Tunneling Through Trademarks*

Sojung Kim† and Woochan Kim‡

First Draft: August 2019
This Draft: April 2021

Abstract

This study documents how trademarks can be used to benefit controlling families at the expense of outside minority shareholders. Using a sample of business groups in Korea, we find evidence in support of this. First, firms are more likely to be licensor firms if the controlling family holds higher cash flow rights. Second, firms are more likely to be licensee firms and subject to higher royalty payments if their controlling family's cash flow rights are further below those in the licensor firms (i.e., higher cash flow rights differentials) and if their sales volumes are larger. Third, shareholder distributions (dividend payouts and stock repurchases) and market values are negatively associated with royalty payments in firms with higher cash flow rights differentials. Lastly, these results manifest more significantly in pure holding company groups, where the licensor firms have no business operation of their own and, therefore, rely more heavily on trademark revenue.

Keywords: Trademark royalties, tunneling, holding companies, business groups, cash flow rights, dividends
JEL classification: G3, G32, G34

* We thank Nicolas Eugster, Peter Swan, and the conference participants at the 3rd Sydney Banking and Financial Stability Conference, the 32nd Australasian Finance and Banking Conference, the 2020 Financial Management Association Annual Conference, and the seminar participants at Korea University Business School. We also note that this work was supported by the Korea University Business School and the Ministry of Education of the Republic of Korea (National Research Foundation of Korea grant number NRF- 2019S1A5A2A01034994).
† Korea University Business School, Seoul, Korea; e-mail: sjkim5280@gmail.com
‡ Corresponding author, Professor of Finance, Korea University Business School; Research Associate, European Corporate Governance Institute (ECGI); e-mail: wckim@korea.ac.kr

Tunneling Through Trademarks

Abstract

This study documents how trademarks can be used to benefit controlling families at the expense of outside minority shareholders. Using a sample of business groups in Korea, we find evidence in support of this. First, firms are more likely to be licensor firms if the controlling family holds higher cash flow rights. Second, firms are more likely to be licensee firms and subject to higher royalty payments if their controlling family's cash flow rights are further below those in the licensor firms (i.e., higher cash flow rights differentials) and if their sales volumes are larger. Third, shareholder distributions (dividend payouts and stock repurchases) and market values are negatively associated with royalty payments in firms with higher cash flow rights differentials. Lastly, these results manifest more significantly in pure holding company groups, where the licensor firms have no business operation of their own and, therefore, rely more heavily on trademark revenue.

Keywords: Trademark royalties, tunneling, holding companies, business groups, cash flow rights, dividends
JEL classification: G3, G32, G34

1. Introduction

A trademark is a type of intellectual property comprising a recognizable word, phrase, symbol, and/or design that distinguishes the products or services of a particular source from those of others. If registered, the trademark owner obtains exclusive rights to operate and market under the trademark. By coming to a licensing agreement with another party (the licensee), the trademark owner (the licensor) can consequently receive royalties for allowing other parties to commercially use the trademark.

However, if the licensor and the licensee are related parties, the agreement may not be a result of an arm's length negotiation. It is possible for one member to influence another regarding the pricing of royalty rates. They could agree on a rate that is different from the one that would have been agreed on between two independent entities acting to maximize their economic returns from the transaction. A good example is *trademark transfer pricing*—that is, establishing a mechanism within multinational groups to move trademark-related profits from high tax jurisdictions to low/no jurisdictions (OECD, 2015).

In this study, we introduce another example, where family-controlled business groups establish a mechanism to move trademark-related profits from firms with low family ownership to firms with high family ownership. In other words, we study how trademarks are used to benefit controlling family members at the expense of outside minority shareholders.

Korea provides an excellent research setting to study tunneling through trademarks. First, Korea is populated by numerous business groups, each of which comprise many member firms. Second, in these member firms, controlling families have different degrees of cash flow rights, which gives rise to the incentive to engage in tunneling. Third, in many of these business groups, trademarks are owned by a single firm and licensed to other firms in return of royalty payments.

This became a norm especially since the legalization of holding companies in 1999. As firms whose main business is to control other member firms, holding companies also became the owners of trademarks and were entitled to collect royalties from other member firms. Out of KRW 990 billion collected by the licensor firms in 27 family-controlled groups used in this study, KRW 839 billion (84.7%) is collected by those in groups with holding companies.

As in other tunneling studies, the greatest empirical challenge of this study is discerning whether the terms applied to trademark transactions are fair or not. We follow the practice in the existing literature and provide indirect evidence. That is, predicting the pattern of intragroup trademark transactions in the presence of tunneling and finding evidence that is consistent with these predictions. Like in many other tunneling studies, we make predictions according to the cash flow rights that the controlling family holds in each member firm.

Using a sample of 27 family-controlled business groups that charged trademark royalties in 2017, we find evidence consistent with the presence of tunneling. First, firms are more likely to be licensor firms if the controlling family holds higher cash flow rights. Second, firms are more likely to be licensee firms and subject to higher royalty payments if their controlling family's cash flow rights are further below those in the licensor firms (i.e., higher cash flow rights differentials) and if their sales volumes are larger. Third, dividend payouts, stock repurchases, and market values are negatively associated with royalty payments in firms with higher cash flow rights differentials. Lastly, we find that these results manifest more significantly in pure holding company groups, where the licensor firms have no business operation of their own and, therefore, rely more heavily on trademark revenue.

This study makes several contributions to the literature. First, we introduce a new tunneling channel—intragroup trademark transactions—that has not been documented in the literature. To

date, studies have identified, among others, acquisitions (Bae, Kang, and Kim, 2002), securities offerings (Baek, Kang, and Lee, 2006; Atanasov et al., 2010), related-party transactions (Cheung, Rau, and Stouraitis, 2006; Black et al., 2015; Hwang and Kim, 2016), and intercorporate loans (Jiang, Lee, and Yue, 2010) as channels of tunneling.

Second, we contribute to the dividend literature by identifying a new governance-related determinant. We find that higher royalty payments to parent companies can lower the dividend payout of subsidiaries especially when the controlling family's cash flow rights in the subsidiaries are lower than those in the parent companies. This finding is in line with the expropriation argument made by Faccio, Lang, and Young (2001). They find that firms with high control–ownership disparity are more likely to be expropriated by controlling shareholders and pay lower dividends.

Third, we also add to the blockholding literature by identifying a channel through which a publicly traded subsidiary can be expropriated by its parent company. Using U.S. data, Atanasov, Boone, and Haushalter (2010) find that subsidiaries where parent companies own a substantial minority stake exhibit negative peer-adjusted operating performance and are valued at a discount relative to peers. In our study, we identify one reason behind this, in a Korean context.

One may argue that our result is an artifact of a unique institutional setting in Korea. However, given the prevalence of family-controlled business groups around the world and their pyramid structure, we believe that the new tunneling channel we document in this study can also occur in other countries (Khanna and Yafeh, 2007).

The rest of this paper proceeds as follows: Section 2 develops the hypotheses and section 3 discusses the data. Section 4 provides the results and section 5 concludes the paper.

2. Hypotheses Development

There are two ways of tunneling through intragroup trademark transactions: (1) the firm with high family ownership can obtain trademarks from other member firms with low family ownership at an unfairly cheap price (*tunneling through the transfer of trademark ownership*). (2) The licensor firm with high family ownership can charge unfairly high trademark royalties to other member firms with low family ownership (*tunneling through charges of trademark royalties*).

