

The transfer of resources from worse to better performing affiliated firms: A study of Korean chaebols

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ABSTRACT

In the past scientific articles confirmed tunneling in Korean chaebols. Diverse means have been utilized by chaebols to transfer resources between affiliates. In this study I provide further evidences of tunneling in chaebols. However, my study is different from the existing literature. The novel insight of my study is that I investigate whether chaebols siphon resources from firms that financially perform worse than those to which resources are transferred. For the time interval 2008-2010 I investigate 80 tunneling cases. For each of the cases I consider the pre-tunneling performance of the firm that is subject to tunneling, i.e. the firm which provides resources. And I consider the pre-tunneling performance of the firm which receives resources. In conjunction with previous studies, I consider EBIT (Earnings Before Interest and Tax) as a measurement for firm performance. I compute dEBIT as the EBIT of the provider less the EBIT of the receiver. Results of the analysis revealed that, if dEBIT is negative, chaebols tunnel more resources from the provider than, if the provider has a higher EBIT compared to the receiver. The results not only signal that worse performing firms can become subject to tunneling in chaebols, but that tunneling is more severe in cases in which the provider performs less well than its corresponding receiver. Hence, performance differences prior to tunneling are a consideration for the controlling shareholders of chaebols.

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Keywords

Firm performance; Tunneling; Korean chaebols; Affiliates; EBIT; RPT

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5th IBA Bachelor Thesis Conference, July 2nd, 2015, Enschede, The Netherlands.

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1. INTRODUCTION

Business groups are dispersed in the world (Chang, 2006). Commonly they are defined “as a collection of legally independent firms that are linked by multiple ties, including ownership, economic means (such as inter-firm transactions), and/or social relations (family, kinship, friendship) through which they coordinate to achieve mutual objectives” (Yiu et al., 2007). Examples include Conglomerates in western countries, Keiretsu in Japan, Grupos Economicos in South America, Business Houses in India (Chang, 2006) and South Korean Chaebols (Yiu et al., 2007). In Asia they have been of particular interest because they contributed to the economic development of East Asian countries. In South Korea the top 30 chaebols, as measured by size (Bae et al., 2002), account for 46% of the industry revenues (Bamiatzi et al., 2014); their combined assets represent 47% of the entire economy. While the top 5 chaebols make up 59% of the value of all firms on the Korean Stock Exchange. Being a member of a business group has several advantages. Among them are a transfer of skilled labor to member firms (Ramaswamy et al., 2012), the provision of internal finance (Bamiatzi et al., 2014) and business experience by affiliates. In addition, in times of financial distress firms can be supported by group affiliates (Bae et al., 2008).

However, a downside of being a group member, in particular for minority investors, is represented by “tunneling”. Originally the term comes from the Czech Republic and metaphorically describes the transfer of assets and profits through an “underground tunnel” (Johnson et al., 2000). Assets and profits in secrecy are transferred out of firms and in favor of controlling shareholders. Thereby, minority shareholders are expropriated, since they have invested in companies out of which resources are siphoned. Later studies add that the direction of resource flow is from companies in which controlling shareholders own relatively little to companies in which their ownership is bigger (Carney et al., 2011; Bae et al., 2008). Hence, tunneling is the process by which controlling shareholders transfer resources from companies in which they have relatively low cash flow rights to companies of higher cash flow rights. Some examples of tunneling are the issuances of securities of worse performing member firms to better ones at inflated prices (Baek et al., 2006), or the acquisition of affiliates which benefit controlling shareholders at the expense of minority investors (Bae et al., 2002). According to research, tunneling is supposed to occur in business groups (Friedman et al., 2003; Bae et al., 2008), in which there is a concentration of ownership (Bae et al., 2008) and control rights exceeding cash-flow rights through pyramidal ownership structures (Wei and Zhang, 2008; La Porta et al., 1999). When a firm is organized in a pyramidal ownership structure, it controls the firm one level further down the pyramid (Friedman et al., 2003). Thus, the controlling shareholder at the top even controls companies further down the pyramid in which his shareholdings are relatively low (Lemmon and Lins, 2003). Typically, business groups are owned by a controlling shareholder who is represented by a leading family (Friedman et al., 2003; La Porta et al., 1999; Claessens et al., 2006). In addition, the controlling shareholder operates in a business environment in which legal protection for investors is weak (Wiwattanakantang, 2001; Bae et al., 2008; Kim, 2009).

The problem of tunneling is that minority shareholders are at detriment, if resources are taken away from the company in which they own shares. While money could be reinvested into the firm, or higher dividends paid to the firm's shareholders (George and Kabir, 2008), tunneling suggests that the firm, on the instruction of the controlling shareholder of the group, transfers money to another affiliated firm of the group.

Therefore, business groups should be studied in order to understand their working philosophies and the likely factors which encourage tunneling. In the context of this study I investigate whether a firm that performs financially less well than another affiliated firm of the same business group transfers resources to the better performer. More specifically, I investigate this tunneling of resources in South Korean (hereafter Korean) chaebols. When chaebols' controlling shareholders decide that a firm of the group should receive resources, then, based on firm performance, out of which types of firms are resources tunneled-better or worse performers? So far, as described in the next section, existing studies on performances in chaebols outline that firms of a group support distressed affiliates. Thereby, resources are siphoned out of better performers to worse ones. Since controlling shareholders in chaebols have almost full control over their group (Bae et al., 2002; Baek et al., 2006), they might siphon resources from a worse performer to a better one, if in alignment with their interests. Therefore, I formulate the following research question:

With regard to tunneling in chaebols, to what extent are resources transferred from worse to better performing affiliated firms?

