

Owners Of Korean Conglomerates And Corporate Investment

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ABSTRACT

We investigate whether Korean chaebol owner's personal features affect corporate investment or not, for they have a unique governance system controlled by one powerful owner. With this governance, the impact of personal characteristics on major corporate decisions can be tested more clearly. We used the aggregate financial statement to measure chaebol's financial performances in a more reasonable way as well. Our study shows a few noticeable results. Aggregate financial performances of chaebols are different from those of individual companies. Owner's personal features affect corporate decision makings in Korean chaebols. Especially, chaebols under succession process invest less than others, preferring more conservative approaches for succession.

Keywords: Chaebol; Corporate Governance; Corporate Investment; Owner; Personal Characteristics

JEL Classification: G31, G34

1. INTRODUCTION

 Our research focuses on the effect of Korean chaebol owner's personal characteristics on corporate investment, using group-wise data of chaebols. The first distinction of our study from prior research is that we differentiate the unit of analysis using group-wise financial data. Most prior studies used individual companies' financial statements in their analysis of chaebols' investment behaviors. However, we note that large scale business investments of chaebol companies are decided at the group level rather than the level of individual company. Therefore, our study that regard the chaebol group itself as a decision-making unit will provide additional implications for business behavior of chaebol.

Another distinctive feature of our study is that we analyze the influence of chaebol owner's personal characteristics on the investment decision makings. Prior research on the corporate investment are mostly conducted in terms of agency theory or of information asymmetry. However, there is a strand of studies that CEO's personal characteristics broadly affect corporate investment decision makings. For example, Bertrand and Sendhil (2002) shows that CEOs with higher age tend to make conservative investment decisions and that CEOs with MBA degree are more likely to adopt aggressive financial strategies. We suspect that the effect of managers' personal characteristics on corporate decision makings would be more pronounced in chaebol companies of Korea. Based on these prior research, we study how chaebol owner's personal characteristics affect the corporate investment decision makings.

It is widely known that corporate investment normally depends on economic conditions, growth potential of industries, and individual company's special conditions. Corporate investment increases along with increased expected return when future economic forecast is bright. Some companies in growing industries invest relatively high amount, for they can expect high return regardless of economic conditions. Companies in mature industries have a tendency to make limited investment, for they have few growth opportunities. Solid financial structure and improved operating performance tend to lead to extended investment.

It is clear that these objective factors affect corporate investment, but there also exist some aspects still unexplained. There are some cases that companies with similar objective conditions make different investment decisions. These differences may come from differences in corporate culture, characteristics of top management, and corporate management structure. Our study examines whether CEO's personal characteristics have a real effect on corporate

investment decision making, controlling for economic, industrial, and corporate objective conditions as control variables.

This study has importance in two ways. First, we will analyze the CEO effect of Korean chaebol owners whose personal influence plays a critical role in business operation. Though there has been plenty of studies due to the special governance system of Korean chaebols. Though There are a lot of literature on the relation between CEO's personality and financial decisions in non-Korea region, but we can find few literatures in Korea on the same topic. This is partly because there is rare personal information, but mainly because the nominal CEO in each company doesn't have substantial authority. In Korean corporate governance system, there is another unseen substantial CEO, the owner who is the actual top decision maker of all companies inside the chaebol.

Considering this feature, we intend to start a study on the effect of chaebol owners' personalities on financial decision making. We inferred that owner's personal characteristics may have the strongest effect on investment decision makings and we will progress this study only within corporate investment activities. People in east-Asian culture including Korea make more of collectivism than of individualism, and there are always possibilities that top management's personal tendency has a bigger impact on the whole organization.

Secondly, we will analyze corporate decision-making pattern at the level of chaebol group, not at the level of individual company. Korean chaebol owners think and make decisions considering all factors inside the chaebol, not just factors in individual company. Owners have strong ownership for all companies inside the chaebol and make important big decisions of affiliated individual firms. Their decisions, however, are made in the interest context of the whole chaebol group rather than individual firms. For this reason, the features of owners' decision making should be studied in the level of the whole group, not of individual firms. There have been a lot of literature on chaebol, but most of them have focused on the difference between individual chaebol company and non-chaebol company. This necessarily has limitations, lacking contextual understanding. By analyzing the effect on chaebol as a whole, we are making contribution to the literature of chaebol studies.

Bertrand (2002) shows that CEOs with higher age tend to make conservative investment decisions and that CEOs with MBA degree are more likely to adopt more aggressive financial strategies. Malmendier and Tate (2005) studied on the effect of CEO's self-confidence on corporate investment and found that the more self-confident a CEO is, the more sensitive to the cashflow in corporate investment decision making. Ahn, Bhattacharya, Jung, and Nam (2009) performed a study on the relations between CEO changes and stock yield changes among Japanese companies and found out that stock yield changes little after the announcement of CEO change. He inferred that this result may come from long and slow economic condition.

Finance literature has made clear the relation between CEO characteristics and corporate financial performance. This could be made even clearer in the Korean corporate governance context, because there is only one powerful decision maker inside the whole group and his personal tendency necessarily has an absolute influence. Therefore, we intend to start a study to investigate the relations between Korean chaebol owners' personalities and corporate investment, one of the key financial decision makings in the group level, considering the featured Korean context.

2. LITERATURE REVIEW

According to Modigliani and Miller (1958), Corporate investment should be decided by investment opportunities. High expected return led to increased investment and low expected return to less investment. Under this structure, investment decision making is the same at any case irrespective of capital structure, cash holdings, financial market conditions of individual company. Tobin (1969) suggests Tobin's Q to measure the investment attractiveness of these conditions. It is one of the most widely used indicators to measure investment opportunities. Even with Tobin's Q, it was hard to explain corporate investment behavior and a lot of additional research has been conducted to find what make differences in investment among companies.

These studies are classified into two approaches, objective factors, and subjective factors. Objective factor approaches include information asymmetry between CEO and financial market, and CEO's agency problems.