For lack of data, however, we do not explore the first channel in this study. Incidents of trademark ownership transfers from one group firm to another are rare. Additionally, in case of such incidents, no information is provided on the detailed terms of such transfers. In contrast, data on trademark royalty transactions are available. This allows us to explore the second channel. However, it is impossible to discern the fairness of such transactions using royalty rates alone. In the absence of a benchmark rate set between two independent parties, it is impossible to do so.

Consequently, in this study, we take an indirect approach of predicting the pattern of intragroup trademark transactions in the presence of tunneling and finding evidence that is consistent with these predictions. Like in many other tunneling studies, we employ the cash flow rights that the controlling family holds in each member firm to predict the direction of tunneling.

We develop our predictions at two levels: the group-level and the firm-level. Given the limited number of business groups, group-level predictions are inevitably descriptive and exploratory, but still meaningful for their complementarity to firm-level hypotheses. Our first group-level prediction is based on the *control structure* of group licensor firms. In the absence of tunneling, one should not expect any difference in the extent of the trademark royalty transactions across groups with different control structures. In the presence of tunneling, however, we expect a greater extent of trademark royalty transactions in groups that are more prone to tunneling. For

example, we expect greater transactions in family-controlled business groups than in other groups, such as groups that are management-controlled or state-controlled.

Our second group-level prediction is based on the *revenue structure* of group licensor firms. We expect lesser extent of trademark royalty transactions in groups where licensor firms have their own business operations than in groups where licensor firms do not. In former groups, licensor firms can benefit from two tunneling channels: through their own business operations and through trademark royalty collections. In contrast, in latter groups, licensor firms can benefit only from the second channel, which makes them more inclined to use trademarks for tunneling purposes. Consistent with this, we expect a greater extent of trademark royalty transactions in groups where pure holding companies (i.e., holding companies with no business operation of their own) are licensor firms than in groups where licensor firms have their own business operations.

In our firm-level analyses, we first ascertain the firms that are likely to be trademark licensors in the group. With tunneling, we expect trademarks to be owned by firms wherein the controlling family holds high cash flow rights (**H1**). Note that the causality can go in either direction. Trademark ownership may have been transferred to the firm wherein the controlling family holds high cash flow rights. Alternatively, the controlling family members may have increased their ownership in firms that own the trademark. Either way, the positive association between the two is consistent with the existence of tunneling. Similar discussions can be made for all other hypotheses mentioned hereafter.

We then explore the firms that are likely to be trademark licensees in the group. Given that trademark royalty charges are typically set to be proportional to the sales volume of the licensee firm, we expect the licensor firms will come to an agreement with firms that have a considerable sales volume. However, with tunneling, we do not expect the licensor firms to consider sales

volume alone. Among the firms with a high sales volume, we expect firms wherein the controlling family's cash flow rights are further below those in the licensor firms are more likely to be licensee firms than other firms (**H2**).

We also investigate the factors that determine the level of trademark royalty payments. Again, given that trademark royalty charges are typically set to be proportional to the sale volumes of the licensee firm, we expect the payment to rise with the sales volume of the licensee firms. However, with tunneling, we expect the increase to be greater in firms wherein the controlling family's cash flow rights are far below those in the licensor firms (**H3**).

We then explore the main concern of the outside minority shareholders that hold the shares of the licensee firms—that is, the association of trademark royalty payments with dividends or stock repurchases. Given that trademark royalties are expensed before the dividend payout, the dividend amount may be low if the amount of royalty payments are excessive. This is also the case for stock repurchases. With tunneling, we expect this trade-off to be stronger in firms, wherein the controlling family's cash flow rights are further below those in the licensor firms (**H4**).

All the above-mentioned hypotheses collectively suggest that the controlling families are expropriating licensee firms through the collection of trademark royalties. If this is the case, the collection of trademark royalties should be associated with a dampened market value of licensee firms. In particular, we predict that the market value of licensee firms is negatively associated with their royalty payments if the cash flow rights of the controlling family in such firms are further below those in the licensor firms (**H5)**.

Lastly, we combine these firm-level hypotheses (**H1 ~ H5**) with our group-level prediction, which asserts that the revenue structure of licensor firms matters. We predict that the patterns described in our firm-level hypotheses (**H1 ~ H5)** would be stronger in groups where pure holding

companies are licensor firms than in groups where licensor firms have their own business operations (**H6**).

3. Data and Key Covariates

3.1. Sample Business Groups

Yearly, the Korea Fair Trade Commission (KFTC) designates a selected group of business groups for its regulatory purpose. To be designated, the combined asset size of domestic member companies (equity size in case of financial companies) measured at the end of the fiscal year immediately preceding the designation, must be above a given threshold. [1] In May 2018, the KFTC designated 60 business groups. Thanks to the new disclosure rule adopted in March 2018, these business groups also had to disclose the details of their 2017 trademark royalty transactions for the first time in May 2018.

Out of these 60 KFTC-designated business groups, we exclude eight groups with multiple licensor firms and one group that is exempt from disclosing trademark transactions data. This leaves us with 51 business groups, which form our sample for group-level analyses. For our firm-level analyses, we focus on family-controlled business groups that made intragroup royalty transactions. From the sample for group-level analyses, we further exclude seven non-family business groups, 14 family-controlled business groups with no records of trademark royalty transactions, and three family-controlled business groups with missing group ownership data in 2017. This leaves us with 27 family-controlled business groups. Table A1 in the appendix shows the composition of the 60 business groups into various categories. Note that only 37 out of the 60

[1] This threshold has been revised over time; since 2009, the threshold of KRW 5 trillion has been used.

groups made intragroup royalty transactions in 2017.

Business groups with multiple licensor firms are a challenge to our empirical strategy that assumes a single licensor firm. Note that we uncover the direction of tunneling by comparing the controlling family's cash flow rights in each member firm against its cash flow rights in the licensor firm. Out of the 60 business groups, 11 groups have multiple licensor firms (Daelim, Doosan, Hanjin, Harim, Hyundai Department Store, Hyundai Heavy Industries Hyundai Motors Jungheung, Samsung, Seah, and SK). However, we do not drop all the 11 groups from our analyses. To preserve the number of sample groups, we keep three of these groups, where one licensor firm is clearly dominant over the other (Hanjin groups, Harim, and SK). [2]

Out of the 60 business groups, four were newly designated by KFTC in 2018 (Eugene, GM Korea, Meritz Financial Group, and Netmarble). However, we lack these groups' 2017 group ownership data. We therefore exclude them from our sample for the firm-level analyses. We also exclude NongHyup (cooperative of farmers), whose licensor firm (National Agricultural Cooperative Federation) is a non-profit corporation, and as such exempt from reporting trademark royalty revenues to the KFTC.

3.2. Data on Trademark Royalties

Prior to 2018, information on intragroup transactions of trademark royalties was undisclosed. Licensor firms had an obligation to disclose information only if the yearly amount with an individual licensee firm exceeded KRW 5 billion or 5% of their sales. According to the KFTC (2018), this disclosure rule left 67.1% of the licensee firms undisclosed. However, following the

[2] In the case of Hanjin, Hanjin Kal collected 99.97% of royalties, whereas Hanjin Transportation collected 0.03%. In the case of Harim, Harim Holdings collected 67.78%, whereas Jeil Holdings collected 32.22%. In the case of SK, SK collected 99.65%, whereas SK Telecom collected 0.35%.

new disclosure rule adopted in March 2018, KFTC-designated business groups are now obligated to disclose the details of their yearly transactions in May every year. The new rule requires business groups to disclose the licensor firms, licensee firms, license agreement periods, amount of royalties paid by each licensee firm (regardless of the amount), and methods of calculating royalties. The first disclosure following the new rule was released in May 2018. The data is available from the Data Analysis, Retrieval and Transfer System (DART; dart.fss.or.kr) that serves a function similar to EDGAR in the U.S.