While tunneling within chaebols is confirmed, prior research focuses on themes other than the pre-tunneling performance of providing firms of resources in relation to the performance of the corresponding receivers. It is concerned with topics, such as acquisition (Bae et al., 2002), the release of financial statements (Kim, 2009), Public Security Offerings (Baek et al., 2006). The pre-tunneling performances of firms did not receive much attention. Therefore, it is not clear, if worse performing affiliates also transfer resources to other group members. This study aims to clarify that. The academic relevance of this paper thus is concerned with the investigation of tunneling in chaebols with regard to pre-tunneling firm performances of providers and receivers. The practical relevance of this study is to increase knowledge about Korean business groups. A second relevant practical implication is to encourage governments to pay attention to corporate behaviour in chaebols. This paper is structured as follows. After section one, the introduction, section two discusses the literature relevant for this study. Accurately, a brief overview about chaebols is provided and prior studies' indications of company performance and tunneling. Moreover, agency theory is outlined to theoretically understand tunneling by chaebols. In the next section the methodology is explained. An OLS (Ordinary Least Squares) regression analysis is included for the purpose of examining the relationship between pre-tunneling firm performances and tunneling. In the subsequent section “analysis” the regression analysis is run, the results are described and briefly interpreted. Consequently, the results are discussed. Furthermore, an answer is provided to the question, to what extent resources are tunneled from worse to better performing affiliated firms in chaebols. Finally, the paper is concluded by pointing at its main contents. Limitations of the study, research recommendations and a practical implication for governments are deduced.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Chaebols-Korean conglomerates

As mentioned earlier, chaebols are Korean business groups. They are defined as large business groups which consist of formally independent companies (Choe and Pattnaik, 2007). These operate in diverse industries; and a family exerts control over them. For instance, the Samsung group, LG, SK, Lotte are known chaebols. Chaebols have played an important role for the economy of Korea (Pirie, 2015; Bamiatzi et al., 2014). While

some examples were aforementioned, another example is that in 2010 the 30 largest chaebols accounted for 84% of Korean exports (Pirie, 2015). They are dominating the economy of the country and are acting in diverse industries, such as electronics, automobiles, shipbuilding and construction (Choe and Pattnaik, 2007). In Korea's conglomerates (Bamiatzi et al., 2014) ownership is concentrated in families who almost control the entire business group they belong to (Kim; 2009; Baek et al., 2006). Also, chaebols have control rights in excess of their cash flow rights (Kang and Kim, 2006). Meaning that, although the controlling shareholders' equity in affiliated firms is relatively low, their control over the firms is higher than prescribed in the conventional one share one vote rule. Control over the group is exercised through the pyramidal ownership structure mentioned earlier (La Porta et al., 1999). However, cross-shareholdings are a more common mechanism for control in chaebols (Bae et al., 2002). In cross-shareholdings, individual affiliates of a group own shares in each other's firm, thus building ties between the companies (Yiu et al., 2007). Bae et al. (2002) and Baek et al. (2006) also mention a weak corporate governance of chaebols. In sum, these findings provide information about the Korean business groups. Furthermore, they illustrate characteristics which are in alignment with the tunneling view.

2.2 Prior studies on firm performance and tunneling in chaebols

According to existing studies, chaebols have siphoned resources in order to support group affiliates which experienced financial distress. To start with Bae et al. (2002), the authors study mergers made by chaebols over the time interval from 1981 up to 1997. The authors show that mergers are carried out by better performing companies in order to rescue distressed group members. Because chaebol members trade with each other and have, as mentioned earlier, reciprocal share agreements, the survival of a member is of importance for the value of the group. Minority investors suffer from the rescue mergers, while overall value of the groups' firms is enhanced. While indicating another means to siphon resources, Baek et al. (2006) present tunneling activities from PSO (Private Security Offering) issuances. The authors argue that the issuances are encouraged by personal objectives of controlling shareholders. Since they are sold at discount prices to affiliates of higher ownership stakes of the controlling shareholders. More importantly for this study, PSOs are issued by companies of better performances than the acquirers. In a similar manner, Kim (2009) delivers examples in which better performers support distressed group affiliates. While a merger and loan provisions constitute means of tunneling, purchasing equity of poor performers is the primary trajectory. There are more direct examples within Korean business groups in which resources had been siphoned. Affiliates belonging to top chaebols, such as LG, Samsung and Hyundai Motors were subject to tunneling in the past. LG Merchant Bank, being an affiliate of the LG group, accumulated huge losses in the fiscal year at the time of the Asian financial crisis (Bae et al., 2002). To rescue the affiliate the decision was made that LG Securities, another affiliate, should acquire the distressed firm. Minority shareholders of LG Securities opposed the acquisition as it meant losses for them. The opposition was reflected in a CAR of -46% for the acquirer. The Cumulative Abnormal Return (CAR) measures changes in stock prices, as measured by investor reactions to events, such as announcements of mergers (Kim, 2009). In 1999 Samsung SDS issued bonds with warrants (BW) worth 23 billion won (or 18400000 Euro) to the controlling shareholder Lee Kun-Hee's son and to other people (Baek et al., 2006). BWs are securities that can be converted into shares within a specified time. The BWs could be transformed into shares at a price of €5,72 won per share. That, however, was far

lower than the public price of almost €44. This transaction also did not occur in the favor of minority shareholders who would have lower ownership stakes as a result of the deal. One year later Hyundai Corporation provided a loan of €40 million to Hyundai Construction, who recorded negative earnings at that time (Kim, 2009). The findings presented above are important for this study's investigation. They are important for two reasons: they provide evidences that chaebols tunneled resources in the past; they show that chaebols tunneled resources in order to support distressed affiliates, thus indicating that rather better performers become victims of tunneling. For this reason and the fact that I did (so far) not find a bidirectional flow of resources, I formulate the following null hypothesis.