Checking informational asymmetry first, Myers and Majluf (1984) shows that CEOs make decisions on behalf of current stockholders rather than future stockholders. When stock prices are overvalued, they try to raise capital through issue of new shares. In the other case, they don't pursue raising money by issue of new stocks. This is why financial investors think of new issuance of stocks as a bad news (Asquith & Mullins, 1986). If CEOs show this kind of behavior, corporate investment could be reduced by financing problems even when there are attractive investment opportunities, because they only depend on internal financing (Fazzari, Hubbard & Petersen, 1988).

About debt financing, Myers (1977) finds that companies with higher leverage ratio in the balance sheet invest less. This is because a part of high return from a new investment project should be used to ease the debt burden from already-existing debt when debt load already pushed down bond prices low enough. Jensen and Meckling (1976) show that CEOs in listed companies are likely to pursue their own interests even his decision may contrast to outer stockholders' interest. This is, of course, applied to corporate investment. Jensen (1986, 1993) urges that CEOs have Empire-building preference and this motivate them to use internal available fund for investment rather than for payment of dividends. According to him, accumulation of internal cash make CEOs invest more and reduction of discretionary cash holdings lead CEOs to invest less.

Agency problem sometimes led CEOs to use investment to improve his own reputation and job career. Narayanan (1985) finds that CEOs interested in CEO labor market have an incentive to improve the short-term performance at the sacrifice of the long-term shareholder value. Scharfsten and Stein (1990) urges that CEOs are likely to reduce risks by blindly following other's decision makings for their reputation management. Boot (1992) & Baker and Hubbard (2000) shows that this tendency to manage their reputation results in reluctance in liquidation of low-performance business. Bertrand and Sendhil (2003) find that CEO's tendency of 'preference for quiet life' make them depend on inertia about hard decision-making issues.

Recently, research on the effect of CEO's subjective inclination on the corporate financial decision are increasing. This research is divided into two categories. One study is on whether CEO effect exists or not. The other is how CEO's character affects the corporate financial strategies. Looking at studies on the existence of CEO effect, Johnson, Magee, Nagarajan, and Newman (1985) finds that in abrupt CEO change case it doesn't affect the performance of companies on average, but that professional manager's death brings negative results and founder's death, positive results. This means professional management system is better than owner management system. Solvin and Sushka (1993) present a different interpretation for the same results. The reason that founder's death has a positive impact on stock price is not the change of CEOs, but it also has a meaning of firm sales. This makes successor competition fiercer. Denis and Denis (1995) argue that forced changes of CEOs improve financial performances. Huson, Malatesta and Parrino (2004) also finds that accounting profit increases after CEO is changed. Bennedsen, Nielson, Pérez-González, and Wolfenzon (2007) shows that CEO's personal effect exists by proving that financial performance deteriorates after CEO's own death or deaths of CEO's family member but doesn't deteriorate after deaths of board members. Bertrand and Shoar (2003) proves the existence of the CEO effect but doesn't find the reason, meanwhile bigger CEO fixed effect proportionally increases the compensation of CEO. In Asia, Ahn et al. (2009) tested the possibility of CEO effects among Japanese firms. According to them, stock prices showed short-term positive movements after the CEO change but in the long-term CEO change has nothing to do with stock prices and corporate policy changes. They interpret that CEO effect is not observed in Japan because of the long-run economic recession.

There is research on the relation between CEO's preferences and financial decision making. Heaton (2002) argues that CEOs tend to overestimate their expected investment return. Malmender and Tate (2005) additionally contributed to this study. They performed a study on the relation of CEO's self-confidence and corporate investment and found that overconfident CEOs tend to depend more on internal financing and then they are more sensitive to cashflow than less overconfident CEOs. Roll (1986) argues that CEO's overconfidence makes him overestimate his own investment performance and this often leads to participate in overpriced M&A deals. Malmender and Tate (2008) shows that CEO's Overconfidence increases M&A activities but most of these deals are value-destroying.

There are studies on other financial policies. Bertrand and Shoar (2003) shows that CEOs belonging to early generations are more conservative and CEOs with MBA degree tend to invest more aggressively, to use higher financial leverage and to pay less dividend. According to Malmender, Tate and Yan (2010), CEOs who experienced the Great Depression are generally more conservative in corporate decision making, and CEOs with military

experience show more aggressive decision-making behavior. Itzak, Graham, and Harvey (2007) argues that Overconfident CEOs usually have an active tendency in investment, leverage, and share repurchase, but show lower payout ratio.

Cain and McKeon (2016) find interesting results that CEOs with pilot licenses have a tendency to use higher leverage and stock price volatility of their company is higher. Cronqvist and Makhija and Yonker (2012) argues that CEOs with higher personal mortgage financing also normally use higher leverage in the company he is managing. Huang and Darren (2013) investigate the financial decision-making behavior of women CEOs. They found that financial performances in companies managed by women CEOs are better than male CEOs. Women CEOs were also more conservative in presenting earnings forecast and in exercising stock options. Benmelech (2015) proves CEOs with military experience tend to be more conservative and ethically more strict. They showed less aggressive investment behavior and also showed better management performances in the economic downturn.

Korea has a special type of corporation called chaebol. Under this system corporations not only make decisions at the level of individual firm, but at the level of the whole group by the owner to achieve the group-level optimum. We need to check literatures on this side. Shin and Park (1999) reports that the sensitivity of investment to cashflow is insignificant for companies in chaebol, but significant for non-chaebol companies. Meanwhile, investment activity of a company in chaebol is sensitive to the cashflow of another company in the same chaebol. They argue that this can be interpreted as there exists internal capital market inside the group. They also find that in spite of low growth potential individual companies in chaebol invest more than non-chaebol companies and therefore have low investment efficiency. Bae, Kang and Kim (2002) performed research on the M&A activities of chaebol companies and stock price performances of all companies inside the chaebol. According to their analysis, an M&A deal by a company in a chaebol tend to push up the stock prices of other companies in the same chaebol.

