



Do Stakeholder Relations Matter for Chaebol Companies? Evidence from Korean Product Market Supply Contracts^{*}

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<Abstract>

In this study, we investigate the effect of supply contracts signed with Chaebol companies in order to analyse the certification effect of trading relationships with Chaebols on suppliers. We find that the suppliers suffering from information asymmetry can sacrifice the direct profits gained from a supply contract with a Chaebol group member contractee while pursuing certification for further growth. The valuation of suppliers with a Chaebol group member as the contractee is lower when the suppliers' information asymmetry is higher. The results also show that the operational margins of the suppliers deteriorate after obtaining a supply contract with a Chaebol group member, whereas the sales increase significantly more than the contract amount. These results imply that the Chaebol groups play a role in the certification of the product market and help quality suppliers achieve greater recognition.

Keywords: Certification; Product Market Relation; Supply Contracts; Haebols; Stakeholders

JEL Classification: G30, G39, D22, L14

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대규모 기업집단과 이해관계자 간의 소득배분*

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< 요약 >

본 연구는 재벌기업과 생산물시장에서 맺는 거래관계가 갖는 인증효과를 분석하기 위하여 재벌기업과 맺은 공급계약이 공급기업에게 미치는 영향에 대해서 살펴보았다. 정보비대칭으로 어려움을 겪는 기업은 인증효과를 통하여 성장을 이루기 위해 계약상 손해를 보더라도 재벌그룹 소속의 기업과 공급계약을 맺는다는 것을 발견하였다. 재벌그룹 소속의 기업과 공급계약을 맺은 기업의 가치는 정보비대칭 문제가 클수록 낮았다. 또한 공급기업의 영업이익률은 공급계약 체결 후에 하락하는 반면 매출액은 공급계약 금액 이상으로 증가하는 것을 확인하였다. 이러한 결과는 재벌그룹이 생산물 시장에서 공급기업의 품질을 인증하는 역할을 수행하여 양질의 기업들이 시장에서 인정받도록 하고 있다는 것을 암시한다.

핵심 단어: 인증효과, 생산물시장 관계, 공급계약, 재벌, 이해관계자

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1. Introduction

Many companies operate their businesses with customers or suppliers through contractual relations. These contracts are often incomplete (Grossman and Hart, 1986) and the conditions by which the contracts are affected come by as a result of negotiations between the contractor and the owner of the contracts (Hart, 1995; Schmitz, 2013). The party with greater bargaining power enjoys more favorable contract conditions over the party with lower bargaining power (Porter, 1974).

While the shares in the surplus that the contracts generate is determined unequally by relative bargaining power, the proportion of the shares belonging to each respective party should be positive overall in order for the contracts to be signed with ex-ante optimality. However, a contract optimal ex-ante is not always optimal ex-post, and there exist the possibility of the hold-up problem once the contract is signed, particularly when the contract requires specific forms of investment (Titman and Wessels, 1988). This situation has been well studied within the literature, as it can explain the boarder of individual firms, transaction costs, and the distribution of the value added by economic activities (Hart, 1995; Williamson, 1983, 1991).

In addition to these hold-up problems, there could also exist the very extreme market situation whereby the contractee possesses extreme monopolistic demand and forces predatory conditions onto the contractor, and thus, the contractor procures very minimal, or even negative surplus from the contract, which is a situation that has interestingly, not been much explored within the literature. In this situation, if the contractor accepts the negative NPV contract, it represents a violation of the very basic principles of financial decision making. If it was found that the contract with negative NPV is accepted on average, one possible explanation for this behavior could be that the contractor is not rational. The contractor may have failed to calculate correct NPV and thus is forced to take the loss. However, it is very unlikely that the financial managers of all the companies are systematically making mistakes on NPV calculation over a long period of time. Another possible explanation is that the benefits of the contract are not only coming from the contract itself, but also from outside of the contract. In the context of a special environment where an overwhelming demander squeezes out suppliers, there may exist incentives whereby which the suppliers make a negative NPV contract. The malicious effects which overwhelming monopolistic demanders, such as large business groups, exert in emerging markets have drawn a great deal of academic attention because being able to ascertain and understand the negative effects stemming from economic structures far-removed from competitive markets is critical when we think of policies which design economic structures that can promote sustainable growth.

The greatest possible benefit of the seemingly irrational behavior when taking negative NPV contracts, is the certification of being able to be chosen by such a strong demander. Though the contract itself is negative in NPV, the fact that the contractors have been chosen by strong market power with screening ability, certifies that the contractors are qualified supplier. Once they are qualified as credible suppliers, players in the market will increase orders to these contractors. Overall, being chosen by a member firm which belongs to a large business group can be a positive signal. However, the effects of this certification are not yet certain at the time of signing the contract. When the announcement of the contract is signed, the negative value of the contract itself may overwhelm the certification effect. In this situation, where being chosen is almost only a chance to take for growth, firms will attempt to sign the contract with negative NPV if the contractee is determined to be strong enough to certify their ability to supply quality products.