It is worth noting that the new rule was introduced *after* the 2017 royalties were paid and that in 2017, the controlling families did not know that the new rule would be introduced in March of the following year. [3] Consequently, the 2017 data is free from any confounding effect that would have taken place if the rule was introduced in 2017 or at least expected in 2017 to be introduced in the following year. In 2017, the controlling families had no reason to disguise their tunneling activities by changing the pattern of trademark transactions.

Table 1 shows the amounts of royalty transactions made in the fiscal year of 2017. It also lists the names of business groups, their control types (family-controlled vs. non-family), the number and the types of licensor firms, and the numbers of licensee and member firms.

There are several points to note from Table 1. First, not all member firms are trademark licensees—only 35.7% of the member firms in family-controlled groups pay trademark royalties on average (47.3%, in the case of non-family groups). However, this is surprising given that virtually every member firm operates its business using trademarks. Sometimes, they disclose the reasons why certain member firms do not pay royalties (no product sales, imminent business transfers, new affiliations, workouts, etc.). However, in most cases, no clear reasons are provided.

[3] The draft rule was released for the first time on January 31st.

This raises a suspicion that the licensee firms may have been carefully chosen to maximize the interest of the controlling family.

Second, the total amounts of trademark royalties vary considerably across business groups. The LG group, which has the longest history of being a pure holding company group, collected the largest amount, of KRW 277 billion (approximately USD 277 million), whereas the Taekwang group collected only KRW 31 million. The variation is even greater considering the fact that 23 business groups collected none.

The retrieved data shows that the methods of calculating trademark royalties are similar across the business groups. Most of the groups fall in the following three categories: (1) sales × royalty rate; (2) (sales – advertisement expenditure) × royalty rate; and (3) (sales – advertising expenditure – related-party sales) × royalty rate.[4] In some cases, business groups use EBITDA instead of sales or even combine the two. Exceptionally, some apply adjustment coefficients whose exact values are not publicly disclosed. The royalty rate ranges from 0.01% to 1%.

Also note that these formulas are applied regardless of the kind and number of trademarks a licensor firm owns. For some groups, the formulas are applied only to group trademarks, which comprise the name and logo of the business group. For other groups, the formulas are applied to a collection of trademarks including those for business groups, member companies, products, and services.

3.3. Key Covariates and Their Summary Statistics

Cash flow rights (*CFR*), our key explanatory variable, is defined as the sum of direct and indirect

[4] For financial companies, royalties are based on operating revenue, rather than on sales.

ownerships that a controlling family has in a subject firm along the control chains.10 [5] P We follow the method introduced in Kim, Lim, and Sung (2007) to compute *CFR*. In many of our regression analyses, we also use a variant of *CFR* that can better capture the direction of tunneling: the difference in cash flow rights between the licensor firms and the licensee member firms, where negative values (*CFR* in licensor firms – *CFR* in licensee firms < 0) are replaced with 0 (*CFR DIF*). Note that we ignore negative values on the basis that there is no incentive to tunnel once the *CFR* in licensee firms surpasses that in licensor firms.

Regarding their calculations, we use the ownership data that can be accessed either through the KFTC-administered Business Group Portal (www.egroup.go.kr) or the DART. These data, which we refer to as the KFTC data hereafter, include the direct ownership of the controlling family in each member firm and intragroup shareholdings (in a matrix form) among the member firms. The latter information allows us to compute the indirect ownership of the controlling family.

Note that the KFTC data also include privately held firms. This allows us to consider control chains that go through privately held firms and compute cash flow rights more precisely. However, the KFTC data does not provide sufficient information to consider control chains that go through foreign subsidiaries, which is why it is not used to calculate *CFR* in previous studies using the KFTC data. In this study, we partially fix this shortcoming by employing the information on the shares foreign subsidiaries own in each domestic member firm (available in DART), and the shares the largest domestic member firm (or the largest foreign subsidiary) owns in each foreign subsidiary (also available in DART). This enables us to identify and consider the control chains that go through foreign subsidiaries.

In every firm level regression analysis, we control for tax bracket variables. This is to control

[5] In the calculation of CFR, we use ownership based on common shares (excluding treasury shares).

for the group-level tax savings motive. In a similar vein to trademark transfer pricing within multinational groups, under a progressive tax system, business groups can lower tax liability by instructing licensee firms in higher tax brackets to pay royalties to licensor firms in lower tax brackets. If licensee firms in higher tax brackets tend to have lower cash flow rights, excluding tax bracket variables would cause upward biased coefficients on cash flow rights.

In 2017, Korea had three corporate income tax brackets with progressive tax rates: 10% for a tax base below KRW 0.2 billion, 20% for a tax base from KRW 0.2 billion to 20 billion, and 22% for a tax base over KRW 20 billion. Using these tax brackets, we define *Tax Bracket*, which takes integer values from 1 to 3, where 3 indicates the highest tax bracket. *Tax Bracket DIF* is defined as the *Tax Bracket* of a member firm minus the *Tax Bracket* of a licensor firm.

Table A2 in the appendix shows how much tax business groups saved or dissaved through trademark royalty transactions. We refer to the appendix for details on how we compute the changes in tax liability. Out of 27 family-controlled business groups in our sample for firm-level analyses, we find that 11 groups saved whereas 14 groups dissaved tax payments. However, in aggregate, 27 groups saved KRW 4.5 billion (approximately USD 4.5 million) through trademark transactions. Furthermore, pure holding company groups show up more frequently as tax savers than other business groups. (73% vs. 36%)

Table A3 lists the name and the definition of key covariates. Table 2 further reports their summary statistics. The table reports the statistics only of 13 pure holding company groups, which according to our hypothesis, are more vulnerable to tunneling. Appendix Table A4 reports the summary statistics of other business groups, including business-operating holding company groups and non-holding company groups.

Panels A, B, and C of Table 2 provide the statistics for licensor, member (less licensor firms),

and listed member firms (less licensor firms) respectively. We exclude firms with no sales or firms with impaired capital. Also, we leave out firms with missing financial data. Note that covariates are measured at different points in time. In the case of *CFR,* we measure in the middle of 2017, which is the year royalties are paid. [6] We measure other covariates in Panels A and B at the end of 2017. We further measure the covariates of listed firms in Panel C at two different points of time: before and after the disclosure of trademark royalties. When explaining Tobin's *q* before the disclosure (measured as of April 2), we use covariates measured at the end of FY2017. When explaining Tobin's *q* after the disclosure (measured as of June 1), we use covariates measured at the end of 1Q FY2018.

Besides the KFTC, the data comes from KIS-Value, a financial database managed by the NICE Credit Information Service. This is supplemented by TS-2000, another database managed by the Korea Listed Companies Association (KLCA), in case KIS-Value has missing observations. Note that the ownership and financial ratio variables are expressed in percentage terms. Also note that we winsorize variables at the upper and lower 1 percentile values if their original standard deviation exceeds 200%. These include *Sales Growth* (%) and *ROE* (%).

4. Results

4.1. Group-level Analyses

In this subsection, we conduct group-level analyses. As mentioned earlier, given the limited number of business groups in our sample, group-level analyses are inevitably descriptive and

[6] Precisely, *CFR* is calculated at two different points of time in 2017, depending on the size of business groups. This is because, in 2017, KFTC designated large business groups at two different points in time: Once in May for business groups with a total sum of assets above 10 trillion won, and in September for those with a total sum of assets between 5 and 10 trillion won.

exploratory. However, we believe they are still meaningful following their complementarity to our firm-level analyses.