Putting together above research, we can conclude that CEO's personal characteristics clearly have an effect on corporate investment activities. However, there have not been similar research in Korea and there is a special system called chaebol in Korea different from other countries. Because of this special feature Korean companies cannot be explained by the approaches used in prior studies. Therefore, we will perform a study on the relation between Korean chaebol owner's personal characteristics and corporate investment, considering special features of Korean business environment. We will check whether there also exist CEO effects in Korea and if it does which personal characteristics are important in Korean companies.

3. DATA

We used accounting and stock market data of 243 chaebols and personal information of owners from 2009 to 2014 in this study. Selected chaebols have at least two affiliates as a listed company or a corporation that receives external auditing periodically and have at least one company listed in Korea Stock Exchange or KOSDAQ. General corporations that do not receive external auditing were excluded.

Financial data of each chaebol were calculated by simple aggregation of financial statements of all companies on a parent basis inside the chaebol. Market value of each firm was applied on a year-end basis for listed companies and year-end book value was inevitably used for non-listed companies. This simple aggregation method has a shortcoming to measure the exact financial status since it cannot reflect full financial results of overseas subsidiaries and doesn't consider share ratio for each affiliate. However, it is very useful and practical to understand the overall situation of each group because it includes all transactions among affiliates. Fair Trade Commission also uses this method to measure the size of groups in applying regulations to chaebols such as limiting the total amount of investment. Chaebols themselves usually use this method for internal management purpose.

We were presented with the simple aggregate financial statements of each group by Kisline. Kisline presents group financial data since 2008, and therefore our data period unavoidably ranges from 2008 to 2014. Personal information of group owners was gathered from Joins information, Chosun-ilbo information and Naver information. In the case that substantial owner is changed, we selected the predecessor as the substantial owner if the owner change happened before the end of June and chose the successor if the change happened after the end of June. With respect to

information of holding companies and groups that are limited in cross investment, we used the data of Fair Trade Commission.

4. RESEARCH MODEL

4.1. Key Research Questions

We will perform tests step by step as follows to check the effect of owner's personal characteristics on the investment behavior of chaebols. First, we will test whether the simple aggregate financial statements could be meaningful tools when judging financial decision-making behaviors of companies belonging to chaebols. Preceding literatures on Korean chaebols are dealing with the difference of financial features between companies inside chaebol and non-chaebol companies. However, considering that decision making in chaebol companies is made by the owner who controls the whole group, financial indicators of companies to which owners pay more or less than the average attention could be distorted. For this reason, the aggregate financial statements reflecting these features could be regarded as more appropriate.

Secondly, we will test the difference in investment between chaebols of owner system and chaebols with no owners even among chaebols. This is to check the effect of Korea-specific corporate governance system on the investment behavior by comparing owner-controlled chaebols and chaebols with no owners, since owner-controlled governance system is very prevalent in Korean companies unlike other countries. Lastly, we will test whether corporate investment behavior could be different depending on owner's personal characteristics and situations. This is the core test in this study. It is generally accepted that personalities of owners in Korean chaebol really have an impact on corporate management. This test will show how it is actually happening inside companies. We establish a few key research questions on the ground of these research purposes as follows.

Key Question 1: Is the investment behavior of chaebol companies still different from that of non-chaebol companies even when measured by aggregate financial statements?

According to Shin and Park (1999), chaebol companies tend to invest more than non-chaebol companies even though they are evaluated to have less attractive investment opportunities by the criteria of Tobin's Q. However, this research was based on individual financial statements of companies and could not take the chaebol features into account. We expect that aggregate financial statement that contains all information in the same chaebol will not show these abnormalities.

Key Question 2: Is the investment behavior of owner-controlled chaebols different from that of chaebols without any owner?

Jensen (1986) argues that CEOs exposed to agency issues tend to build his own empire, and Freenstra, Hamilton, and Lim (2002) finds that in Korea chaebol owners who can control all the affiliates inside the chaebol with only a little share ratio are likely to show the empire building tendency. Owner managers in Korean chaebol will show different decision-making patterns from professional CEOs because they have considerably strong influence on inside affiliates.

Key Question 3: Do owner's personal characteristics have an actual effect on the corporate investment?

According to Chen, Podolski, Rhee, and Veeraraghavan (2014), in the states with relatively high protestant-to-catholic ratio companies are less likely to make innovative tries. Risk preferences are related to differences in religiosity, and religious behavior can be taken as risk-averse (Miller & Hoffmann, 1995). Hilary and Hui (2009) show that in religiously faithful states in USA corporations have a tendency to invest less. Bertrand and Shoar (2003) also shows that older CEOs are inclined to show more conservative investment behavior. We will test whether conservative owners will make less corporate investment than non-conservative owners or not, using religion and birth variables. Malmendier et al. (2011) argue that CEOs who were born in the times of Great Depression tend to make an investment in a more conservative way. This is because CEOs who experienced hard times in their early life are more sensitive to risks than to opportunities based on their early experiences. By the same logic, CEOs whose life is only exposed to high growing booming years will show a more aggressive investment tendency. We will check if different generations

with different experience will show different investment patterns from each generation. Bertrand (2003) finds that CEOs with MBA degrees tend to have a more aggressive investment behavior. Malmendier and Tate (2005) argue that CEOs with college specialties in technology show a tendency to make more conservative investment patterns. We will test if these theories could be applied in Korea as well.

Key Question 4: Do succession issues affect corporate investment activities in Korean chaebols?

Founder-CEOs are reported to invest more aggressively than successors (Fahlenbrach, 2009). They normally start their businesses, taking considerably high risks and this will basically lead to low risk aversion inclination. Their sunk cost is a lot higher than that of family business successors because they have already put a lot of time, capital, efforts of their life in the company that they initially founded. For this reason, founders could show a tendency to invest more aggressively to grow their own companies. We will check if founder owners will show a more aggressive investment tendency.