Using 4,213 firm-year supply contract data of South Korean companies from the period of 2000 to 2011, we analyze the contractors' loss from the contract and the benefits from outside of the contract. We focus on the differences between the contracts with Chaebol contractees and the contracts with non-Chaebol contractees. Chaebols, the term which refers to the large business groups of South Korea, wield a great deal of influences on Korea product markets, and thus the firms belonging to one of the groups can easily exploit the majority of the surplus from supply contracts. The data analysis finds that the Chaebol contractees are more likely to exploit their contractors when the contractors are suffering from high information asymmetry, but the contractors compensate for the losses exploited outside of the contract. The announcement stock return is higher when the supply contract is signed with a Chaebol contractee, which implies that the market expects the contractors with Chaebol contractees to generate higher benefits from the contract. However, the operational performance right after the contract is generally negative, and on average, the gross margin and operational margins of the contractor deteriorate after the contract. Moreover, these negative effects on the operating performance of the contracts with Chaebol contractees are particularly concentrated amongst contractors suffering from high information asymmetry. There should be a reason for the contractors to sign on the contact with Chaebol contractees, and we find that the contractors compensate for the losses on operation from outside of the contract. The sales volume of the contractors with Chaebol contractees increase more than the contract amount in the consecutive years following the signing of the contract. These results imply that the contractors suffering from high information asymmetry gain certification through the contract with a Chaebol contractee. The contractors with high information asymme-

try sacrifice the direct benefits from the contract for the indirect benefits from this certification, while contractors without information asymmetry problems enjoy the full benefits from the contract.

This paper presents several contributions. Firstly, we contribute to the literature on the stakeholder economy by providing evidence of existing exploitation between suppliers and customers within the context of surplus distribution between stakeholders. Secondly, we present new policy implications for a sustainable economic system, mainly in showing that an old-fashioned, developing economy's positive function should be replaced with a new system for a new, alternative economic structure to be sustainable. Lastly, this study contrasted Korean product market relations with the US one, and suggests other possible effects of product market relations which are seldom found in US data.

The study proceeds as follows. In Section 2, we discuss the relevant literature and our main hypotheses. Section 3 describes the dataset and construction of variables. In Section 4, we show our empirical strategy to analyze the data. In Section 5, we report abnormal returns for contractor firms and their customers, and provide results from cross-sectional regressions. In Section 6, we summarize and conclude the paper.

2. Related Literature and Hypotheses

2.1 Valuation Effects of the Signed Contract

Certification effects from other economic entities have been reported within the context of information economics. The entities believed to have skills and incentives which communicate firm quality in terms of the supplying of products or services, financial soundness, or business plans, are reported to play a role in certification to their partners. Particularly, firms achieve a certain level of certification when they succeed in raising new capital. When a firm raises capital from banks (Gande et al., 1997) or syndicates (Sufi, 2009), the firms tend to achieve higher prices on the loan. Additionally, when a company goes public, the financial intermediaries give certification effects to the company (Hsu et al., 2010). Similarly, Underwriters (Blackwell et al., 1990; Brau and Fawcett, 2006; Cooney et al., 2003; Booth and Smith, 1986) play a significant certification role for their client when it comes to issuing securities. Venture capitalists also play a role in certification within initial public offerings which lower the costs of going public. It has been revealed that venture capital backed IPOs result in significantly lower initial returns and gross spreads (Megginson and Weiss, 1991). Additionally, perhaps most importantly, the existence of a large customer gives a significant effect on the supplier's IPO pricing. IPO firms that have product

market relationships with large customers experience higher valuations and overall, better long-term performance (Johnson et al., 2010). The signing of the supply contract imparts positive news, and will increase the value of the suppliers. Therefore, the announcement of a new supply contract would have a positive effect on the firm value. If Chaebol customers play a role in certification, then the valuation of suppliers with a Chaebol contractee will be higher.

H1: The stock return on the announcement of the new supply contract will be positive.

H2: The announcement stock returns will be more positive for the suppliers that have a Chaebol group member as a contractee.

If the Chaebols play a certification role by finding quality suppliers, the suppliers that suffer particularly from information asymmetry will benefit more greatly from the contract with Chaebol customers. Therefore, the suppliers will increase more greatly in firm value when they sign on the supply contract with a member of Chaebol group as the contractee.

H3: The announcement stock returns will be greater when the contractee is a member of a Chaebol group and the contractor's stock return volatility is high.

If the certification from the Chaebol group is the supplier's main purpose for signing the supply contract, the supplier may have the incentive to sacrifice the direct profits from the supply contract with Chaebol group member contractee in order to have the chance to obtain certification for further growth. Therefore, the Chaebol group member contractee would attempt to exploit the situation and try to lower the supplying price.

H4: The announcement stock returns will be greater for the Chaebol group member contractee with the contractors of high stock return volatility.

2.2 Operating Performance after the Signing of the Contract

It has been reported that the existence of trading relationships can wield a significant effect on supplier firms in multiple ways. For example, the existence of large customers affects a firm's ability to utilize debt (Titman, 1984), and major customer relationships have an important implication for the ownership structure of suppliers (Fee et al., 2006). Further, it is shown that a firm's decision to issue equity gives spillover effects down the supply chain (Johnson et al., 2018). Additionally, other studies show that the customer-supplier relationship influences a variety of other corporate

decisions, such as capital structure (Titman, 1984), CEO compensation policies (Arora and Alam, 2005), information disclosure (Almazan et al., 2009), earnings management (Raman and Shahrur, 2008), and initial public offerings (Johnson et al., 2010). However, despite the extensive research on the effects of major customer relationships on a wide spectrum of corporate decisions, seldom is known about how these relationships precisely affect a firm's performance and value creation outside of the relationships. This remains surprising, given that such relationships are very common and extremely important for the potential of survival and growth. Signing into the contract with major customers remains one of the most important corporate decisions, as once the supplier-customer relationship has been settled, it is very difficult to break the relationship due to the significant amount of assets invested specifically within the relationship, and customers can exert significant influence on suppliers through the contractual relationship. We investigate the effects of the trading relationship on suppliers' reputations in products markets and thus valuation, particularly when they are with Chaebol group members.