H0: In chaebols resources only are siphoned out of better performers.

The corresponding alternative hypothesis is as follows.

HA: In chaebols resources not only are siphoned out of better performers.

Thus, in conjunction with prior research, I assume in the null hypothesis that chaebols only transfer assets in order to support affiliates whose performances are not at an appropriate level for the controlling shareholders. These affiliates have lower performances than the provider group members.

2.3 Agency theory

If examples of actual tunneling would not be available, how could it theoretically be explained that chaebols might siphon resources? The answer is provided by Agency Theory. The theory indicates that a principal hires an agent to have a service performed on the behalf of the principal (Jensen and Meckling, 1976). The agent is delegated decision-making by the principal in order to act according to the instructions of the principal. However, the agent's own objectives may divert from those of the principal, leading to an agency problem. In organizations the agency problem is presented in the relationships between managers and shareholders, with the former being the agent, while the latter the principal. Agency theory further recognizes that a diversion between ownership and control leads to an agency conflict. If an owner has a 100% ownership of the firm, then he tends to act in a way that maximizes the benefits for the firm. When his ownership falls by selling equities to investors, he is less motivated to maximize the firm value. And he seeks other means to benefit himself. However, investors would like to see the company achieving as much revenues as possible. In East Asian countries the agency conflict is not as much between managers and shareholders as between controlling and minority shareholders (Mitton, 2002). This includes Korea (Bae et al., 2002). Controlling shareholders, in the pursuit of personal objectives, divert firm resources by making inefficient transactions, i.e. transactions that do not add value to the firm from which resources had been reallocated (Bae et al., 2002). This, however, runs counter with minority shareholders, who, because of providing funds to the firms through equity purchases, have an interest in firm performance. Generally, although controlling shareholders are formally not entitled full control over the entire group, given their equity stakes, their informal control over the group encourages them to make beneficial transactions, even, if it means at the expense of minority investors. Therefore, research has mentioned this separation between control and cash-flow rights to be an encouragement for expropriating minority shareholders (Lemmon and Lins, 2003; Joh, 2003). Since control rights exceed cash-flow rights in Korean chaebols, they theoretically are candidates for tunneling. In addition to this divergence, a weak protection for investors has been framed as an encouragement for tunneling, as indicated in the introduction. Prior to the Asian financial crisis investors were

not well protected (Choe and Pattnaik, 2007). The tunneling confirmations by Bae et al. (2002), who focus on expropriation cases up to 1997, suggest that chaebols are motivated by the degree of protection of minority investors. However, after the crisis legislative protection improved. For instance, the requirements to file a suit, to request the dismissal of a director and the right to investigate company documents were lowered (Choe and Pattnaik, 2007). A shareholder had to have equity of 5% or more to file a suit; he had to have 5% at minimum to request dismissals; and he had to have 10% at minimum in order to research through documents. These requirements had been lowered to 1%, 3% and 3% in after-crisis levels. Another improvement was “the class action lawsuit”. Under this regulation a shareholder who wins a lawsuit against a chaebol would be compensated. In addition, all other affected shareholders are granted the same compensation. And the introduction of Combined Financial Statements (CFSs), albeit indirectly improving minority shareholders’ situation, was a step towards protection. In the absence of CFSs minority investors were not able to identify performances on a group level (Kim, 2009). Taken together, these articles provide a theoretical explanation as to why chaebols used to siphon resources in the past.

3. METHODOLOGY AND DATA COLLECTION

3.1 Overview

In this paper I examine tunneling by chaebols for the years 2008-2010. Tunneling in this time interval is not widely researched in academic literature about chaebols. Another reason that makes the time interval suitable for this study is the fact that it covers the global financial crisis which arose in the US in 2007 (Kwon, 2013). The crisis spread over to Korea in 2008. It is said to be overcome in 2009 (Hyun and Yoshino, 2013). Multiple studies argue that tunneling is especially severe in times of crises (Boubakri et al., 2010; Espenlaub et al., 2012). Therefore, it is possible to observe relatively many tunneling cases in this time frame. After having specified the sample time, in order to test the hypotheses and to answer the research question, I adopt a systematic approach, starting in the following order.

3.2 Identification of the chaebols of the years 2008-2010

First, I identify chaebols for the years of this study’s sample period. Each year the Korea Fair Trade Commission (KFTC) designates large business groups. The KFTC defines a large business group in two steps (Almeida et al., 2011). In the first step the firms that belong to the group are defined. There are two criteria in this step. One criterion is, that in order to be considered an affiliate of a business group, the firm must be owned by the controlling shareholder and related persons as well as affiliates by at least 30%, excluding preference shares. In addition, the controlling shareholder exercises control over it. In the second step the size of the group is considered. From 2002 upwards the KFTC classifies a business group as large, if the group’s total assets exceed €1,6 billion. As can be seen on the website of the KFTC, the threshold is changed to €4 billion in 2009. The lists also show all chaebols. Appendix A shows the 30 largest business groups on the list of the KFTC from 2009. From the published lists, I exclude all business groups which, by definition, are not chaebols. For example, the Korea Electric Power Corporation was the second largest business group in 2009, having a size of more than €90 billion. But the group is state owned and does not have a controlling shareholder in the form of a family. From the chaebols for those three years, I choose some, preferably groups which have relatively high

numbers of affiliates, and examine, if they tunneled assets. Data thus is collected from the website of the KFTC.