4.1.1. Family-controlled groups vs. non-family-controlled groups

With tunneling, we expect a greater extent of trademark royalty transactions in family-controlled business groups than in other groups, such as management-controlled or state-controlled groups. Table 3 shows the results using 51 business groups, where 44, 6, and 1 of these groups are family-controlled, management-controlled (Daewoo E&C, Daewoo S&ME, GM Korea, KT, KT&G, POSCO), and state-controlled (S-Oil), respectively. [7]

We find results consistent with our predictions. First, we find that in non-family groups, only 3 out of 7 (43%) of the groups collected trademark royalties, whereas in family-controlled groups, 29 out of 44 (66%) of the groups collected trademark royalties. Second, among the groups that collected trademark royalties, we find that the intensity to collect trademark royalties is higher for family-controlled groups than for non-family groups. We use two measures. When we compute the percentage of trademark revenue relative to the aggregate sales volume of all other member firms in each group ($(TM\ Rev/Group\ sales) \times 100$), its mean value for family-controlled groups ranges between 0.09~0.26%, whereas its mean value for non-family groups is only 0.03%. When we compute the group average of the royalty payments over the sales of a licensee firm ($(TMR\ /\ Sales) \times 100$), its mean value ranges between 0.17 ~ 0.28%, whereas its mean value for non-family groups is 0.05%.

[7] Note that S-Oil is controlled by Aramco, a Saudi Arabian state-owned oil company.

4.1.2. Pure holding company groups vs. other business groups

With tunneling, we expect a greater extent of trademark royalty transactions in groups where licensor firms do not have their own business operations than in groups where they do (**H2**). We find results consistent with this prediction. As shown in Table 3, licensee firms in pure holding company groups paid the highest amounts of royalty relative to their sales volume. More specifically, the mean value of the percentage of trademark revenue relative to the aggregate sales volume of all other member firms in each group ($(TM\ Rev/Group\ sales) \times 100$) is 0.26% for pure holding company groups, whereas it is between 0.09% and 0.19% for business-operating holding company groups or non-holding company groups. When we compute the group average of the royalty payments over the sales of a licensee firm ($(TMR\ /\ Sales) \times 100$), its mean value for pure holding company groups is 0.28%, whereas its mean value for business-operating holding company groups or non-holding company groups range between 0.17 and 0.22%.

To further confirm our prediction, we investigate how the sales volume of licensor firms excluding trademark revenue ($ln(Sales\ without\ TM\ Rev)$) is related to the percentage of trademark revenue relative to the aggregate sales volume of all other member firms ($(TM\ Rev\ /Group\ Sales) \times 100$). Figure 1 Panel A shows the scatter plot between the two for 43 family-controlled business groups.[8] The "solid square," "x," and "blank circle" symbols stand for pure holding company groups, business-operating holding company groups, and non-holding company groups, respectively. It is noteworthy that the pure holding company groups and non-holding company groups are located at the upper left and lower right corners respectively, while the business-operating holding company groups are located in the middle of the two groups. The

[8] We exclude Hankook Technology Group as an outlier. Its $(TM\ Rev/Group\ sales) \times 100$ is greater than 1%.

negative slope of the fitted line implies that licensor firms tend to collect trademark royalties more aggressively as sales from their own business operations drop.

Without tunneling, having only one or two channels of tunneling (through trademarks and through trademarks and own business operations) should not influence the intensity of trademark collections by licensor firms. We confirm this from the scatter plot and the fitted line drawn for the seven non-family business groups in Figure 1, Panel B. The fitted line is flatter with a slightly positive slope.

The results for family-controlled business groups are statistically significant even after controlling for other factors that might influence the level of $(TM\ Rev\ /Group\ Sales) \times 100)$. We run ordinary least squares (OLS) regressions, where we control for *Average CFR DIF*, *ln* (*Advertising*), and *Age*. We expect licensor firms to have stronger incentives to collect trademark royalties if the *average* cash flow rights of the controlling family in other member firms are further below those in licensor firms. We also expect licensor firms to have stronger incentives to collect trademark royalties if they spend more on group advertisements or have operated their business for a longer period of time and contributed more to the group's reputation. Table 4 shows the results, where we find that a 1% increase in the sales excluding trademark revenue of the licensor firm ($ln(Sales\ without\ TM\ Rev)$) is associated with a drop in trademark royalty to the group sales ratio $(TM\ Rev\ /Group\ Sales) \times 100)$ by 0.02%~0.03%, which is significant at the 5% level. Note that in Columns (2) and (4), where we control for *Average CFR DIF*, we lose three business groups, whose 2017 group ownership data is missing.

4.2. Firm-level Analyses

We now refer to the results of our main analyses, where we test hypotheses based on controlling family's cash flow rights and conduct analyses at the firm-level.

4.2.1. Which firms own the trademark license?

We first ascertain the firms that are likely to be trademark licensors in the group. With tunneling, we expect the trademarks to be owned by the firms wherein the controlling family holds high cash flow rights (**H1**). To test this, we run probit regressions, where we investigate the factors that determine the choice of the licensor companies. The dependent variable takes a value of 1 if the company is a licensor company and 0 otherwise. The covariates include the controlling family's cash flow rights (*CFR*), group fixed effects, and others. Sample firms include the licensor firms, licensee firms, and firms outside the license agreement.

Table 5 shows the results. The regressions in Columns (1) to (3) report the results of the pure holding company groups, whereas the regressions in Columns (4) to (6) report the results of the other business groups, which include business-operating holding company groups and non-holding company groups. The coefficient estimates are the average marginal effects on probability. Regardless of the types of business groups, the coefficient of *CFR*, our key explanatory variable of interest, is positive and statistically significant across all specifications. In Columns (1) and (4) we include only *CFR*, which is our main variable, without controlling for other covariates. In Columns (2) and (5), we include the tax bracket of subject firms to examine whether firms with lower tax brackets tend to be chosen as licensor firms for tax saving. Note that *Tax Bracket* takes integer values from 1 to 3, where 3 indicates the highest tax bracket. In Columns (3) and (6), we control for other firm characteristics.

The coefficient of *CFR* suggests that a 10% increase in *CFR* increases the probability to own the group's trademark by 0.01 or 1%. Only 6.2% of the firms in our sample own the group's trademarks. Therefore, this is a 16.3% (= 1/6.2) jump in likelihood. Among other covariates, we find that older firms in pure holding company groups and larger firms in other business groups are

more likely to own the group's trademarks. Foreign ownership also increases the likelihood of owning the group's trademarks. However, we do not find supporting evidence that firms with lower tax brackets tend to be chosen as licensor firms for tax saving.

4.3.2. Which firms pay the trademark royalties?

As shown in Table 1, only a subset of member firms pay trademark royalties. On average, 40.32% and 30.63% of the member firms pay royalties in pure holding company groups and other business groups, respectively. In this subsection, we ascertain how this subset is determined. Given that trademark royalty charges are typically set to be proportional to the sales volume of the licensee firm, we expect the licensor firms wishing to maximize their royalty revenue to enter into agreements with firms with large sales volumes. Furthermore, among the firms with a high sales volume, we expect firms, wherein the controlling family's cash flow rights are further below those in the licensor firms, are more likely to be licensee firms than other firms (**H2**).

To test this, we run linear probability model (LPM) regressions, where we investigate the factors that determine the choice of the licensee companies. Note that we use the LPM in lieu of probit or logit, for its convenience in interpreting the interaction effects. [9] The dependent variable, *Licensee*, takes a value of 1 if the company is a licensee company and 0 otherwise. The covariates include the difference in the cash flow rights between the licensor and the subject firms (*CFR DIF*), sales volume, interaction between the two, group fixed effects, and others. Note that sample firms include licensee firms and firms outside the license agreement, but exclude licensor firms.