Business groups within finance literature, particularly the ones with businesses unrelated to each other, such as Chaebols in South Korea, have been seen to be at blame for economic inefficiency. The diversification mergers and acquisitions resulting in the formation of conglomerates with unrelated businesses are considered as stemming from a problem of agency (Jensen and Meckling, 1976). Additionally, it has been reported that large business groups wield negative influences on their partners within the supply chain, and Korean Chaebols in particular use their market power to control their suppliers' margins (Kim et al., 2013) and exploit them over time. Then, the question persists: why do the suppliers sign the contract with Chaebols in the first place? The suppliers may have routes to obtain benefits outside the signed relationship with the large business groups, as the fact that a company has a relationship with Chaebols in the supply chain may certify the quality of the company as a supplier. If this conjecture is true, then the growth potential will increase, but at the cost of some operating performance efficiency, such as lower profit margins after the contract signed. Overall, this result will become more prominent when the supplier suffers from information asymmetry.

H5: The sales of suppliers will grow more after the contract, when the contractee is a member of a Chaebol group and when the contractor's stock return volatility is high.

H6: The operating margins of suppliers will deteriorate further after the contract when the contractee is a member of a Chaebol group and when the contractor's stock return volatility is high.

3. Data and Variable Construction

3.1 Data

We hand-collected the data of supply contracts which were publicly announced within the DART system¹⁾ of Republic of Korea. It has been mandatory to report the supply contracts to the public since 2000, and a company must report within the DART system when it makes a supply contract accounting to greater than 10% of previous year's sales amount. We begin with 8,051 firm-year samples between the year of 2000 and 2011 which consists of the reports of supply contracts within the DART system, and we exclude the samples belonging to financial industries. We match the samples with data from the DataGuide of FnGuide to incorporate accounting and market information. We use the company names of the contractors as the identifiers for the matching, and exclude the observations without information of sales, net income, R&D expense, total assets, total debt, stock price, and end up with 4,213 firm-year observations. We use data only between the year of 2000 and 2011 due to limited resources. However, there are no factors whereby the Chaebol certification effects have been systematically changed between the year of 2011 and the present.

The supply contracts of the Republic of Korea present several advantages when analyzing the surplus profit distribution between contractors and contractees. Firstly, the Korean market is suitable for finding the evidence of exploitation within supply contracts because it is heavily oligopolistic, and there exists serious imbalances in the bargaining power between the contractor and contractee. Thus, it is highly likely that the variations in the effect of having a Chaebol contractee on the valuation of the contractor is significant. Secondly, it has been mandatory to publicly announce the supply contracts in Korea since 2000, and we can avoid self-screening bias in the reporting of the contract. Thirdly, the supply contracts announced within the DART system is rich in information, including contract amount, contract length, items contracted, the counter part of the contract, and other conditions of the contract. Using this rich information about the contract characteristics allows for us to control the characteristics of the contract which may have endogenous effects on the contractors' return and operation performance.

3.2 Main Variables

In order to analyze the effects of the supply contracts on the firm's value, we con-

1) DART (Data Analysis, Retrieval and Transfer System) of FSS (Financial Supervisory Service) is an internet online reporting system in the Republic of Korea.

struct $CAR(-1,0)$ as the dependent variable by accumulating the abnormal return from one day before the contract is announced public to the day of the announcement. We employed the market model to estimate the normal return by using the days -301 to -45 day relative to the announcement date, and then use the FnGuide-value-weighted index return as the proxy for the market portfolio. We also build an industry adjusted Δ Gross margin, Δ Operation margin, and Sales growth to measure operation performance. The variable *Chaebol group member contractee (contractor)* takes on the value of 1 if the contractee (contractor) is a member of a Chaebol group, and we determine whether a company belongs to a Chaebol group through the resources provided by the Korea Fair Trade Commission. Following Blackwell et al. (1990) and Johnson et al. (2018), we employ *Stock return volatility* to measure the degree of information asymmetry a company suffers from, and *Stock return volatility* is calculated as the standard deviation of daily stock return for the 6-months period before the contract announced.

3.3 Control Variables

We control for the contract characteristics by including *Relative deal value*, *Contract amount*, *Contract term*, and *Recontract*. *Relative deal value* is the contract money amount divided by the sales of suppliers, *Contract amount* is the total money amount on the contract, and *Recontract* is a dummy variable which takes on the value of 1 if the contract is not the first contract with the contractee, and 0 otherwise.

In order to control for the characteristics of the contractor which can affect valuation, we include the variables of *Industry adjusted ROA*, *Years since IPO*, *R&D intensity*, *Log(Market Cap.)*, *Tobin's q*, *Leverage*, and *Stock price run-up*. *R&D intensity* is calculated by dividing R&D expense by total assets. We also employ *Stock price run-up* in order to control for the temporary increase in stock price due to unknown reasons. *Stock price run-up* is calculated as the stock return for the 6-month period right before the contract announcement. Most importantly, we include the variable *Contractee industry Herfindhal index* in order to control for the market power stemming from Chaebol effects. The control variable is inevitable in order to analyze the certification effects of Chaebol independent of market power.

4. Results

4.1 Sample Distribution and Univariate Analyses

<Table 1> shows the distribution of the sample by year and industry, and shows that about 59.4% of the supply contracts are made in the manufacturing industry and

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38.9% of the contracts are with Chaebol contractees. It appears that the number of supply contracts has been largely increased over the years. In <Table 2>, we perform a univariate test for the variables of interest, and the results show that the size of contracts with non-Chaebol contractees is larger than those with Chaebol contractees, and that the difference is statistically significant. Chaebol contractees recontract more often than non-Chaebol contractees, but they also contract on shorter terms, and these differences are statistically significant as well. Overall, the supply contracts with Chaebol contractees tend to be smaller, shorter, and recontract. The contractors with Chaebol contractees are smaller in leverage, lower in the number of years since IPO, and smaller in size when measured by market capitalization. In summary, the contractors with Chaebol contractees tend to be smaller, younger, and financially healthier, and the contracts with Chaebol contractees tend to be shorter in contract terms and smaller in deal size.