3.3 Research about actual tunneling

I examine tunneling by reviewing annual reports of each affiliate. Annual reports of chaebols incorporate intra-group transactions (Kim, 2009). I find the annual reports on DART (Data Analysis, Retrieval and Transfer System). DART is an electronic disclosure system from which information about Korean firms can be retrieved. When companies submit financial statements to the FSS (Financial Supervisory Service), the FSS then uploads them on DART. In the annual reports I search for RPTs. Related Party Transactions (RPTs) are intra-group transactions made between members of a business group (Kim, 2009; Juliarto et al., 2013). These can be, for instance, in the form of providing loans, or purchasing equities from affiliates. In fact, multiple studies use RPTs as proxies for tunneling (Kim, 2009; Juliarto et al., 2013; Chen et al., 2012). Following Kim (2009) I search for two types of RPTs and thus tunneling, namely loan provisions and equity purchases. For the sample time I consider whether an affiliate provided loans to another member of the group, in addition to the amount of the loan. Similarly, I search for equity purchases between affiliates. Data is collected from annual reports.

3.4 Research about the differences in performances of firms engaged in RPTs

When I have found RPTs, I consider the performances of the firms, as measured by EBIT (Earnings Before Interest and Tax). I search for the EBITs which indicate the performances prior to the transactions taking place. Thus, I investigate annual reports, as valid at the end of the year which immediately precedes the year of the transaction. I use EBIT as a measurement for firm performance following previous studies. Chong et al. (2014) investigate firm performances of Malaysian companies by using six ratios. One of them is EBIT. Joh (2003), although not using EBIT, says that it would be an alternative measurement. The author measures company performances of Korean firms through profitability ratios, using ROA among others. Because I am interested in the performances of providers in relation to receivers, I consider the differences in EBIT between providers and receivers in each transaction and compute dEBIT. I define dEBIT as the EBIT of the provider less the EBIT of the receiver.

3.5 Regression equations

Since I use RPTs as a proxy for tunneling, I divide the RPT in each case by the total assets of the firm which provides funds. Hence, in accordance with prior studies (e.g. Chen et al., 2012), I use this ratio as the dependent variable in the first model of the OLS regression analysis of this paper. With regard to the independent variable, I use the Ln (natural logarithm) of dEBIT. Ln dEBIT is the independent variable in this paper, since it provides indications of the performances of companies engaged in RPTs. If the performance of a firm is the reason why controlling shareholders have siphoned resources, then the coefficient of Ln dEBIT should be positive. This is meaning that the coefficient should be positive, if companies siphoned resources in order to support affiliates which record relatively low performances. A positive coefficient of Ln dEBIT would indicate that better performers become subject to tunneling. However, it may be that other factors affected the decisions of the controlling shareholder to let a company transfer resources to another one. Therefore, I include three control variables which are: Ownership, Control-ownership disparity and Ln Size. Ownership is relevant with regard to tunneling. According to the tunneling view, controlling shareholders are encouraged to transfer resources into companies in which they have higher cash-flow rights. Alternatively, as explained earlier, the disparity

between control and ownership may have led to tunneling. The larger this disparity, the higher the incentives to engage in expropriation. While the size of the company can be another reason to transfer resources. A huge firm with many resources might be able to support group members, without experiencing financial difficulties itself. From annual reports I identify the ownership of the controlling shareholder in the provider firm. Control-ownership disparity is measured by the sum of ownership of affiliated firms in the provider firm (Kim, 2009), since controlling shareholders are said to exercise control over a company by using the ownership of affiliates (Baek et al., 2004). These percentages are listed in annual reports. Size is measured by the Ln of total assets of the provider firm and is identified from annual reports as well. Since the dependent variable in model 1 is scaled by total assets, I exclude Ln Size in this model. Given tunneling, the coefficient of Ownership should be negative. The rationale is that the higher the ownership of the controlling shareholder in a firm, the lower the chance that it will be subject to tunneling. The coefficients of Control-ownership disparity and Ln Size should be positive and positive. Given those variables, I derive the following equation for the first model of the OLS regression analysis:

$$RPT/total\ assets = b_0 + b_1(Ln\ dEBIT) + b_2(Ownership) + b_3(Control - ownership\ disparity) + e \quad (1.1)$$

In addition to investigating whether tunneling occurs, if the firm performs better than its affiliated receiver, I investigate how much bigger/smaller the effect on tunneling is, when one moves from a worse provider to a better provider. Therefore, I construct a dummy variable, called “dummy dEBIT”, in which I assign the value one to a firm, if it is a better performer than its receiver partner. I use this dummy variable as the independent variable in the second model of the OLS regression analysis. The dependent variable is Ln RPT. I use the Ln of RPT in order to arrive at the percentage change from a value of 0 to a value of 1 in the dependent variable. In the second model I exclude Ln dEBIT, since I incorporate dummy dEBIT which is the same variable, i.e. dEBIT is a binary variable, instead of being log-transformed. I keep Ownership and Control-ownership disparity. Because the dependent variable is not scaled by size in this model, I include the variable Ln Size. Then I derive the following equation for the second model:

$$Ln\ RPT = b_0 + b_1(dummy\ dEBIT) + b_2(Ownership) + b_3(Control - ownership\ disparity) + b_4(Ln\ Size) + e \quad (1.2)$$

In appendix B I present a summary of definitions to all variables of the OLS regression analysis.

4. ANALYSIS

When searching for RPTs for the sample period I find 80 transactions for which data is available on DART. Hence, the sample size for this paper are the 80 tunneling cases. In some instances a firm provided funds to multiple affiliates. Consistent with the article by Kim (2009), these cases mainly report equity purchases from affiliates. In fact, 7 out of the 80 transactions involved loans provided to other group members. More specifically, in 2008 SK Engineering and Construction of the SK group provided a loan of €5,419 million to Real Best Co., Ltd., another affiliate of the group. Similarly, in 2009 Kumho Petrochemical provided loans worth €7,2 million and €13,2 million to Kumho Tires and Kumho Industrial. In the other four cases loans were provided to affiliates of the Taekwang group.