It is also possible for successors not to act up to their opinions in Korean chaebols when their fathers are still alive even though the formal succession procedure has already been completed. This is because Korean culture is based on the vertical relation between parents and children and also because successor managers can usually have the sense of debt for their fathers. Owner-CEOs with his father still alive could show a tendency to invest more conservatively. According to Shin and Park (1999), Korean chaebol companies often invest in their business through internal financing inside the chaebol. For this reason, companies under holding company system could invest less due to financing problems from limited internal financing. Additionally, the conversion into holding company system is often used as a tool to defend the drop of owner's share ratio in Korea before the expected succession to his son. This means that the owner who intends to change the governance system into holding company system is more interested in the succession of the family business than growing the company by aggressive investments.

Family business succession is usually performed on the long-term and extensive basis, including successor training and replacement of people (Wolfe, 1996; Rothwell, 2001). Some companies select a strategy to prove successor's management capability by showing a big business success. Others choose a different strategy to get the approval of investors and internal workers by taking minimum actions and minimum risks. We will check which approaches are preferred among Korean chaebols.

4.2. Test Model

4.2.1. Model Building

To test the hypotheses presented above, we will build the research model as follows. Most pre-existing corporate investment factor models are explaining the corporate investment using Tobin's Q and operating cashflow. We are planning to build a test model by adding a few more objective variables to these variables and by selecting variables of CEO's personal characteristics as the key test variables.

$$Capex_{it} = f(Tobin - q_{it}, CF_{it}, Debt/A_{it}, Asset_{it}, Firms_{it}, Religion_{it}, Birth_{it}, Biz_{it}, Tech_{it}, Father_{it}, Founder_{it}, Holding_{it}, Transition_{it}) + \varepsilon_{it}$$

In this model Tobin-q is Tobin's Q ratio and CF is operating cashflow. Asset is the size of the total asset, Firms is the number of affiliates inside each chaebol. Relig_budi is the dummy variable when the CEO's religion is Buddhism, Relig_cath when the religion is Catholic, and Relig_prt when the religion is protestant. Birth means the year of each CEO's birth. Biz is the dummy variable when the CEO has ever majored in business administration, Tech when CEO's major is related to technology area. Father is the dummy variable when the current CEO's father is still alive, Founder when the current CEO is the founder. Holding is the dummy variable for the company under holding company system.

4.3. Variables

4.3.1. Explanatory Variables

Investment (Capex): This is the dependent variable in this study and represents the level of corporate investment. CAPEX equals the investment of tangible asset. We excluded minus investment such as asset disposal. To adjust the scale to be able to compare among variously sized companies, we scaled the investment amount by the previous year's asset. The amount of investment/the size of total asset.

Buddhist (Relig_budi): We selected religion as an indicator to judge the tendency of the conservativeness. When the CEO's religion is Buddhism, this dummy variable is 1. In the previous literature in the USA, they only considered Protestantism and Catholicism, but we also chose Buddhism as a religious variable because there are so many Buddhists in Korea.

Catholic (Relig_cath): This dummy is 1 when the owner's religion is catholic. In the USA it is reported that Catholicism is the least conservative religion.

Protestant (Relig_prts): This dummy represents that the owner is a Protestant. Corporations and regions that have relatively more Protestants are reported as more conservative than those with other religious people in the US preceding literature.

Year of Birth (Birth): The birth year of the owner. According to American literature, CEOs born during a special period have distinguished features from CEOs born in different times. We adopted this variable to check if some owners show special behaviors because there also have been special times such as Korean war and short-term high growth period of the economy in Korea.

Born in prewar times (Prewar): This dummy is 1 when the owner is born before 1953. It is used to test whether owner's early hard experience will affect his present decision making.

Born in the 1960's (Birth_60's): This dummy variable is 1 when the owner was born in the 60's. People born in the 60's have been experienced the long economic boom since their birth. We want to test whether this fact can affect investment decisions or not.

Education of Business (Biz): When the owner has taken any course of business administration this dummy is 1. In American literature CEOs with MBA degree tend to invest more aggressively than other cases.

Education of Technology (Tech): This dummy shows whether the owner has any college degree related to technology. CEOs with tech specialty were reported as investing in more conservative ways

Father's Being Alive (Father): When the current substantial owner's father is still alive whether they have official title or not, this dummy will be shown as 1. Considering Korean culture that is featured as a vertical order system, when successor's father who founded or grew up the current company is still alive the incumbent CEO must be feeling the burden that he should do better than his predecessor. We selected this variable to check how this discretion issue works.

Founder (Founder): A dummy variable showing whether the owner is the founder or not. Founders normally have stronger and aggressive entrepreneurship, and have already put a lot of time, efforts, and capital in the company he founded. We selected this variable in the expectation that this feature will make different investment patterns from each other.

Holding Company (Holding): This dummy variable is 1 when the owner has decided to change the governance system into the holding company system.

Transition Period (Transition): This dummy variable means whether a certain chaebol entered a transition period for succession or not. If the current CEO's son is positioned on the post of vice chairman of the group, the dummy is 1.

4.3.2. Control Variables

Referring to literatures, we selected Tobin's Q and operating cashflow as controls that are widely known to have a strong impact on investment activities. To feed the Korean chaebol's special features into the test model, we also selected the number of affiliates (Firms), the size of total asset (Asset, calculated by taking log), and the proportion of debt in asset as additional control variables.

5. Empirical Test

5.1. Descriptive Statistics

Table 1 shows controls, independent variables, and dependent variables used in this study. Each group is investing capital that amounts to 5.58% of the total asset on average. Operating cashflow to asset ratio is 6.32%, Tobin's Q is 1.15 on average, respectively. The average debt/equity ratio comes around 46.5%, and the number of total affiliates is 8.7 on average. All CEO data are composed of dummies except the year of birth. Average birth year is 1953 and the averages of all dummies are below 0.5. We can also get the data features that volatilities from firm data and CEO data are relatively high, considering the level of averages.