<Table 1> Sample Distribution by Year and Industry

The sample consists of 5,705 supply contracts announced within DART system of Republic of Korea from the year of 2000 to the year of 2011.

Year	Manufacturing	Construction	Transportation, communications, electric, gas, steam, air supply, water, and sanitary services	Wholesale and retail trade	Services And Others	Total
Number of supply contracts (Number of supply contracts with a Chaebol contractee)						
2000	73(19)	3(1)	4(0)	4(2)	3(1)	110(23)
2001	100(27)	10(0)	6(3)	9(1)	5(2)	163(33)
2002	163(75)	19(1)	17(5)	13(1)	10(2)	306(84)
2003	185(81)	22(2)	40(10)	7(2)	14(4)	367(99)
2004	258(109)	30(1)	14(2)	6(2)	8(2)	432(116)
2005	217(86)	33(2)	14(3)	2(0)	6(2)	365(93)
2006	303(116)	25(3)	40(13)	0(0)	6(6)	512(138)
2007	374(123)	32(3)	41(11)	1(0)	1(0)	592(137)
2008	514(207)	22(3)	33(11)	15(1)	8(4)	818(226)
2009	372(138)	30(5)	42(12)	2(0)	20(2)	623(157)
2010	498(194)	25(3)	30(9)	10(3)	37(10)	819(219)
2011	332(145)	25(1)	34(14)	7(0)	33(7)	598(167)
Total	3,389(1,320)	276(25)	315(93)	76(12)	157(42)	5,705(1,492)

<Table 2> Descriptive Statistics of the Supply Contracts and Contractor Firms

The supply contracts announced on DART system were merged with the financial data of FnGuide, resulting in a sample of 4,213 observations. The contract with a Chaebol group member as a contractee is indicated by the dummy variable, ‘Chaebol group member contractee.’ The relative deal value is contract money divided by sales amount. *Recontract* is a dummy variable which takes on a value of 1 if the contract announced is not the first trading contract with the contractee, and takes on 0 otherwise.

	Full Sample (N=4213): A		non-Chaebol contractee (N=2721): B		Chaebol contractee (N=1492): C		Test of difference (B-C)	
	Mean	Median	Mean	Median	Mean	Median	t-test	Wilcoxon z-test
Panel A: Deal characteristics								
<i>Contract money</i> (mil. ₩)	87,700	6,730	118,000	8,265	31,600	5,214	5.848*** (0.00)	9.746*** (0.00)
<i>Relative deal value</i>	0.2373	0.1020	0.1995	0.1016	0.3061	0.1031	-1.147 (0.25)	-0.551 (0.58)
<i>Recontract (indicator)</i>	0.3935	0.0000	0.2569	0.0000	0.6428	1.0000	-26.475*** (0.00)	-24.516*** (0.00)
<i>Contract term (month)</i>	16.5209	9.0000	19.8716	11.0000	10.4102	5.0000	13.312*** (0.00)	16.023*** (0.00)
Panel B: Contractor Firm characteristics								
<i>Leverage</i>	0.0687	0.0435	0.0727	0.0444	0.0612	0.0421	3.938*** (0.00)	4.129*** (0.00)
<i>Years since IPO</i>	10.3876	7.0000	11.4825	8.0000	8.3908	6.0000	10.482*** (0.00)	8.112*** (0.00)
<i>Log (Market Cap.)</i>	18.0776	17.7217	18.3086	17.9020	17.6563	17.5378	12.204*** (0.00)	8.794*** (0.00)
<i>R&D intensity</i>	1.5008	0.6268	1.2877	0.4890	1.8894	1.1842	-3.733*** (0.00)	-8.584*** (0.00)
<i>Industry adjusted ROA</i>	-0.0476	-0.0153	-0.0486	-0.0155	-0.0459	-0.0148	-0.216 (0.83)	-2.374** (0.02)
<i>Stock price run-up</i>	0.1655	-0.0008	0.1775	0.0105	0.1435	-0.0271	1.466 (0.14)	1.019 (0.31)
<i>Tobin's q</i>	1.3284	1.0934	1.3316	1.1110	1.3227	1.0609	0.242 (0.81)	2.280** (0.02)
<i>Stock return volatility</i>	0.0403	0.0387	0.0402	0.0382	0.0404	0.0395	-0.438 (0.66)	-1.517 (0.13)

Standard event study methodology was used to investigate the valuation effects of supply contract announcements on contractors. We estimate the market model parameters by using days -301 to -46 relative to the announcement date, and use the FnGuide-value-weighted index return as the proxy for the market portfolio. The daily abnormal returns (the residual of the market model) of the contractor are accumulated in order to obtain the cumulative abnormal return $[CAR(-t,t)]$ from day $-t$ before the announcement date, to day $+t$ after the announcement date. As shown in Panel A of <Table 3>, the cumulative announcement return of the supply contract is on aver-

age positive and statistically different from 0. Among the five *CARs*, *CAR(-1,0)* is the most significant both statistically and economically in showing the effects of announcement and thus, we choose the variable *CAR(-1,0)* for panel data analysis. The test of the difference between a non-Chaebol contractee contract and Chaebol contractee contract is provided in the Panel B in <Table 3>. The contractors' cumulative return from day -1 to 0 is all positive, without regards to the contractees. The *CAR(-1,0)* of the contracts with a Chaebol contractee is slightly higher, but this difference is not statistically significant.