To report two out of the 73 equity purchases made, in 2010 Hyundai Mipo Dockyard purchased equities of more than €88 million from HI Investment & Securities, while Lotte Chemical purchased equities worth more than €4,8 million from Lotte Buyeo Resort. Table 3 shows the summary statistics, while table 4 indicates correlations between the variables. As can be seen in table 3, on average almost €48 million funds were provided. On average firms provided funds which correspond to ca. 1,4% of their total assets. The next two variables are of especial importance for this study. First, dEBIT shows a negative value of €560 million. This already indicates that funds also are tunneled from worse to better performers. The system which had been used for the analysis has classified this value as the minimum value because of its negativity. In practice this value does not represent the minimum difference in EBIT in this paper. Second, dummy dEBIT has a zero as a minimum value. In other words, there is at least one case among the sample in which resources were transferred from worse to better performers. The mean value of the variable indicates that there are 12 cases in which the provider had been a worse performer. Evidence thus suggests that chaebols also tunnel resources from worse to better performers, albeit in the majority of cases it is the other way around. The highest ownership of the controlling shareholder is 44,50%, while the lowest ownership is 0%. On average controlling shareholders have an ownership of roughly 5,9% in the providing firm. The mean ownership of affiliates ca. is 38,6%. The mean size of the providing firm corresponds to €6920 million.

The Pearson correlations signal many relationships which are significant at the 10 percent level. 13 out of the 19 relationships between the variables statistically are significant at the 10 percent level, with 3 cases being significant at the 5% level and 8 cases being highly significant (at the 1% level). 17 out of 19 correlations are below 40%. The correlations between Ln dEBIT and dummy dEBIT as well as between Ln RPT and RPT/total assets are not displayed, since they represent almost the same variables, i.e. dEBIT and RPT.

In order to assess the impact that each explanatory variable has on the dependent variables the OLS regression analysis is displayed in table 5. When the dependent variable and/or the independent variable/s is/are log-transformed, then the interpretation of coefficients is not the same as, if they would be in their original metric. Concerning model 1, contrary to my assumption, the coefficient on Ln dEBIT is negative. This suggests that the smaller the performance difference, the more funds are transferred. And it suggests that, compared to better performing providers, more funds are tunneled from worse performers. In other words, the amount of funds provided increases when the Ln of dEBIT decreases and eventually becomes negative. This finding is not unusual. Unrelated to chaebols, Cheung et al. (2009) mention that rather underperforming firms have become subject to tunneling in the past. The economic significance of Ln dEBIT indicates that, keeping other variables constant, just a 1% change in the variable results into a -0,001/100 units change in the dependent variable RPT/total assets. From table 3 it can be discerned that such a change actually is not small. It is half of the minimum value in RPT/total assets. Hence, I rate the coefficient to be economically significant. It is statistically significant at the 1 percent level. Also as not expected, the coefficient of Ownership is positive. It seems that resources are tunneled in those firms in which the controlling shareholder has higher stakes. That is contrary to the tunneling view which suggests that resources are transferred from low ownership firms. Holding all other variables constant, a unit increase in Ownership leads to a 0,055 units change in RPT/total assets.

Table 3: Summary statistics

	Minimum	Maximum	Mean	Median	Std. Deviation
RPT (in millions of Euros)	0,048	800	47,920	7,425	138,560
RPT/total assets	,000	,166	,014	,003	,029
dEBIT (in millions of Euros)	-560	3200	296,800	131,200	615,760
dummy dEBIT	0	1	,85	1	,359
Ownership (in %)	,000	44,500	5,900	,000	9,100
Control-ownership disparity (in %)	,000	100	38,600	41,300	26,700
Size (in millions of Euros)	160	72000	6920	4264	11624

The table reports summary statistics for the 80 cases in which related party transactions took place. The sample time is 2008-2010. In each transaction the monetary amount of the RPT is divided by the total assets of the providing firm. DEBIT is the EBIT of the providing firm less the EBIT of the receiving firm. Dummy dEBIT equals 1, if dEBIT is positive. Otherwise it equals 0. Ownership is the ownership of the controlling shareholder in the providing firm. Control-ownership disparity is the ownership of affiliates in the providing firm. Size is measured by the total assets of the providing firm.

Table 4: Pearson correlations and p-values

	Ln dEBIT	dummy dEBIT	Ownership	Control-Ownership disparity	Ln Size	RPT/total assets	Ln RPT
Ln dEBIT	1						
dummy dEBIT		1					
Ownership	-,278** (0,012)	-,260** (0,020)	1				
Control-Ownership disparity	-,121 (0,286)	-,109 (0,338)	-,349*** (0,002)	1			
Ln Size	,210* (0,062)	,165 (0,145)	-,293*** (0,008)	-,013 (0,907)	1		
RPT/total assets	-,536*** (0,000)	-,530*** (0,000)	,365*** (0,001)	-,144 (0,202)	-,353*** (0,001)	1	
Ln RPT	-,341*** (0,002)	-,355*** (0,001)	,196* (0,081)	-,147 (0,193)	,253** (0,024)		1

Note: P-values are in parentheses (two-tailed). *, **, *** denote statistical significances at the 10; 5 and 1 percent levels.