This table reports summary statistics of variables. Inv is investment level defined as capital expenditure normalized by asset at the end of the previous fiscal year. Tobin-q is the market value of assets over the book value of assets at the end of the year. CF is the operating cashflow normalized by sales. Ln_asset is the natural logarithm of assets at the end of the fiscal year. Firms is the number of independent companies inside each conglomerate. Debt_Asset is the weight of debt in the total asset. Birth is the birth year of each owner. Birth_60's is the dummy variable of owners born in the 1960's. Prewar is the dummy variable of owners born before 1953. Relig_budi is the dummy variable of budist owners. Relig_cath is the dummy variable of catholic owners. Relig_prts is the dummy variable of protestant owners. Biz is the dummy variable of owners with degree of business administration. Tech is the dummy variable of owners with degree of natural science or engineering. Founder is the dummy variable of founder owners. Father is the dummy variable of owners with his father alive. Holding is the dummy variable of holding company system. Transition is the dummy variable of chaebols in transition period for succession.

Table 1. Summary Statistics

Variables	Observations	Mean	Median	Std. Dev.	Maximum	Minimum
Firm Data						
Tobin_q	240	1.15	1.02	0.49	5.44	0.60
CF	240	6.32	5.59	7.24	38.36	-24.74
Ln_asset	240	20.88	20.67	1.64	26.21	17.95
Firms	240	8.74	5.50	9.40	67.33	2.00
Debt_Asset	240	46.49	47.02	18.03	99.49	6.41
Inv	240	5.58	4.62	4.06	36.20	0.41
Owner Data						
Birth	225	52.93	54	10.21	81	23
Birth_60's	225	0.19	0	0.39	1	0
Prewar	225	0.50	0	0.49	1	0
Relig_Budi	225	0.21	0	0.40	1	0
Relig_Cath	225	0.06	0	0.23	1	0
Relig_Prts	225	0.21	0	0.41	1	0
Biz	225	0.37	0	0.48	1	0
Tech	225	0.26	0	0.44	1	0
Founder	225	0.50	0	0.50	1	0
Father	225	0.09	0	0.27	1	0
Holding	225	0.21	0	0.38	1	0

We find that variables that have high correlation to the investment of chaebols are Tobin's Q, cashflow, business specialty, and holding company system. Cashflow with the correlation coefficient of 0.21 is the most highly related to investment. Correlation coefficients of Tobin's Q, 'business specialty or not' and 'holding company or not' are 0.17, -0.10, -0.10, respectively. Among independent variables, generation variables such as year of birth, the dummy whether born in the 60's or not and 'war generation or not' are highly related to one another. Asset size, the number of affiliates and the dummy of 'founder or not' have high correlation to one another as well. 'Holding company or not' has high absolute values of correlation coefficients to both of asset size and the number of firms.

5.2. Test Results

5.2.1. Validity of Aggregate Financial Statement

First of all, we test whether it is appropriate to use the aggregate financial statement for the evaluation of chaebols' financial decision making or not. The test results are shown in Table 2. Our analysis shows that comparing the investment behaviors of individual companies, companies belonging to chaebol tend to invest more than non-chaebol companies in the level of statistical significance. However, the same test using the aggregate financial statements shows different results. The test to check the difference between aggregated chaebols and non-chaebol companies brings the same results to support our hypothesis. Unlike the test results using individual financial statement, investment activities of each aggregated chaebol are not statistically different from those of non-chaebol companies.

Test results are exactly the same as our expectation. Individual companies inside the chaebol seem to overinvest compared with non-chaebol companies, but we cannot say aggregated chaebol invests more than non-chaebol companies. Therefore, we find that previous literature (Shin & Park, 1999) performed at the individual firm level may not reflect the features of chaebol system by applying uniform comparisons and somewhat distort actual phenomena. Our study performed at the whole group level excludes this kind of errors and have more reasonable ground.

The dependent variable in the regressions is investment, defined as capital expenditure normalized by asset at the end of the previous fiscal year. Tobin-q is the market value of assets over the book value of assets at the end of the year. CF is the operating cashflow normalized by sales. Ln_asset is the natural logarithm of assets at the end of the fiscal year. Debt_Asset is the weight of debt in the total asset. Chaebol_aggregate is the dummy variable of aggregated chaebol. Chaebol_indv is the dummy variable of individual chaebol affiliates.

Table 2. Validity of aggregate financial statement

	Individual companies	Non-chaebol vs Aggregated
Intercept	-1.106 (-0.614)	-1.293 (-0.688)
Chaebol_aggregate	- -	-0.810 (-0.587)
Chaebol_indv	0.363 (1.936)*	- -
Ln_Asset	0.427 (6.946)***	0.187 (2.864)***
Debt_Asset	0.859 (1.953)*	1.816 (3.936)***
CF	0.084 (8.724)***	0.086 (8.368)***
Tobin_Q	1.148 (7.470)***	1.151 (6.628)***
Industry fixed effects	yes	yes
Year fixed effects	yes	yes
Observations	3,707	2,812
R ²	0.128	0.099

Absolute Value of t-statistics in parenthesis.

*Significant at 10%, **significant at 5%, ***significant at 1%.

An additional test is carried out to check the validity of our study using aggregate financial statements to investigate chaebols' financial decision making. We perform an independent sample t-test to see the difference of investment indicators between individual and aggregate financial statements. The test results reported in Table 3 show that there is clear difference between the two cases. It is statistically significant that the average Tobin-q of aggregated chaebols is higher than that of individual companies inside the chaebol and that the average aggregated debt/equity ratio is also lower than the individual average. Investment itself is more active at the level of the whole chaebol group. This brings an interesting result. It is the same as Table 2 in that there are differences in investment activities between the two cases, but not the same in that the indicators of aggregated investment activities are higher than those of individual companies. Because it shows that investment activity at the level of aggregated group is lower in Table 2 but is higher in the independent sample t-test. This comes from the difference of independent variables. Tobin's Q rises noticeably on the aggregate basis, and this leads to higher investment activities. However, taking Tobin's Q into account as an independent variable in the model, the comprehensive model leads to lower investment activities at the aggregate group level.