<Table 3> Cumulative Abnormal Returns (CAR) for Contractor Firms

The value weighted index return is used as a proxy for the market portfolio when calculating the daily abnormal returns. The cumulative abnormal returns (*CAR(-t,t)*) are calculated by accumulating the daily abnormal returns from -t day to +t day after the announcement date.

Panel A: CAR around the supply contract announcement date

	mean (%)	t-test	median (%)	Sign-rank test
<i>CAR</i> (-1,1)	1.08	9.604*** (0.00)	0.64	8.591*** (0.00)
<i>CAR</i> (-1,0)	1.36	14.873*** (0.00)	0.86	14.556*** (0.00)
<i>CAR</i> (-2,2)	1.22	9.594*** (0.00)	0.75	8.659*** (0.00)
<i>CAR</i> (-3,3)	0.80	4.800*** (0.00)	0.19	2.964*** (0.00)
<i>CAR</i> (-5,5)	0.44	2.132** (0.03)	-0.15	0.443 (0.66)

Panel B: CAR for contractor firms with s non-Chaebol contractee and a Chaebol contractee

	non-Chaebol contractee (N=2721): A		Chaebol contractee (N=1492): B		Test of difference (A-B)	
	Mean	Median	Mean	Median	t-test	Wilcoxon z-test
<i>CAR</i> (-1,0)	1.27%*** (0.00)	0.86%*** (0.00)	1.54%*** (0.00)	0.88%*** (0.00)	-1.425 (0.15)	-1.037 (0.30)

We choose several operating performance measures in order to analyze the source of the positive wealth effects of the supply contract announcements. In <Table 4>, we test the difference between the operating performance of contractors with a non-Chaebol contractee and ones with a Chaebol contractee. We note that the difference in the *changes in log of sales* is significant both statistically and economically, with the rate of increase in the Sales of contractors with a Chaebol contractee on average 7% point higher, and the difference is significant at the 1% level. This suggests that the supply contract with a Chaebol contractee have an effect on the increase in sales. However, the changes in gross margin, operation margin, and profit margin are lower,

or even minus in the contracts with Chaebol contractees, and this difference is statistically significant in the gross margin and profit margin. This result is consistent with the story that Chaebol group members have control over their supplier's margins. The supply contracts with Chaebol contractees tend to reduce the contractors' margins, but increases the sales.

<Table 4> Changes in Operating Performances after Supply Contracts

The sample consists of the 4,213 supply contracts reported within DART system of Republic of Korea over the period of 2000–2011. We use the list of Large Conglomerate Companies announced by the Korea Fair Trade Commission to identify whether contractees are Chaebol group members.

	With non-Chaebol contractee (N=2721): A		With Chaebol contractee (N=1492): B		Test of difference (A-B)	
	Mean	Median	Mean	Median	t-test	Wilcoxon z-test
<i>Changes in log of sales</i>	21.84%	16.07%	29.20%	24.17%	-3.997*** (0.00)	-4.512*** (0.00)
<i>Changes in gross margin</i>	1.06%	0.15%	0.47%	-0.22%	1.381 (0.17)	3.219*** (0.00)
<i>Changes in operation margin</i>	3.63%	0.47%	2.48%	0.14%	1.268 (0.21)	0.888 (0.37)
<i>Changes in profit margin</i>	-0.38%	0.02%	1.54%	-0.29%	-0.723 (0.47)	2.392** (0.02)

4.2 Multivariate Analyses

We analyze the effect of the Chaebol contractee on the value of the contractor within a multivariate setting. First, we regress the existence of the Chaebol contractee on the announcement return of contractors. In the model (1) of <Table 5>, the coefficient on *Chaebol group member contractee* is positive and statistically significant at the 1% level. On average, the 2-days cumulative announcement return of the contractors with Chaebol contractees is higher by 1.3 percent point when compared to the ones with non-Chaebol contractees. The coefficient on the interaction term between *Chaebol group member contractee* and *Stock return volatility* is negative, though it is statistically insignificant. It is possible that contractors suffering from information asymmetry sacrifice the profitability of the contract, and then pursue the certification effects from Chaebol groups. In model (5) of <Table 5>, the coefficient on the *Contractor industry Herfindhal index* is negative but statistically insignificant. However, perhaps more interestingly, if the contractor suffers from high information asymmetry, the high market powered contractor seems to lose negotiation power according to the

Table 5 > OLS Regression of Contractor CAR(-1,0)

The sample consists of 1,152 supply contracts reported within DART system of Republic of Korea over the period of 2000–2011. We use the list of Large Conglomerate Companies announced by the Korea Fair Trade Commission in order to identify whether contractees are Chaebol group members. The dependent variable is the cumulative abnormal return from 1 day before the contract announcement to the day of the announcement, CAR(-1,0). The CAR(-1,0) is calculated by accumulating the daily abnormal returns from -1 day to 0 days after the announcement date. All regressions include the indicator variables for each KIC 2-digit industry and year, except where noted. Standard errors reported in parentheses are robust in terms of heteroscedasticity and clustered by industry. The symbols ***, **, * and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Chaebol group member contractee	0.013*** (0.001)	-0.008 (0.018)						0.013*** (0.001)
Chaebol group member contractee X Stock return volatility		0.510 (0.418)						
Chaebol group member contractor			0.016 (0.009)	-0.036 (0.021)				0.017* (0.009)
Chaebol group member contractor X Stock return volatility				1.214** (0.373)				
Contractor industry Herfindhal index					-0.010 (0.018)	0.138*** (0.027)		0.001 (0.021)
Contractor industry Herfindhal index X Stock return volatility						-3.534*** (0.828)		
Contractee industry Herfindhal index	-0.000 (0.006)	-0.000 (0.007)	0.007 (0.006)	0.007 (0.005)	0.008 (0.006)	0.012* (0.006)	0.008 (0.006)	0.083** (0.018)
Contractee industry Herfindhal index X Stock return volatility								-1.773*** (0.312)
Stock return volatility	-0.319*** (0.059)	-0.793 (0.438)	-0.308*** (0.068)	-0.377*** (0.044)	-0.316*** (0.062)	0.291** (0.106)	-0.316*** (0.061)	0.199* (0.092)
Relative deal value	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Contract amount	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Contract term (month)	0.000** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Recontract (indicator)	-0.007*** (0.002)	-0.007*** (0.002)	-0.005*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)