Table 5: OLS regression analysis results

Independent and control variables	Model 1	Model 2	Model 3	Model 4
Constant	0,031*** (4,220)	6,212 (1,120)	0,031*** (3,992)	4,030 (0,661)
Ln dEBIT	-0,001*** (-5,107)	Not included	-0,001*** (-4,989)	Not included
dummy dEBIT	Not included	-2,245*** (-3,714)	Not included	-2,323*** (-3,766)
Ownership	0,055* (1,665)	3,540 (1,350)	0,053 (1,559)	3,589 (1,331)
Control-ownership disparity	-0,016 (-1,424)	-1,017 (-1,206)	-0,016 (-1,329)	-0,888 (-0,978)
Ln Size	Not included	0,650*** (3,473)	Not included	0,724*** (3,515)
F-statistic	13,944***	7,227***	13,061***	7,112***
Adjusted R ²	33%	24%	32,5%	24,6%
Number of observations	80	80	76	76

The table reports OLS regression analysis results for the four models. Model 1: the dependent variable is RPT divided by the total assets of the provider firm. The independent variable is the natural log (Ln) of dEBIT. Control variables are ownership by the controlling shareholder in the provider firm, the ownership of affiliates (measured by control-ownership disparity) in the provider firm and the Ln of the provider firm's size (measured by its total assets). Dummy dEBIT and Ln Size are excluded. Ln Size is excluded because size is used as a denominator in the dependent variable. Model 2: the dependent variable is the Ln of RPT. Ln of dEBIT is excluded, while dummy dEBIT is included. Ln Size is included, since the dependent variable is not scaled by size. Other variables are the same as from model 1. Models 3 and 4 are replications of models 1 and 2, except for the sample size which is reduced by 4, as explained further below. T-statistics are in parentheses (two-tailed). * and *** denote significances at the 10 and 1 percent levels.

This economic significance is even higher than that of Ln dEBIT. And it far exceeds the mean value of RPT/total assets. The coefficient of Ownership thus is economically significant. And it is statistically significant at the 10% level. Consistent with the article by Kim (2009), I find that control-ownership disparity is insignificant in explaining tunneling in chaebols. In model 2 it can be seen that the coefficient of dummy dEBIT has a negative sign, thereby confirming the results of model 1 that tunneling is more severe in worse performing providers. Holding the values of the other variables constant, the coefficient of -2,245 translates into a reduction of funds by -89,41% when one moves from worse performers to better ones. In other words, the amount of funds is 89,41% less for better performers. Since dummy dEBIT is a dummy variable and the dependent variable of model 2 log-transformed, the coefficient can be interpreted as an input for the percentage change in the dependent variable, if one moves from the value 0 to 1 in the dummy variable. The corresponding formula "100 * (exp (coefficient) -1)" leads to -89,41% in this case. This clearly is economically significant. The coefficient also is highly statistically significant. Also interestingly, Ownership statistically is insignificant in model 2. The inclusion of Ln Size may have an influence on the significance of Ownership. Control-ownership disparity is insignificant in model 2 as well. Ln Size has a positive coefficient. When a dependent variable and its independent variable both are log-transformed, then a 1% change in the independent variable leads to a change in the dependent variable. This change is equal to the coefficient

of the independent variable. Thus, keeping other coefficients constant, a 1% increase in Ln Size leads to a 65% increase in Ln RPT. This is economically significant. Furthermore, the coefficient is highly statistically significant. Therefore, tunneling seems to occur in larger affiliates of chaebols. This finding is consistent with the observations by Kim (2009) who also finds that larger firms become subject to tunneling in chaebols. The F-statistics for both models are highly significant, indicating that using the models is better than using the means of the dependent variables. And although the adjusted R² is relatively large in both models, as further robustness tests for the models, I examine the standard deviation of the residuals in appendices C and D. According to Bock et al. (2013), the standard deviation of the residuals is more precise than the R² in estimating the usefulness of the model. The standard deviations of the residuals provide indications of how much the models wrongly estimated the value for tunneling for each of the 80 observations. If the models are appropriate for the study's investigation, then the residuals should be centered at 0 and follow a normal model. Appendix C contains a histogram of the residuals for the first model. The standard deviation of the residuals is plotted on the x-axis. While the y-axis shows the number of cases that correspond to a particular standard deviation. As shown in appendix C, the distribution of the residuals for the first model follows a normal model. For ca. 50 cases the model especially well estimated the data. The residuals of the mode are estimated within ½ standard deviation. The histogram for the residuals of model 2 also shows

a normal distribution (appendix D). And more than 20 residuals are smaller than $\frac{1}{2}$ standard deviation. Although it seems that in both models less than 95% of the residuals are within two standard deviation, their distribution is approximately normal. Thus, the models estimated the data relatively well. In models 3 and 4 I present alternative regression analyses. Model 3 is almost a replication of model 1, while model 4 is almost a replication of model 2. The only methodological changes are that I do not include four cases. The reason is that in 76 cases I use the EBIT which is indicated in quarterly and annual reports that refer to one year prior to the year of the transaction.¹ In the remaining 4 cases, due to a lack of data, I retrieve EBIT from financial reports of the transaction year. However, it is possible that the EBIT data of those four cases also is pre-tunneling, since the exact dates of the transfers are not shown (Kim, 2009). Regardless, as presented in models 3 and 4, including the four cases into models 1 and 2 does not change the conclusions, except for ownership which becomes significant in model 1.