Table 6 shows the results. Regressions in Columns (1) to (3) use firms in pure holding company groups, whereas regressions in Columns (4) to (6) use firms in other business groups. In

[9] According to Ai and Norton (2003), the interaction effects estimated from logit or probit have z-statistics that have a distribution of their own. However, the interaction effects estimated from LPM do not have this problem.

Columns (1) and (4), we examine how sales volume is associated with the selection of licensee firms while controlling for other relevant firm characteristics. As expected, sales volume is an important predictor of the licensee firms in both samples. The coefficient of sales is positive and statistically significant at the 1% level in all specifications.

In Columns (2) and (5), we investigate whether *CFR DIF* amplifies the effect of sales. Consistent with our conjecture, we find that the coefficient of the interaction term between *ln* (sales) and *CFR DIF* is positive and statistically significant only in pure holding company groups (Column (2)). This suggests that firms with larger sales volume and larger gaps in cash flow rights have a higher chance of being licensee firms than firms with lower sales volume or those with lower gaps in cash flow rights. The coefficients suggest that, for firms with *CFR DIF* equal to 0, a 1-SD increase in *ln* (sales) increases the probability of being a licensee firm by 13.8% (= 0.063 × 2.19). However, for firms with *CFR DIF* of 13.47% (the median value for pure holding company groups), a 1-SD increase in *ln* (sales) increases the probability of being a licensee firm by 19.7% (= 13.8 + (0.002 × 13.47) × 2.19).

Regarding other business groups, we do not find such an amplifying effect of *CFR DIF* (Column (5)). The coefficients of the interaction terms are statistically insignificant. Additionally, the signs of coefficients are negative. This confirms our prediction that the tunneling incentive is stronger in pure holding company groups that rely heavily on trademark revenue, than in other business groups that do not (**H6**).

In Columns (3) and (6), we find that the coefficient on *ln* (*Sales*) × *CFR DIF* (%) remains almost intact even after adding two additional interaction terms—*ln* (*Sales*) × *RPT Revenue* (%) and *ln* (*Sales*) × *Tax Bracket DIF. RPT Revenue* (%) is defined as the percentage of related-party sales out of the total sales. Note that related-party sales do not include non-operating income, such

as trademark royalties. *Tax Bracket DIF* is defined as the *Tax Bracket* of a member firm minus the *Tax Bracket* of a licensor firm.

The inclusion of *ln* (*Sales*) × *RPT Revenue* (%) is motivated by our conjecture that *RPT Revenue* (%) may dampen the effect of *ln* (*Sales*). In other words, firms with a high fraction of related-party sales have less need to use trademarks, and therefore unlikely to become licensee firms. Also, given the finding in the existing literature that states chaebol firms with high family ownership (i.e., high *CFR*) are more likely to engage in related-party sales (Hwang and Kim, 2016), the omission of this interaction term can cause the coefficient on *ln* (*Sales*) × *CFR DIF* to suffer omitted variable bias. The results in Columns (3) and (6), however, show that the *ln* (*Sales*) × *RPT Revenue* (%) has no explanatory power on the likelihood of becoming a licensee firm.

The inclusion of *ln* (*Sales*) × *Tax Bracket DIF* is to check if our main result regarding *CFR DIF* (%) survives even after controlling for the alternative motive of trademark royalty transactions, that is, the tax saving motive. If the coefficient on *ln* (*Sales*) × *Tax Bracket DIF* is positive, it provides evidence that *Tax Bracket DIF* amplifies the effect of *ln* (*Sales*), that is, member firms facing higher tax brackets become licensee firms and pay trademark royalties so as to reduce the amount of taxable income. However, in Columns (3) and (6), we do not find evidence of this. The coefficients are either insignificant or negative.

Across all specifications, we also control for two variables that typically enter the trademark royalty formula: *RPT Revenue* (%) and *Advertising expenditure* (%). This is based on our conjecture that firms with a high fraction of related-party sales or advertisement expenditure do not need to rely on trademarks, and therefore, are less likely to enter licensing contracts. Contrary to this prediction, however, neither of them shows up as a factor that lowers this likelihood. The

coefficients on *RPT Revenue* (%) and *Advertising expenditure* (%) are either statistically insignificant or positive.

4.4.3. What determines the level of trademark royalty payments?

Next, we investigate the factors that determine the level of trademark royalty payments. Given the practice of setting royalty as a fraction of sales, we expect the level of trademark royalty payments to be higher in firms with a larger sales volume. However, with tunneling, we expect the effect of sales volume to be amplified in firms, wherein the controlling family's cash flow rights are below those in the licensor firms (**H3**). To test this, we run OLS regressions, where we investigate the determinants of trademark royalty payments (*TMR*) computed as *ln* (*TMR*+1). The covariates include *CFR DIF*, *ln* (*Sales*), the interaction between the two, group fixed effects, and others.

Columns (1) to (3) in Table 7 show the results for pure holding company groups. As expected, the coefficients on *ln* (*Sales*) are positive and statistically significant at the 1% level in all specifications. The coefficient on *ln* (*Sales*) in Column (1) suggests that a 1% increase in sales increases the trademark royalty payments by 0.87% on average. Consistent with the tunneling hypothesis, we also find that the level of royalty payments varies with the levels of *CFR DIF*. In Column (2), we find that the coefficient on the interaction term between *ln* (*Sales*) and *CFR DIF* is positive and statistically significant at the 5% level. The coefficients on *ln* (*Sales*) and *ln* (*Sales*) × *CFR DIF* in Column (2) suggest that a 1% increase in sales volume increases royalty payments by 0.64% and 0.86% for member firms with *CFR DIF* equal to 0, and those with *CFR DIF* equal to the median value for pure holding company groups (13.47%) respectively. This is approximately a 34% (=0.22/0.64) increase in the elasticity of royalty payments in respect to sales.

For the same reasons outlined in the previous subsection, in Column (3), we control for two additional interaction terms: *ln* (*Sales*) × *RPT Revenue* (%) and *ln* (*Sales*) × *Tax Bracket DIF.*

RPT Revenue (%). While the coefficient on *ln* (*Sales*) × *RPT Revenue* (%) is statistically insignificant, the coefficient on *ln* (*Sales*) × *Tax Bracket DIF* is positive and statistically significant at the 5% level. The coefficients on *ln* (*Sales*) and *ln* (*Sales*) × *Tax Bracket DIF* in Column (3) suggest that a 1% increase in sales volume increases royalty payments by 0.69% and 0.9% in firms with *Tax Bracket DIF* equal to 0, and in firms with *Tax Bracket DIF* equal to 1, respectively. This is consistent with business groups engaging in trademark royalty transactions as means to save tax payments. Despite the presence of this tax saving motive, we still find evidence of tunneling. The coefficient on *ln* (*Sales*) × *CFR DIF* (%) remains intact despite controlling for *ln* (*Sales*) × *Tax Bracket DIF* (%).

Regarding other business groups, the difference in cash flow rights between the licensor and the licensee firms does not matter in determining trademark royalty payments (Columns (4) to (6)). The coefficients of the interaction terms are smaller and statistically insignificant throughout. This confirms our prediction that pure holding company groups are more inclined toward engaging in tunneling through trademark transactions than other business groups (**H6**).

Lastly, we investigate whether industry effects influence trademark royalty payments. We replace *ln* (TMR+1) with industry-adjusted *ln* (*TMR+1*) and repeat the same analyses. Industry averages are computed using two-digit Korea Standard Industrial Classification (KSIC) codes for manufacturing firms, and KSIC divisions (A~U) for all other industries. Given the large number of manufacturing firms in Korea, we classify firms in the manufacturing sector at a significantly finer level.