<Table 5> OLS Regression of Contractor CAR(-1,0) (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)
CAR(-1,0)									
Industry adjusted ROA	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.001)	-0.001 (0.002)
Years since IPO	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
R&D intensity	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Log (Market Cap.)	-0.002* (0.001)	-0.002* (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.003*** (0.001)
Tobin's q	-0.004*** (0.001)	-0.004*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.003*** (0.001)
Leverage	0.005 (0.013)	0.005 (0.014)	0.001 (0.015)	-0.001 (0.015)	0.005 (0.013)	0.007 (0.014)	0.006 (0.013)	0.004 (0.014)	-0.000 (0.014)
Stock price run-up	-0.010*** (0.002)	-0.010*** (0.002)	-0.010*** (0.002)	-0.010*** (0.002)	-0.010*** (0.002)	-0.009*** (0.002)	-0.010*** (0.002)	-0.010*** (0.002)	-0.010*** (0.002)
Constant	0.025 (0.016)	0.044* (0.021)	-0.018 (0.016)	-0.024* (0.013)	-0.018 (0.018)	-0.048** (0.017)	0.029 (0.018)	0.004 (0.022)	-0.022 (0.017)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,152	1,152	1,152	1,152	1,152	1,152	1,152	1,152	1,152
R-squared	0.064	0.065	0.064	0.066	0.062	0.068	0.062	0.063	0.066

model (6) of <Table 5>. The interaction term between *Contractor industry Herfindhal index* and *Stock return volatility* is negative and significant at the 1% level. Similarly in model (8), the coefficient on *Contractee industry Herfindhal index* is significantly positive, and the interaction term between *Contractee industry Herfindhal index* and *Stock return volatility* is significantly negative. These results are deeply interesting, as they imply that when the contractee has greater market power, the announcement return is higher for the contractors with average information asymmetry, but for the contractors with high information asymmetry, the announcement

<Table 6> OLS of Contractees CAR(-1,0)

The sample consists of 1,824 supply contracts reported within DART system of Republic of Korea over the period of 2000–2011. We use the list of Large Conglomerate Companies announced by the Korea Fair Trade Commission to identify whether contractees are Chaebol group members. The dependent variable is the cumulative abnormal return from 1 day before the contract announcement to the day of the announcement, $CAR(-1,0)$. The $CAR(-1,0)$ is calculated by accumulating the daily abnormal returns from -1 day to 0 days after the announcement date. All regressions include the indicator variables for each KIC 2-digit industry and year, except where noted. The standard errors reported in parentheses are robust in terms of heteroscedasticity and clustered by industry. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Contractee CAR(-1,0)	(1)	(2)
<i>Chaebol group member contractee</i>	-0.013(0.010)	-0.025(0.015)
<i>Chaebol group member contractee</i> <i>X Stock return volatility</i>		0.252(0.129)*
<i>Stock return volatility</i>		-0.413(0.137)**
<i>Contractee industry Herfindhal index</i>	0.012(0.009)	0.012(0.010)
<i>Relative deal value</i>	-0.000(0.000)***	-0.000(0.000)**
<i>Contract amount</i>	-0.000(0.000)	-0.000(0.000)**
<i>Contract term (month)</i>	0.000(0.000)	0.000(0.000)
<i>Recontract (indicator)</i>	-0.000(0.001)	-0.001(0.001)
<i>Industry adjusted Contractee ROA</i>	-0.030(0.020)	-0.026(0.020)
<i>Contractee years since IPO</i>	0.000(0.000)*	0.000(0.000)*
<i>Contractee R&D intensity</i>	0.001(0.000)*	0.001(0.000)**
<i>Log (Contractee Market Cap.)</i>	0.000(0.001)	0.001(0.000)*
<i>Contractee Tobin's q</i>	-0.002(0.003)	-0.003(0.002)
<i>Contractee leverage</i>	-0.037(0.027)	-0.033(0.030)
<i>Contractee stock price run-up</i>	-0.010(0.004)*	-0.010(0.005)*
<i>Contractee stock return volatility</i>	0.279(0.118)*	0.391(0.140)**
<i>Constant</i>	-0.062(0.028)*	-0.016(0.015)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Observations	1,824	1,802
R-squared	0.049	0.056

return is lower. This implies that the contractor's value, including both inside and outside the contract, depends greatly on the level of negotiation power and information asymmetry. It appears that negotiation power measured by market competition yields positive effects on contractors' valuation, and the information asymmetry measured by stock return volatility yields negative effects on the valuation. Additionally, the Chaebol group member contractee plays the role of certification with the market power situation controlled.

In terms of deal characteristics, *Relative deal value* has positive effects on the contractor's announcement return, and when the contract accounts for a larger proportion of the company's revenue, the announcement return is higher, and the *Contract term* also has positive significant coefficient. Most interestingly, is the effect for whether the contract is a recontract or not, and the *Recontract* variable has a negative coefficient and is statistically significant.

