managers' decision-making will not immediately show its impact results in the current year, there is a lag effect. Therefore, we take Tobin's Q t+1 as the dependent variables to analyze the impact of managerial overconfidence on firm value in t+1 year. ⟨Table 6⟩ presents the results of regression analysis. The coefficient of OC1 in column (1) is 0.172, which is significantly positive at the level of 1%, indicating that managerial overconfidence is positively related to firm value in t+1 year.

Table 6. Managerial Overconfidence and Firm Value

Variables	(1) Tobin's Q $_{t+1}$
OC1	0.172***
	(4.04)
MARKET	-0.080
	(-1.49)
SIZE	-0.185***

	(-7.87)
LEV	0.224
	(1.57)
SG	0.117***
	(3.57)
AGE	-0.154***
	(-4.16)
BSIZE	0.045***
	(3.76)
FOR	1.611***
	(4.21)
IND	yes
YEAR	yes
Constant	4.166***
	(10.63)
Adj.R^2	0.190
N	6,807

Notes:1. *, **, and *** denote the significance at 10%, 5%, and 1% level, respectively.
2. t statistics in parentheses.
3. The estimation is based on heteroskedasticity robust standard error.
4. All VIF values are less than 10.

6. Robustness Test

6.1. Robustness Test Using Fixed Effect Model

Although many control variables have been considered, the factors that may affect the firm value may still be missed, and the endogenous problems may be caused by the omission of variables. The fixed effect model is used to solve the endogenous problem caused by missing variables, and ⟨Table 7⟩ reports the robustness test results. Column (1) reports the regression results with Tobin's Q as the dependent variable. The coefficient of OC1 is 0.053, which is significant at the 1% significance level, implying that the conclusion is robust.

Table 7. Fixed Effect Model Regression

Variables	(1) Tobin's Q
OC1	0.053**
	(2.04)
MARKET	0.434
	(0.47)
SIZE	-0.303***
	(-7.19)
LEV	-0.366***
	(-3.28)
SG	0.074***

	(4.16)
AGE	0.160
	(1.56)
BOD	0.028***
	(3.98)
FOR	1.349***
	(5.78)
YEAR	yes
Constant	5.444***
	(6.61)
N	7,944

Notes: 1. *, **, and *** denote the significance at 10%, 5%, and 1% level, respectively.
     2. t statistics in parentheses.
     3. The estimation is based on heteroskedasticity robust standard error.
     4. All VIF values are less than 10.

6.2. Robustness Test Using Alternative Measurements

In addition, we test the robustness by changing the independent variables. 〈Table 8〉 presents the regression results. Columns (1-2) report the regression results of OC2 with the current Tobin's Q and the one-stage ahead Tobin's Q, respectively. All the coefficients of OC2 are significant at the 1% level in 〈Table 8〉, implying that the conclusion is robust.

Table 8. Robustness Test Using Alternative Measurements

Variables	(1) Tobin's Q	(2) Tobin's Q $_{t+1}$
OC2	0.154***	0.104***
	(5.56)	(3.48)
MARKET	-0.105**	-0.080
	(-2.06)	(-1.46)
SIZE	-0.148***	-0.176***
	(-6.82)	(-7.55)
LEV	0.247**	0.428***
	(2.26)	(3.35)
SG	0.116**	0.120***
	(2.43)	(3.57)
AGE	-0.157***	-0.158***
	(-4.33)	(-4.23)
BSIZE	0.050***	0.046***
	(4.43)	(3.80)
FOR	1.623***	1.559***
	(4.34)	(4.11)
IND	yes	yes
YEAR	yes	yes

Constant	3.497***	3.927***
	(9.74)	(10.25)
Adj.R^2	0.189	0.189
N	7,944	6,807

Notes: 1. *, **, and *** denote the significance at 10%, 5%, and 1% level, respectively.
     2. t statistics in parentheses.
     3. The estimation is based on heteroskedasticity robust standard error.
     4. All VIF values are less than 10.

V. Conclusion

The sample comprises information regarding companies listed on KOSPI and KOSDAQ markets in Korea from 2011 to 2017. Tobin's Q is used to assess firm value, and managerial overconfidence is measured using composite index from financial statistics. Analysis of the relationship between managerial overconfidence and firm value, shows that managerial overconfidence improves firm values. Additional analysis reveals the following: (1) In the three subsamples of large, backbone, and SMEs, managerial overconfidence is beneficial to firm values. (2) Managerial overconfidence increases firm value on the t+1 year.

This study has the following implications. First, managerial overconfidence does not necessarily negatively affect the enterprise. In contrast to the predominant belief, it is positively associated with firm value. Second, shareholders must remain objective in their cognition of managerial overconfidence. When companies select CEOs, they must break the cognitive inertia; in other words, to prevent mistakes in the selection process, a neutral attitude must be maintained. To reduce decision errors and increase their income, capital market investors must pay attention to overconfidence and other psychological characteristics of company managers, as well as have reasonable awareness regarding managerial overconfidence.

The main limitation of the present study concerns the accurate measurement of managerial overconfidence; although the method used is considerably more refined than that applied in past studies, it has substantial room for improvement. Future studies can address the optimization of such methods.

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