Appendix Table A5 shows the results. Adjusting for industry average royalty payments, we find that the coefficient on *ln* (Sales) × *CFR DIF* (%) drop slightly, but remain statistically

significant at the 5~10% level for pure holding company groups (Columns (2) and (3)). Additionally, we do not find significant results for other business groups (Columns (5) and (6)).

4.5.4. The elasticity of shareholder distribution in respect to royalty payments

We then explore the main concern of the outside minority shareholders that hold the shares of the licensee firms—that is, the association of trademark royalty payments by the licensee firms with their distribution to shareholders. As discussed in Section 2, we expect the negative association between royalty payments and dividend payouts (or stock repurchases) to be stronger in firms where the controlling family has higher tunneling incentives, that is, in firms where the cash flow rights of the controlling family are below those in the licensor firms (**H4**).

To test this, we run OLS regressions, where we investigate how dividend payouts (*ln* (Div + 1)) and stock repurchases (*ln* (*Repurchase* + 1)) are associated with trademark royalty payments, *CFR DIF*, interaction between the two, group fixed effects, and other controls, which are considered important in previous studies on Korean firms (Park, Lee, and Lee, 2003; Chay and Suh, 2005; Sul and Jung, 2006). To control for the variation in shareholder distribution policies across different industries, we use industry-adjusted measures of dividend payouts and stock repurchases, where two-digit KSIC codes are used to classify manufacturing industries and KSIC divisions (A-U) for all other industries.

Panel A in Table 8 shows the results for pure holding company groups, where Columns (1) to (3) investigate dividend payouts and Columns (4) to (6) investigate stock repurchases. For licensee firms, wherein the controlling family has cash flow rights that are equal to or greater than those in licensor firms (*CFR DIF* = 0), we find that shareholder distributions do not decrease with the increase in trademark royalty payments. The coefficient on *ln* (*TMR*+1) is insignificant across all specifications (Columns (1)-(6)).

However, for licensee firms, wherein the controlling family has cash flow rights that are below those in licensor firms (*CFR DIF* > 0), we find that shareholder distributions decrease with the increase in trademark royalty payments. The coefficient on the interaction term between *ln* (*TMR*+1) and *CFR DIF* is negative and statistically significant at the 5~10% level. The coefficients in Columns (2) and (5) suggest that a 1% increase in *TMR* decreases dividend payouts by 0.08% (= – 0.006 × 13.47) and share repurchases by 0.09% (= – 0.007 × 13.47) for firms with *CFR DIF* of 13.47% (the median value for pure holding company group firms). In Columns (3) and (6), we include the previous year's distribution to control for the stickiness of the dividend payout policy. Even with this control, the coefficient of interest (*ln* (*TMR*+1) × *CFR DIF*) barely changes.

Regarding other business groups, we do not find evidence that *CFR DIF* strengthens the negative relationship between trademark royalty payments and shareholder distribution (Panel B). The coefficients of the interaction terms are statistically insignificant and have the wrong signs throughout. This confirms our prediction that the results are stronger in pure holding company groups that rely more heavily on trademark royalties than in other business groups that do not (**H6**).

The results for other covariates are consistent with the previous literature on dividend payout. *Sales* and *Foreign Ownership* (%) have positive coefficients, whereas *Leverage* (%) has a negative coefficient. Note that we use *Sales Growth* (%) instead of Tobin's *Q* as a proxy of growth opportunity, as our sample includes a considerable number of privately held firms whose share prices are unavailable.

4.6.5. The elasticity of the market value of a firm in respect to royalty payments

All the aforementioned findings collectively suggest that controlling families are expropriating the minority shareholders of licensee firms through the collection of trademark royalties. If this is the case, the collection of trademark royalties should be associated with the dampened market value

of licensee firms. We, in particular, predict that this is strengthened when the controlling families' cash flow rights are below those in the licensor firms (**H5)**.

To test this, we run OLS regressions in Table 9, where we investigate how the firm's market values (Tobin's *q*) are associated with *ln* (*TMR*+1), *CFR DIF*, interaction between the two, group fixed effects, and others. To control for the variation in Tobin's *q* across different industries, we use industry-adjusted Tobin's *q*, where two-digit KSIC codes are used to classify manufacturing industries and KSIC divisions (A~U) for all other industries.

Also, note that we conduct the test at two different points in time: on a date when market participants did not have full access to the information on trademark royalty payments (Columns (1) and (2)) and on a date when they did (Columns (3) - (4)). This is to ascertain whether investors value licensee firms differently even before the full disclosure of trademark royalty payments. For the first test, we measure firm value as of April 2, 2018, which is immediately after the release of the 2017 annual business reports (i.e., at the end of March 2018), but before the full disclosure of trademark royalty transactions (i.e., at the end of May 2018). For the second test, we measure firm value as of June 1, 2018, which is immediately after the full disclosure of trademark royalty transactions. We measure covariates at two different points in time as well. We use the 2017 year-end covariate measures when regressing for Tobin's *q* as of April 2, 2018 and the 2018 first quarter-end covariate measures when regressing for Tobin's *q* as of June 1, 2018. Regarding, *CFR DIF*, we measure it in the middle of 2017 to better capture the incentive of controlling families at the time royalties are paid. Since the sample includes only publicly traded firms, the sample size is down to 64 for pure business group firms and 55 for other business group firms. It includes listed licensee firms and listed firms outside the licensee contract, but excludes licensor firms.

Panel A in Table 9 shows the results for pure holding company groups. We find that

trademark royalty payments are not associated with the market value of the firm. The coefficients on *ln* (*TMR*+1) are insignificant across all specifications (Columns (1)-(4)). However, we find supporting evidence that investors value licensee firms less as the amount of trademark royalty payments increase in firms, wherein the cash flow rights of the controlling families are below those in the licensor firms. The coefficients on *ln* (*TMR*+1) × *CFR DIF* are negative and statistically significant at the 5~10% level.

Note that we find this pattern even before the full disclosure of royalty payments. The coefficient of -0.424 on the interaction term in Column (2) suggests that a 1% increase in *TMR* is associated with a drop in Tobin's *q* by 5.71% (= – 0.424×13.47) in firms with *CFR DIF* of 13.47% (the median value for pure holding company group firms). There are two possible explanations for this early valuation effect. First, from the income statements of pure holding companies, market participants partially knew whether they were collecting trademark royalties from their member firms even before May 2018.[10] Also, as mentioned earlier, licensor firms had to disclose trademark transactions if annual amount with an individual licensee firm exceeds KRW 5 billion or 5% of their sales. Second, from their sales volume and the cash flow rights controlling families have in each member firms, investors could have guessed the member firms that were paying trademark royalties.

After the full disclosure of royalty payments, we observe that the valuation effect is stronger. When regressing Tobin's *q* as of June 1, 2018, the coefficient on the interaction term between *ln* (*TMR*+1) and *CFR DIF* increases to -0.666, which suggests that a 1% increase in *TMR* is associated

[10] For example, LG (the pure holding company of LG Group) disclosed its trademark royalty revenues from 2004, which is one year after the LG Group completed its transformation into a holding company-controlled group structure.

with a decrease in Tobin's *q* by 8.97% (= – 0.666×13.47) in firms with *CFR DIF* of 13.47% (the median value for pure holding company group firms).