We analyze the valuation effect of the contractees in <Table 6>, and although *CAR(-1,0)* is not statistically different between the Chaebol group member contractees and the non-Chaebol group member contractees, the coefficient of the interaction term between the *Chaebol group member contractee* and *Stock return volatility* is positive and statistically significant at the 10% level. Chaebol group member contractees with high information asymmetry contractors are likely to have higher cumulative announcement returns, and this result supports our main hypotheses.

<Table 7> shows the changes in the operating performance of contractors, and as shown in model (1) and (3), the coefficients of the *Chaebol group member contractee* are all negative and statistically significant. After the supply contract is signed, the gross margin and operation margin of contractors with the Chaebol group member contractee increases less or decreases by 0.7% and 2.6%, respectively. Perhaps most interestingly and consistently, the interaction term between *Chaebol group member contractee* and *Stock return volatility* is significantly negative. The negative effect of the Chaebol group on operating performance is concentrated within the sample of contractors suffering from information asymmetry. However, in the case of the sales growth in model (6), the situation is precisely the opposite. The coefficient of the interaction term between *Chaebol group member contractee* and *Stock return volatility* is 1.523, and is statistically significant at 1% level. The sales of the contractors with Chaebol contractees increase after the contract, while the gross margin and the operation margin decrease, and the increase of the sales is not coming from the contract itself. Considering the average contract money amount and the relative deal value in <Table 2>, we can conclude that the increase in sales after the contract is signed is on average, greater than the deal amounts. The greater portion of the increase in sales

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is coming from outside of the contract, and the certification from a Chaebol contractee contributes to this increase.

<Table 7> OLS of Changes in Contractor Operating Performance

The sample consists of 1,159 supply contracts reported within DART system of Republic of Korea for the period of 2000–2011. We use the list of Large Conglomerate Companies announced by the Korea Fair Trade Commission in order to identify whether contractees are Chaebol group members. The dependent variable consist of Δ Gross margin, Δ Operation margin, and Sales growth. All regressions include the indicator variables for each KIC 2-digit industry and year, except where noted. The standard errors reported in parentheses are robust in terms of heteroscedasticity and clustered by industry. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ Gross margin		Δ Operation margin		Sales growth	
<i>Chaebol group member contractee</i>	-0.007** (0.003)	0.004 (0.003)	-0.026*** (0.006)	-0.002 (0.016)	0.009 (0.008)	-0.054** (0.020)
<i>Chaebol group member contractee X Stock return volatility</i>		-0.273*** (0.086)		-0.585* (0.301)		1.523*** (0.372)
<i>Stock return volatility</i>	0.025 (0.123)	0.120 (0.116)	0.062 (0.290)	0.266 (0.293)	-1.612*** (0.405)	-2.143*** (0.425)
<i>Contractee industry Herfindhal index</i>	0.102 (0.113)	0.103 (0.113)	0.228 (0.156)	0.231 (0.154)	0.224 (0.243)	0.217 (0.244)
<i>Relative deal value</i>	0.001*** (0.000)	0.001*** (0.000)	0.002* (0.001)	0.002* (0.001)	0.016*** (0.003)	0.016*** (0.003)
<i>Contract amount</i>	0.000*** (0.000)	0.000*** (0.000)	0.000** (0.000)	0.000** (0.000)	-0.000 (0.000)	-0.000 (0.000)
<i>Contract term (month)</i>	-0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000** (0.000)	-0.001** (0.000)	-0.001** (0.000)
<i>Recontract (indicator)</i>	0.005** (0.002)	0.005** (0.002)	0.022*** (0.006)	0.022*** (0.006)	0.040*** (0.009)	0.041*** (0.009)
<i>Industry adjusted ROA</i>	-0.041*** (0.004)	-0.042*** (0.004)	-0.099*** (0.010)	-0.099*** (0.010)	0.047 (0.027)	0.047 (0.026)
<i>Years since IPO</i>	0.000 (0.000)	0.000 (0.000)	0.000 (0.001)	0.000 (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
<i>R&D intensity</i>	-0.004*** (0.000)	-0.004*** (0.000)	-0.012*** (0.003)	-0.012*** (0.002)	-0.000 (0.004)	-0.000 (0.004)
<i>Log (Market Cap.)</i>	-0.005*** (0.001)	-0.005*** (0.001)	-0.004 (0.006)	-0.004 (0.006)	-0.012 (0.008)	-0.012 (0.009)
<i>Tobin's q</i>	0.001 (0.001)	0.001 (0.001)	-0.014 (0.011)	-0.014 (0.011)	0.081*** (0.025)	0.081*** (0.025)
<i>Leverage</i>	0.049 (0.044)	0.049 (0.044)	0.233*** (0.047)	0.232*** (0.046)	0.355 (0.354)	0.358 (0.357)
<i>Stock price run-up</i>	0.006*** (0.001)	0.006*** (0.001)	0.007 (0.006)	0.007 (0.006)	0.060*** (0.004)	0.060*** (0.004)
<i>Constant</i>	0.112*** (0.026)	0.104*** (0.027)	-0.550** (0.197)	-0.559** (0.198)	1.126 (1.024)	1.147 (1.020)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,156	1,156	1,159	1,159	1,159	1,159
R-squared	0.123	0.123	0.130	0.130	0.122	0.122