Table 3. Comparison between individual companies in chaebol and aggregate chaebol

	Tobin_Q	CF	Debt_Asset	Investment
Mean_Indiv	1.05	6.04	0.49	6.38
Mean_Aggregate	1.15	6.50	0.47	7.60
Var_Indiv	0.30	78.09	0.04	36.47
Var_Aggregate	0.31	92.40	0.04	57.47
N_Indiv	2,249	2,249	2,249	2,249
N_Aggregate	1,414	1,414	1,414	1,414
Dof	3,661	3,661	3,661	3,661
t-statistic	5.53	1.43	-3.83	5.13
P-value	0.000	0.152	0.000	0.000

Investment is defined as capital expenditure normalized by asset at the end of the previous fiscal year. Tobin-q is the market value of assets over the book value of assets at the end of the year. CF is the operating cashflow normalized by sales. Debt_Asset is the weight of debt in the total asset. N is the number of observations.

5.2.2. Difference between Owner Co.'s and Non-Owner Co.'s

This time we test whether there exists any difference of investment determinants between owner-controlled chaebols and chaebols without owners or not. We only use objective variables as control variables in this study excluding personal characteristics variables of decision maker. The test results are presented in Table 4. The overall investment level of chaebols is found to be determined by Tobin's Q and operating cashflow. This corresponds to the previous literatures.

The difference in investment level between owner-controlled chaebols and non-owner chaebols shows an interesting result, for owner-controlled chaebols are tested as more likely to invest less. We infer that this test result came from our data period. Our test period ranges from 2009 to 2014 and the global economy showed slow growth in every region during this period. A lot of CEOs and investors were discouraged to make aggressive investments because of the low expectation of future profit. In our opinion, owner-controlled chaebols with more exposure to personal decision making could have been more affected by the owners' overly lowered investment confidence during this time.

Investment determinants between the two groups show mutually distinguished features from each other as well. The investment determinants of owner-controlled chaebols show little difference from the test among all observations. In the meantime, non-owner chaebols show a little bit different result. Tobin's Q is not statistically significant for them and even the plus-minus sign is in the opposite direction to previous research. In contrast, cashflow have a strong positive correlation to investment. This can be interpreted as a Korean uniqueness. In Korea non-owner chaebols are normally controlled by the government or by banks. Large bankrupt companies used to be transferred to banks' control after debt-equity swap in Korea in the past. The professional management in these companies have nothing to do but see how the wind blows in the upstream. The government and banks do not have the industry expertise and necessarily cannot evaluate and judge the attractiveness of investment opportunities. In most cases like this, decisions on the

investment are made not based on the market evaluation of the future opportunities but on internal cash base gained by operating activities. They invest more on the boosted expectation of future cashflows after the operating results are improved, and less on the lowered profit expectation after profits decrease.

The dependent variable in the regressions is investment, defined as capital expenditure normalized by asset at the end of the previous fiscal year. Tobin-q is the market value of assets over the book value of assets at the end of the year. CF is the operating cashflow normalized by sales. Ln_asset is the natural logarithm of assets at the end of the fiscal year. Firms is the number of independent companies inside each conglomerate. Debt_Asset is the weight of debt in the total asset.

Table 4. Difference between Owner Co.'s and Non-owner Co.'s

	All	Owner Co's	Non-owner Co's	All_Owner Dummy
Intercept	5.197 (2.451)***	7.744 (3.155)***	-1.393 (-0.163)	7.752 (3.066)***
Tobin_q	1.302 (4.858)***	1.420 (5.245)***	-2.269 (-1.239)	1.318 (4.918)***
CF	0.123 (6.120)***	0.110 (5.361)***	0.419 (4.345)***	0.122 (6.105)***
CF ²	-0.001 (-0.920)	-0.001 (-0.709)	-0.006 (-1.290)	-0.001 (-0.973)
Ln_asset	-0.208 (-1.970)**	-0.332 (-2.700)***	0.054 (0.124)	-0.293 (-2.547)**
Firms	0.033 (1.898)*	0.046 (2.301)**	0.052 (0.890)	0.043 (2.347)**
Debt_Asset	-0.018 (-2.838)***	0.014 (2.110)**	0.074 (2.260)**	0.019 (2.875)***
Owner	- -	- -	- -	-0.937 (-1.852)*
Year-fixed effects	Yes	Yes	Yes	Yes
Observations	1,354	1,269	85	1,354
R ²	0.104	0.106	0.339	0.107

Absolute Value of t-statistics in parenthesis.

*Significant at 10%, **significant at 5%, ***significant at 1%.

5.2.3. Effects of Personal Characteristics on Corporate Investment

We perform a test to check the effect of owner's personal characteristics on the investment behavior this time. Test variables are classified into four groups such as generation variable group, religion variable group, college major variable group and succession variable group. Test results are shown in Table 5. According to our test, generation variables show no distinctive result. US literatures are showing a few interesting features about age and generation. Older CEOs show more conservative investment behavior (Bertrand & Shoar, 2003). Malmendier et al. (2010) reports that impressive experiences and memories in the childhood such as experiences in Great Depression affects CEO's corporate decision making even though a long time has already passed. However, it is not applied in Korea. Every variable such as year of birth, war experience, and the luckiest generation (born in 60's and experienced the most economically booming period) is not tested as statistically significant. We infer this result as a special feature in Korea. All Korean people, regardless of their own ages, have been experiencing rapid growing economic periods since their births or for at least 50 years, because Korean economy has been growing at a historical rapid pace since the 1960's. This long-term economic prosperity could sufficiently have weakened the possible generational differences in the economic outlook for the future.