In Panel B, we show the results for other business groups. Before the full disclosure of royalty transactions, we do not find evidence that the payment of trademark royalties is associated with dampened market value of licensee firms (Column (2)). Note that trademark royalty revenues did not appear as a separate reporting item in the income statement of licensor companies in these business groups. However, after the full disclosure, we find evidence of their association with the dampened market value of licensee firms, albeit weak (Column (4)). The coefficient on the interaction terms between *ln* (*TMR*+1) and *CFR DIF* is -0.416, which is marginally significant at the 10% level. This weaker evidence (smaller in magnitude and lower in statistical significance) confirms our prediction that the results will be stronger in pure holding company groups that rely more heavily on trademark revenues than in other business groups that do not (**H6**).

5. Conclusion

Trademark is an important corporate asset. It distinguishes a company from other companies; its reputation influences the decisions of customers, suppliers, employees, and investors. This is also the case for business groups. The trademarked business group name is an important asset to all member firms. However, in the case of business groups, the following two important questions need to be answered. Which member firm should legally own the trademark? How much should this firm charge others for using the trademark?

In this study, we explore the second question and document the risk of trademark royalties being used to benefit controlling families at the expense of outside minority shareholders. Considering business groups in Korea, we find evidence consistent with this tunneling hypothesis.

First, firms are more likely to be licensor firms if the controlling families hold higher cash flow rights. Second, firms are more likely to be licensee firms and subject to higher royalty payments if their controlling family's cash flow rights are below those in the licensor firms (i.e., higher cash flow rights differentials) and if their sales volumes are larger. Third, dividend payouts, stock repurchases, and market values are negatively associated with royalty payments in firms with higher cash flow rights differentials. Finally, these results manifest more significantly in pure holding company groups, where the licensor firms have no business operation of their own and, therefore, rely more heavily on trademark revenue.

Another way of identifying tunneling through trademarks is to use the arm's length principle, that is, comparing the actual royalty rates against those set by two independent parties. This principle, which is widely adopted by tax authorities to regulate transfer pricing, can also be adopted to regulate tunneling through trademarks.[11] As a profit-shifting mechanism, tunneling is no different from transfer pricing. We believe that the methods used to implement the arm's length principle in the context of transfer pricing—comparable-uncontrolled-price method or transactional profit split method—can also be used in the context of tunneling through trademarks.[12] For lack of data, we do not pursue this approach in this study. However, this is worthwhile pursuing in future research.

[11] Some jurisdictions follow the transfer pricing guidance recommended by the OECD Base Erosion and Profit Shifting (BEPS) project.

[12] OECD (2015) regards the comparable-uncontrolled-price method or the transactional profit split method as the most useful arm's length transfer pricing method in matters involving intangibles.

References

Ai, C., & Norton, EC. (2003). Interaction terms in logit and probit models. *Econ Lett, 80*(1), 123–129.

Atanasov, V., Black, B., Ciccotello, C., & Gyoshev, S. (2010). How does law affect finance? An examination of equity tunneling in Bulgaria. *J Financ Econ*, *96*(1), 155–173.

Atanasov, V., Boone, A., & Haushalter, D. (2010). Is there shareholder expropriation in the United States? An analysis of publicly traded subsidiaries. *J Financ Quant Anal*, *45*(1), 1–26.

Bae, K. H., Kang, J. K., & Kim, J. M. (2002). Tunneling or value added? Evidence from mergers by Korean business groups. *J Financ*, *57*(6), 2695–2740.

Baek, J. S., Kang, J. K., & Lee, I. (2006). Business groups and tunneling: Evidence from private securities offerings by Korean chaebols. *J Financ*, *61*(5), 2415–2449.

Black, B. S., Kim, W., Jang, H., & Park, K. S. (2015). How corporate governance affect firm value? Evidence on a self-dealing channel from a natural experiment in Korea. *J Bank Financ*, *51*, 131–150.

Chay, J. B., & Suh, J. (2005). Cross-sectional determinants of dividend payments: International evidence. *Korean J. Financ Stud*, *34*(4), 69–110.

Cheung, Y. L., Rau, P. R., & Stouraitis, A. (2006). Tunneling, propping, and expropriation: evidence from connected party transactions in Hong Kong. *J Financ Econ*, *82*(2), 343–386.

Faccio, M., Lang, L. H., & Young, L. (2001). Dividends and expropriation. *Am Econ Rev*, *91*(1), 54–78.

Hwang, S., & Kim, W. (2016). When heirs become major shareholders: Evidence on pyramiding financed by related-party sales. *J Corp Financ*, *41*, 23–42.

Jiang, G., Lee, C. M., & Yue, H. (2010). Tunneling through intercorporate loans: The China experience. *J Financ Econ*, *98*(1), 1–20.

KFTC (Korea Fair Trade Commission). (2018). Adoption of new disclosure rule mandating large business groups to disclose detailed trademark transactions from this year May. *KFTC press release* (2018. 3. 29.)

Khanna, T., & Yafeh, Y. (2007). Business groups in emerging markets: paragons or parasites? *Journal of Economic literature*, 45(2), 331-372.

Kim, W., Lim, Y., & Sung, T. (2007). Group control motive as a determinant of ownership structure in business conglomerates: Evidence from Korea's chaebols. *Pac-Basin Financ J*, *15*(3), 213-252.

OECD (2015), Aligning Transfer Pricing Outcomes with Value Creation, Actions 8-10-2015 Final Reports, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264241244-en

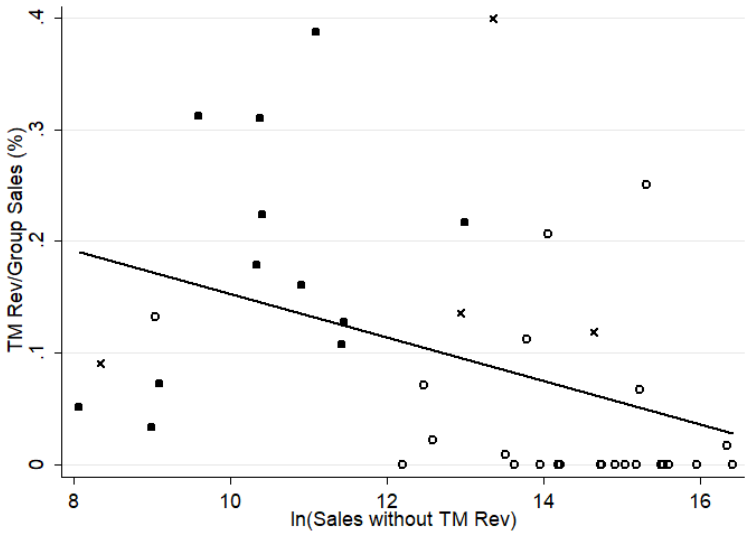
Park, K. S., Lee, E., & Lee, I. (2003). Determinants of dividend policy of Korean firms. *Korean J Financ*, *16*(2), 195–229.

Sul, W., & Kim, S. J. (2006). Impact of foreign investors on firm's dividend policy. *Asia-Pac J Financ Stud*, *35*(1), 1–40.

Figure 1. Relationship between licensor firm sales and its propensity to collect trademark revenue

This figure shows the correlation between the licensor firms' sales without trademark royalty revenue (on the *x*-axis) and trademark revenue/group sales (%) (on the *y*-axis). The "solid square," "x," and "blank circle" symbols stand for pure holding company licensors, business holding company licensors, and non-holding company licensors, respectively. Panel A includes 43 licensor firms belonging to the family-controlled business groups. Note that out of 52 family-controlled business groups, we exclude eight groups that have multiple licensor firms and one outlier (Hankook Technology Group) that has a value of *TMR* revenue/Group Sales higher than 1%. Panel B includes seven licensor firms belonging to the non-family business groups. Note that out of eight non-family business groups, we exclude NongHyup that is exempt from reporting trademark transactions through KFTC.