<Table 8> OLS of the Changes in Contractee Operating Performance

The sample consists of 1,159 supply contracts reported within DART system of Republic of Korea for the period of 2000–2011. We use the list of Large Conglomerate Companies announced by the Korea Fair Trade Commission in order to identify whether contractees are Chaebol group members. The dependent variable is Δ Gross margin, Δ Operation margin, and Sales growth. All regressions include the indicator variables for each KIC 2-digit industry and year, except where noted. The standard errors reported in parentheses are robust in terms of heteroskedasticity and clustered by industry. The symbols ^{***}, ^{**}, and ^{*} denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Δ Gross margin		Δ Operation margin	
<i>Chaebol group member contractee</i>	-0.005 (0.017)	-0.062 ^{**} (0.025)	-0.016 (0.014)	-0.048 (0.025)
<i>Chaebol group member contractee</i> <i>X Contractor stock return volatility</i>		1.303 ^{***} (0.330)		0.724 [*] (0.330)
<i>Contractor stock return volatility</i>		-1.702 ^{***} (0.290)		-0.807 [*] (0.344)
<i>Contractee industry Herfindhal index</i>	0.220 (0.166)	0.222 (0.173)	0.028 [*] (0.013)	0.026 [*] (0.012)
<i>Relative deal value</i>	-0.003 (0.009)	-0.000 (0.008)	0.000 ^{***} (0.000)	0.000 ^{**} (0.000)
<i>Contract amount</i>	-0.000 ^{**} (0.000)	-0.000 ^{**} (0.000)	-0.000 (0.000)	-0.000 (0.000)
<i>Contract term (month)</i>	0.000 [*] (0.000)	0.000 (0.000)	0.000 [*] (0.000)	0.000 (0.000)
<i>Recontract (indicator)</i>	0.002 (0.006)	-0.000 (0.006)	-0.002 (0.004)	-0.002 (0.004)
<i>Contractee industry adjusted ROA</i>	-0.302 (0.204)	-0.290 (0.208)	-0.397 ^{**} (0.141)	-0.391 ^{**} (0.143)
<i>Contractee years since IPO</i>	0.001 (0.001)	0.001 (0.001)	0.001 ^{**} (0.000)	0.001 ^{**} (0.000)
<i>Contractee R&D intensity</i>	-0.000 (0.001)	0.000 (0.001)	-0.003 ^{***} (0.001)	-0.003 ^{***} (0.001)
<i>Log (Contractee market Cap.)</i>	0.001 (0.003)	0.001 (0.002)	0.004 (0.002)	0.004 (0.002)
<i>Contractee Tobin's q</i>	0.034 (0.021)	0.035 (0.021)	0.012 (0.012)	0.011 (0.012)
<i>Customer Leverage</i>	0.175 [*] (0.086)	0.162 [*] (0.083)	0.159 ^{**} (0.046)	0.152 ^{**} (0.051)
<i>Contractee stock price run-up</i>	0.019 ^{***} (0.005)	0.021 ^{***} (0.005)	0.020 ^{***} (0.002)	0.020 ^{***} (0.002)
<i>Contractee stock return volatility</i>	0.251 (0.463)	0.582 (0.409)	0.090 (0.431)	0.219 (0.453)
<i>Constant</i>	-0.314 ^{**} (0.094)	-0.253 [*] (0.118)	-0.508 ^{**} (0.214)	-0.095 ^{**} (0.039)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	1,524	1,502	1,824	1,802
R-squared	0.336	0.344	0.379	0.382

In <Table 8>, we analyze the changes in operation performance for contractees. As we can see in model (2) and (4), the coefficient of the interaction term between *Chaebol group member contractee* and *Contractor stock return volatility* is positive and statistically significant at the 1% and 10% levels, respectively. This result implies that Chaebol group member contractees improve after the contract was signed, particularly when the contractor suffers from high information asymmetry. This finding is consistent with the conjecture that Chaebol group members would control and exploit the needs of their counterpart of the contract.

5. Conclusion

Using Korean supply contract data, we analyze the effects of having a trading relationship with Chaebol group member companies. Broadly speaking, the benefit of the relationship is mainly concentrated within the certification. Chaebol groups in South Korea compete within the first tier global market, and have a deep understanding of technologies and quality products which can assist them in winning within the context of global competition. Chaebol groups have achieved credibility in their ability to screen out quality suppliers, and once they choose a company as their supplier, that company can reduce the information asymmetry surrounding its value. On the other hand, the cost of being a supplier of a Chaebol is to endure the direct loss from trade with the Chaebol, and we find evidence for this hypothesis. Firstly, the announcement return is low for contractors with a Chaebol contractee, particularly when they are suffering from high information asymmetry, as in order to overcome the high information asymmetry, the contractors take the loss caused by the Chaebol's margin control. Secondly, it is confirmed that the operating performance of high information asymmetry contractors with a Chaebol contractee deteriorates after the contract is signed. Thirdly, there is evidence that the Chaebol contractees are better off in operating performance after the contract is signed. Largely, we find that Chaebol groups play a significant role in certifying the quality of suppliers in the product market.

Our research contributes to the literature in several ways. Firstly, we provide firm evidence that the Chaebol groups have control over their suppliers' margins, and that they have enough market power to control their trading partners and exploit them. Secondly, the results of our research implies that there exists an important role of Chaebol groups within the product market and furthermore, also in the financial market. Chaebol groups screen and select quality suppliers out of many suppliers, and send important positive signals to the product market for their suppliers, and thus play the role of early period financial markets. Without this action, quality sup-

pliers suffering from high information asymmetry should find another way to send signals to the product market, and it could be costly. Thirdly, these results provide an important policy implication for developing countries which are attempting to convert their economic system to a more evenly distributed market power economy. When there exists an economic entity with overwhelming product market power, we should consider the replacement for the certification role of the entities in the transformation of the economic system for sustainable economic growth.

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