5. DISCUSSION OF RESULTS

The analysis provides new insights as well as findings which are discovered in prior research. To start with the findings discovered earlier, consistent with the research by Kim (2009), Control-ownership disparity and firm size are insignificant and significant. In chaebols the ownership of affiliates has no explanatory effects on the extent of tunneling. On the other hand, firm size is highly significant. Resources predominantly are tunneled from larger firms. The regression analysis makes clear that the larger the firm, the more funds it provides to affiliates. In this sample I find that some firms, which became subject to tunneling, provided funds to several affiliates. Given those multiple provisions, the size of the provider should rather be large. The regression analysis confirms this assumption. In contrast to the ownership by affiliates, the ownership of the controlling shareholder significantly is related to tunneling in chaebols. Contrary to the tunneling view, the larger the ownership of the controlling shareholder, the more likely that such a company becomes a provider. The reason could be that the controlling shareholder experiences less difficulties or opposition in tunneling when his stakes are higher. The most interesting findings for this study are represented by the dEBIT variables. I assumed that, if there are two firms, i.e. a provider and a receiver, the provider always should be better performing. However, the study at hand proves otherwise. The analysis indicates that assets also are siphoned out of worse performers in chaebols. The summary statistics of both variables serve as indications. The summary statistics of Ln dEBIT have a negative minimum value, while those of dummy dEBIT have a 0 as a minimum value. Another relevant finding is that the coefficients of both variables are negative. The interpretation of this finding is that the amount of funds provided is higher in worse performing firms. This is consistent with the statement by Cheung et al. (2009) mentioned further above. According to the finding of my study, worse performers deliver almost 90% more funds than better performers. The findings of this research thus are sufficient to either reject or accept the null hypothesis and to answer the research question. Based on the summary statistics and the statistical significance of the coefficient of the Ln dEBIT variable, I reject the null hypothesis and conclude that in chaebols resources not only are transferred from better to worse performers. The statistics of the dummy variable reinforce this argumentation. As for the research question, my answer is the following: chaebols transfer resources from worse to better

performing affiliated firms. In this study chaebols do so to the extent that in 12 out of 80 cases the providers record lower pre-tunneling performances when compared with their corresponding receivers. Furthermore, if dEBIT is negative, then chaebols will siphon higher amounts of resources, compared to the instance in which providers perform better than receivers. Hence, performance differences prior to tunneling are a consideration for the controlling shareholders of chaebols.

6. CONCLUSION

The importance of chaebols for the economy of Korea is represented by their contribution to the country's exports. Furthermore, the large sizes of chaebols translate into employment and income possibilities for households. However, a less positive aspect, in particular for minority investors, is concerned with the transfer of company resources to other affiliates in the same group, i.e. tunneling. In the past many tunneling cases have been reported by academic studies-and this paper is no exception. My paper contributes to the tunneling literature about chaebols in three ways. First, I identify tunneling cases for the years 2008-2010. This time interval is not widely covered by existing studies. Second, I provide information about explanatory and irrelevant variables for the extent of tunneling. Accurately, I show that firm size and ownership are variables that affect the decision of controlling shareholders to siphon resources. While the ownership of affiliates is irrelevant in explaining tunneling behaviour by chaebols. Third, the novel insight of my study is that I investigate whether chaebols siphon resources from firms that financially perform worse than those to which resources are transferred. The results of the analysis in this study indicate that controlling shareholders also take into account the performances of the provider and receiver firms. If the decision is made to transfer resources to an affiliate which performs better, as measured by EBIT, then resource transfers are especially high in amounts. The checks of the models via the F-statistics, R²s and histograms of the residuals point at relatively useful models. However, to mention a limitation of the study, my study lacks accuracy. While EBITs of the year that immediately precedes the year of the transaction indicate pre-tunneling performances, it would be more precise, if the EBITs of the day of the transaction are used, since those show the immediate performances prior to the transfer of resources. Another limitation of my study is represented by the time interval considered. Examining chaebols over more than three years can lead to more accurate conclusions, especially, if more than one performance indicator are included. While these are limitations of the study, they provide future researchers with opportunities to investigate the differences of firm performances in more detail. As recommendations for future research, authors could ask firms for the EBIT of the date on which resources were transferred. Moreover, authors could investigate RPTs for more than three years in order to identify, if the relevance of performance differences changes over time. In addition to EBIT, multiple performance indicators could be used to get a more holistic view of the performances. With regard to the practical implication for governments, they have to contribute to improving the corporate governance of chaebols. The fact that there are tunneling cases found by multiple studies points at the need for corporate governance reforms. Although, as mentioned in section two, regulation was enhanced after the Asian financial crisis, there is the need for more effective laws. In terms of this study, as a recommendation, governments could enact laws which reduce the transfer of resources to better performing affiliated firms.

¹ A few firms do not have annual reports listed on DART. Thus, I use quarterly reports of one year prior to the year of the transaction in those cases.

7. ACKNOWLEDGEMENTS

I am grateful to Allah (God).

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9. APPENDICES

Appendix A: Top 30 Korean business groups in 2009

Table 1

Top 30 Korean business groups in 2009			
Group name (Korean)	Group name	Number of affiliates	Total assets (trillion won)
삼성	Samsung	63	174,886
한국전력공사	Korea Electric Power Corporation	12	117,159
현대자동차	Hyundai Motor	41	86,345
에스케이	SK	77	85,889
엘지	LG	52	68,289
대한주택공사	Korea National Housing Corporation	2	64,264
포스코	POSCO	36	49,062
롯데	LOTTE	54	48,892
한국도로공사	Korea Expressway Corporation	4	42,26
한국토지공사	Korea Land Corporation	3	41,38
현대중공업	Hyundai Heavy Industries	15	40,882
지에스	GS	64	39,044
금호아시아나	Kumho Asiana	48	37,558
한진	Hanjin	33	29,135
케이티	KT	30	28,462
두산	Doosan	26	27,302
한화	Hanwha	44	24,467
한국가스공사	Korea Gas Corporation	3	22,075
에스티엑스	STX Corporation	17	20,687
대우조선해양	Daewoo Shipbuilding & Marine Engineerin	10	16,666
한국철도공사	Korea Railroad Corporation	12	16,279
하이닉스	Hynix	8	13,375
한국석유공사	Korea National Oil Corporation	3	13,034
엘에스	LS	32	12,845
현대	Hyundai	11	12,574
씨제이	CJ	61	12,324
동부	Dongbu	32	12,271
신세계	Shinsegae	14	11,956
대림	Daelim	16	11,06
현대건설	Hyundai Engineering & Construction	14	9,337