Religion variables bring a somewhat interesting result showing the distinctive Korean feature. According to our test, three Korea's major religions all show positive coefficients, but the dummies of Protestant and Catholic are tested as statistically insignificant. Buddhist only is tested as statistically meaningful. Risk preference is related to religiosity, and religious behavior can be taken as risk-averse (Miller & Hoffmann, 1995). Other previous research (Kumar, 2009;

Kumar, Page, & Spalt, 2011) reported special features by religion. According to them, Catholics are less risk-averse, prefer lottery-type stocks, and tend to make more aggressive financial investment than Protestants. Chen et al. (2014) proves that states with higher catholic-to-protestant ratio have higher tendency to innovation and investment. Noussair, Trautmann, van de Kuilen, and Vellekoop (2013) has found that Catholics, on average, attend church services less often, pray less, and holds weaker religious beliefs than Protestants. We could not find any literature mentioning Buddhists' special features comparing with other religious people. However, we can infer religious features of Buddhists from their behaviors. Korean Buddhists usually do not attend temple services on a regular basis unlike Protestants and Catholics, and there is no official public religious book for Buddhists just the same as the Holy Bible for Christians. Applying Noussair et al. (2013)'s research to Korean Buddhists, they could be less deeply religious because they go to temple irregularly only when they want to go. We conjecture that this religious feature could make Buddhists invest more aggressively than Protestants and Catholics. Referring only to Christianity, Catholics show more aggressive tendency to invest just like the USA, even though t-statistics are not high enough to meet the statistical standards.

Regarding variables relevant to specialty, owner CEOs with degree of business administration relatively invest less, and CEOs with degree of natural science and engineering are neutral in their tendency of investment aggressiveness. An American study (Bertrand & Shoar, 2003) reports that CEOs with MBA degree have a tendency to invest aggressively, and CEOs with Tech degree are more likely to invest in conservative ways. Our test shows different results that CEOs with educational experience in business administration tend to invest more conservatively to the contrary.

The dependent variable in the regressions is investment, defined as capital expenditure normalized by asset at the end of the previous fiscal year. Tobin-q is the market value of assets over the book value of assets at the end of the year. CF is the operating cashflow normalized by sales. Ln_asset is the natural logarithm of assets at the end of the fiscal year. Firms is the number of independent companies inside each conglomerate. Debt_Asset is the weight of debt in the total asset. Birth is the birth year of each owner. Birth_60's is the dummy variable of owners born in the 1960's. Prewar is the dummy variable of owners born before 1953. Relig_budi is the dummy variable of buddhist owners. Relig_cath is the dummy variable of catholic owners. Relig_prts is the dummy variable of protestant owners. Biz is the dummy variable of owners with degree of business administration. Tech is the dummy variable of owners with degree of natural science or engineering.

Table 5. Effects of Personal Characteristics on Corporate Investment (Fixed effect)

	Generation	Religion	Specialty	All
Intercept	7.521 (3.092)***	3.192 (1.376)	5.889 (2.735)***	7.227 (2.957)***
Birth	-0.017 (-2.139)**	- -	- -	-0.011 (-1.389)
birth_60's	0.413 (1.124)	- -	- -	0.228 (0.607)
Prewar	0.078 (0.309)	- -	- -	-0.051 (-0.196)
Relig_Prts	- -	0.221 (0.733)	- -	0.098 (0.323)
Relig_Cath	- -	0.799 (1.616)	- -	0.774 (1.555)
Relig_Budi	- -	0.967 (3.212)***	- -	0.801 (2.597)***
Biz	- -	- -	-0.834 (-3.463)***	-0.808 (-3.184)***
Tech	- -	- -	0.043 (0.155)	0.026 (0.094)
Tobin_q	1.294 (4.871)***	1.3 (4.961)***	1.234 (4.728)***	1.366 (5.118)***
CF	0.112 (7.344)***	0.107 (7.116)***	0.11 (7.246)***	0.112 (7.372)***
Ln_asset	-0.289 (-2.545)**	-0.094 (-0.833)	-0.223 (-2.102)**	-0.278 (-2.446)**
Firms	0.043 (2.342)**	0.054 (3.011)***	0.04 (2.269)**	0.047 (2.592)***
Debt_Asset	0.019 (2.909)***	0.01 (1.512)	0.018 (2.646)***	0.015 (2.353)**
Year-fixed effects	Yes	Yes	Yes	Yes
Observations	1354	1354	1354	1354
R ²	0.107	0.136	0.112	0.119

Absolute Value of t-statistics in parenthesis.

*Significant at 10%, **significant at 5%, *** significant at 1%.

5.2.4. Effects of Succession Issues on Investment

Looking at succession variables, founder owner CEOs clearly shows an aggressive investment tendency identical to the previous research (Fahlenbrach, 2009). When the father of the current CEO is still alive, the level of investment was lowered. Chaebols under holding company system are found to invest less than others. Last but not least, Chaebols in the transition period of succession are tested to show relatively low investment tendency. The test results are presented in Table 6.

Founders have already injected a lot of time, effort and capital. All of these are much like sunk cost of their lives. They may have a stronger attachment to their business and make more efforts to expand their business than successor CEOs. This will lead to more aggressive investment (Fahlenbrach, 2009). In the case that father is still alive, even though his father bequeathed the control over the whole group, the successor CEO has no choice but to feel some burden from his father. While his father founded or expanded the business, he just succeeded to the business with only a little effort. This can make successors try to read their father's face and lead to less aggressive investment decision makings.

To mention the holding company system, some subsidiaries with less sound financial structure cannot invest in excess of their own financial capability unlike chaebols under different governance systems, because chaebols under holding company governance system are limited in using the internal financing from another affiliate (Shin & Park, 1999).

Additionally, the holding company system was initially introduced to Korea in the early 2000's, and often used as a tool to pass their family business down to successors or to strengthen their control over the group. This means, on the one hand, that CEOs under holding company system are more interested in the succession of their shares and control over the group than in business expansion.