Appendix B: Definitions of variables used in the regression analysis

Table 2

Variable	Definition
RPT	Related Party Transaction
RPT/total assets	Monetary amount of a related party transaction divided by the total assets of the provider firm
Ln RPT	Natural logarithm of the amount of a related party transaction
dEBIT	Performance of providing firm minus performance of receiving firm, expressed in EBIT
Ln dEBIT	Natural logarithm of dEBIT
dummy dEBIT	Dummy variable which equals one, if dEBIT is positive, otherwise it equals 0
Ownership	Ownership of the controlling shareholder in the providing firm
Control-ownership disparity	Ownership of affiliates in the providing firm
Size	Size of the providing firm, as measured in total assets
Ln Size	Natural logarithm of the providing firm's size

Appendix C: Histogram of model 1 residuals

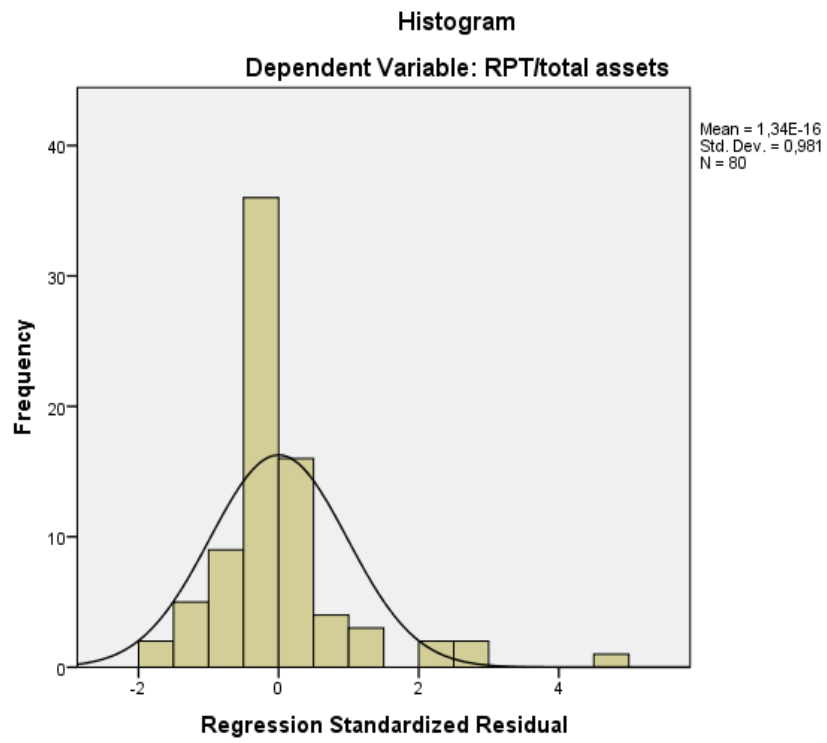


Figure 1

Appendix D: Histogram of model 2 residuals

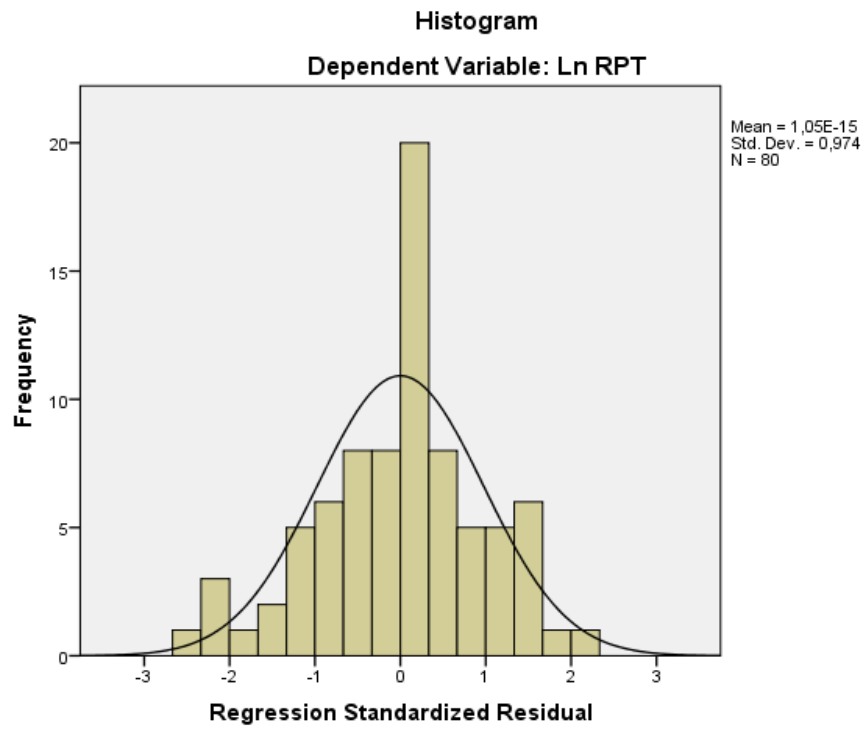


Figure 2