It appears that chaebols in the transition period of business succession relatively underinvest. This is an important point for Korean chaebols that usually succeed their family business to inside-family successors even though they are large conglomerates. Family business succession is performed based on long-term and extensive approaches towards successor training and replacement of key persons (Rothwell, 2001; Wolfe, 1996). Two stages are implicitly required in Korea for chaebol owners to succeed their family business to their sons. The first is the succession of shares, and the latter is the succession of management right. The succession of shares can be easily done by the process regulated in the law, but the succession of management right should entail the consent of stockholders, employees, etc. To get this consent, a successor is normally tested whether he has the right management capability or not by being designated as vice chairman. Two methods are generally used for the successor to pass this test. One is to strongly expand the current business and get approval of his management ability. The other is to get the approval by managing the current business very stably through conservative management style. Chaebols' decrease in investment during the transition period of succession means that Korean chaebols prefer stable operational management to aggressive investment extension as the method of succession approval. This is the same as the previous research (Bertrand & Mullainathan, 2003) that managers prefer quiet life, depend on old inertia, and don't try new investment or divestment. This stable succession process of Korean chaebols are also similar to the research (Narayanan, 1985; Stein, 1989) named short-termism that managers who try to get good reputation from the CEO labor market tend to cut investment for the long-term performance improvement and to take measures to improve short-term earnings report.

The dependent variable in the regressions is investment, defined as capital expenditure normalized by asset at the end of the previous fiscal year. Tobin-q is the market value of assets over the book value of assets at the end of the year. CF is the operating cashflow normalized by sales. Ln_asset is the natural logarithm of assets at the end of the fiscal year. Firms is the number of independent companies inside each conglomerate. Debt_Asset is the weight of debt in the total asset. Birth is the birth year of each owner. Birth_60's is the dummy variable of owners born in the 1960's. Prewar is the dummy variable of owners born before 1953. Relig_budi is the dummy variable of buddhist owners. Relig_cath is the dummy variable of catholic owners. Relig_prts is the dummy variable of protestant owners. Biz is the dummy variable of owners with degree of business administration. Tech is the dummy variable of owners with degree of natural science or engineering. Founder is the dummy variable of founder owners. Father is the dummy variable of owners with his father alive. Holding is the dummy variable of holding company system. Transition is the dummy variable of chaebols in transition period for succession.

Table 6. Effects of Succession Issues on Corporate Investment (Fixed effect)

	Succession	Personal Characteristics & Succession
Intercept	2.244 (0.986)	3.757 (1.432)
Founder	0.704 (2.774)***	0.490 (1.836)*
Father	-0.847 (-1.557)	-0.989 (-1.789)*
Holding	-1.18 (-4.398)***	-1.113 (-3.994)***
Transition	-1.111 (-1.923)*	-1.479 (-2.490)**
Birth	- -	-0.006 (-0.720)
Birth_60's	- -	0.355 (0.946)
Prewar	- -	-0.008 (-0.033)
Relig_Prts	- -	0.226 (0.743)
Relig_Cath	- -	0.863 (1.731)*
Relig_Budi	- -	0.959 (3.108)***
Biz	- -	-0.690 (-2.693)***
Tech	- -	0.023 (0.081)
Tobin_q	1.165 (4.473)***	1.286 (4.813)***
CF	0.106 (6.991)***	0.107 (7.118)***
Ln_asset	-0.05 (-0.447)	-0.112 (-0.921)
Firms	0.046 (2.545)**	0.055 (2.997)***
Debt_Asset	0.014 (2.028)**	0.010 (1.607)
Year-fixed effects	Yes	Yes
Observations	1354	1354
R ²	0.123	0.137

Absolute Value of t-statistics in parenthesis.

*Significant at 10%, **significant at 5%, ***significant at 1%.

6. CONCLUSION

We carried out a study among Korean chaebols to test how owner's personal characteristics affect corporate investment activities. Several featured results were drawn from this research.

First, chaebol' investment activity is not different from that of non-chaebol companies unlike the previous research results (Shin and Park, 1999), when it is measured by the aggregate financial statements. Second, non-owner chaebols make investment decisions not based on future business opportunities but on current cashflow profitability, compared with owner-controlled chaebols. Third, Buddhist owner CEOs tend to invest more aggressively among owners of chaebol. Fourth, founders invest more than successor managers. Fifth, chaebols under holding company governance system or undergoing the transition period for succession invest less than other chaebols.

Research implications in this study are as follows. First, we proposed another method to measure the financial performances of Korean chaebol, different from the normal method. Previous research has only measured the performances of chaebol companies through the individual financial indicators. However, we presented a more effective method by using the aggregate financial statements, in that we can evaluate chaebol's financial decision makings from the more comprehensive perspective considering the features within chaebol. Second, public companies and bank-controlled companies managed by the management lacking industry expertise need to reform the investment decision making process. They tend to make investment decisions based overly on current cashflow and are not likely to take full advantage of investment opportunities measured in the financial market as Tobin's Q. Third, we strengthened the previous research on the relation between corporate financial decision makings and CEO's personal characteristics, by performing an additional study among Korean companies in which owner-CEO's personal features have bigger impact on management decisions than in other cases. We have found that CEO's characteristics clearly have an impact on corporate decision makings and that there are some Korea-specific features such as Buddhist CEO's more aggressive investment tendency. Fourth, Korean chaebols with the nature of family business showed a clear feature during the succession process. Korean chaebols generally underinvest in all the stages of succession, such as preparation, progress, and completion. We can interpret this to mean that Korean chaebols prefer to succeed to the management right by showing successor's stable management ability to investors and employees.

The limit of this research is basically that we used simple aggregate financial statements and did not use the most appropriate indicators to precisely represent the whole group. Of course, this data also has a lot of representative meaning, but a more detailed adjustment process will solve this uneasiness. Additionally, this research is basically for diversified chaebols and industrial features of each chaebol are not considered enough. Our study was performed using 240 chaebols in Korea on the assumption that they are industrially evenly distributed. If we could take industrial features into account in the similar study, the power of explanation will be enhanced even more.

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