Panel A. Family-controlled business groups



Panel B. Non-family business groups

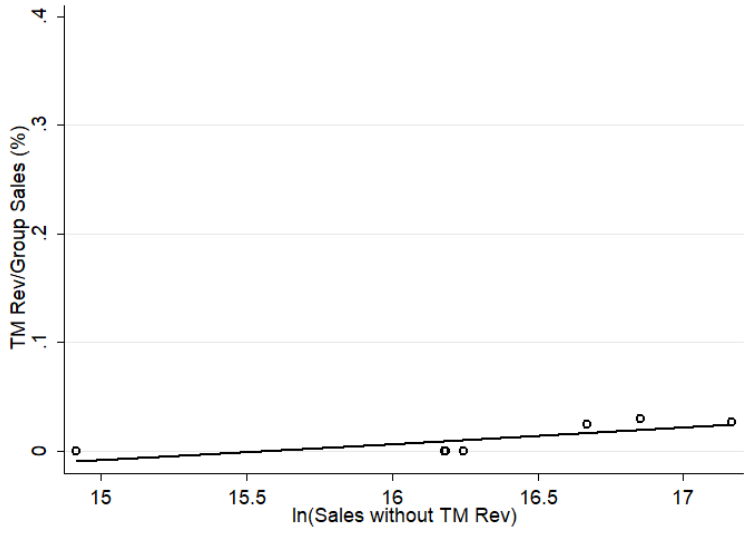


Table 1. Intragroup trademark royalty transactions in 2017

Out of 60 large business groups (combined assets > KRW 5 trillion), designated by KFTC in 2018, 37 made intragroup royalty transactions in 2017. This table lists the names of business groups, their control types, the number and the types of licensor firms, and the numbers of licensee and member firms along with the amounts of trademark royalties collected. Note that there are two types of business groups: *F* (family-controlled business groups) and *NF* (non-family business groups). Additionally, there are three types of licensor firms: *P* (pure holding companies), *B* (business operating holding companies), and *N* (non-holding companies). We exclude firms with no sales or firms with impaired capital. Also, firms with missing financial data are excluded from the sample.

Group Name	Types of Business Group	# of Licensor Firms	Types of Licensor Firms	# of Licensee Firms	# of Member Firms	Trademark Royalties (mil. KRW)
LG	*F*	1	*P*	16	63	276,373
SK	*F*	2	*B, N*	56	90	184,380
Doosan	*F*	3	*B, N*	9	25	137,515
CJ	*F*	1	*P*	18	70	92,075
Hanhwa	*F*	1	*N*	25	58	78,688
Hankook Tire	*F*	1	*P*	1	15	48,715
Halla	*F*	1	*B*	5	15	37,044
Kumho Asiana	*F*	1	*N*	12	27	36,422
Meritz Financial Group	*F*	1	*P*	7	8	29,986
Kolon	*F*	1	*P*	16	32	27,973
Hanjin	*F*	2	*P, N*	4	34	27,643
GS	*F*	1	*B*	23	59	24,686
LS	*F*	1	*P*	12	45	24,103
Lotte	*F*	1	*P*	49	95	24,047
Mirae Asset	*F*	1	*N*	7	31	19,527
Hansol	*F*	1	*P*	16	19	12,786
Samsung	*F*	12	*N*	39	62	9,791
POSCO	*NF*	1	*N*	12	37	9,307
Nexon	*F*	1	*N*	3	23	9,088
Dongwon	*F*	1	*P*	16	29	8,843
Amorepacific	*F*	1	*P*	4	12	6,442
Harim	*F*	2	*P*	8	54	5,378
Hite Jinro	*F*	1	*P*	2	12	4,418
Jungheung	*F*	2	*N*	17	50	3,128
KT	*NF*	1	*N*	22	37	2,478
Seah	*F*	2	*P, N*	8	21	2,294
Hanjin Heavy Industries	*F*	1	*P*	6	8	2,013
Shinsegae	*F*	1	*N*	2	34	1,926
Kakao	*F*	1	*N*	5	58	1,926
Booyoung	*F*	1	*B*	6	20	1,658
HDC	*F*	1	*N*	11	13	1,384
Hyundai Motors	*F*	3	*N*	36	53	1,163
Eugene	*F*	1	*N*	1	51	1,077
SM	*F*	1	*N*	4	52	930
Taeyoung	*F*	1	*N*	4	44	410
S-Oil	*NF*	1	*N*	1	2	80
Taekwang	*F*	1	*N*	1	26	31

Table 2. Summary statistics

This table provides the summary statistics of the covariates used in this study. Panel A provides the statistics for licensor firms, Panel B for member firms (less licensor firms), and Panel C for listed member firms (less licensor firms) from a sample of 13 family-controlled pure holding company groups. We exclude firms with no sales or firms with impaired capital. Also, firms with missing financial data are excluded from the sample.

Panel A. Licensor firms

	N	Mean	SD	Min	Median	Max
CFR (%)	13	49.59	22.68	17.18	49.39	94.57
ln (*Sales* without *TM Rev*)	13	10.41	1.27	8.07	10.41	12.99
Age	13	53.54	24.43	4.00	58.00	84.00
Tax Bracket	13	1.85	0.90	1.00	2.00	3.00
Leverage (%)	13	15.37	16.86	2.78	6.75	58.94
ROE (%)	13	-1.02	11.61	-36.37	0.01	14.12
FCF (%)	13	0.04	6.08	-14.29	0.82	8.37
Sales Growth (%)	13	8.04	26.23	-53.78	5.14	58.24
Foreign Ownership (%)	13	11.51	9.88	0.00	8.66	31.09

Panel B. Member firms (less licensor firms)

	N	Mean	SD	Min	Median	Max
ln (*TMR* + 1)	307	2.83	3.36	0.00	0.00	11.61
Industry-adjusted *TMR*	307	0.00	3.12	-5.70	-0.88	8.15
Industry-adjusted *DIV*	307	0.00	4.09	-5.89	-1.19	9.51
Industry-adjusted *Repurchase*	307	0.00	1.36	-2.60	0.00	10.91
ln (*Sales*)	307	11.70	2.19	1.95	11.50	17.28
CFR (%)	307	30.73	25.09	0.00	21.56	100.00
CFR DIF (%)	307	14.24	12.95	0.00	13.47	66.24
RPT Rev (%)	307	31.50	34.04	0.00	15.54	100.00
Advertising (%)	307	1.33	7.66	0.00	0.02	127.67
Tax Bracket	307	2.01	0.73	1.00	2.00	3.00
Tax Bracket DIF	307	0.25	1.15	-2.00	0.00	2.00
Age	307	20.26	15.98	1.00	16.00	87.00
Leverage (%)	307	49.26	24.36	1.11	50.21	99.97
ROE (%)	307	-0.38	42.35	-267.05	5.26	111.44
FCF (%)	307	10.55	22.18	-96.78	9.04	237.86
Sales Growth (%)	307	23.70	100.01	-63.07	4.41	1142.95
Foreign Ownership (%)	307	2.92	7.88	0.00	0.00	45.68
ln (DIV_{t-1} + 1)	307	3.15	4.28	0.00	0.00	12.82

Panel C. Listed member firms (less licensor firms)

	N	FY 2017				FY 2018 1Q			
		Mean	SD	Min	Max	Mean	SD	Min	Max
Industry-adjusted Tobin's *q* (2018.04.02) (%)	64	0.26	90.78	-124.51	429.70	-	-	-	-
Industry-adjusted Tobin's *q* (2018.06.01) (%)	64	-	-	-	-	0.27	100.93	-133.61	504.59
ln (*TMR* + 1)	64	6.13	3.61	0.00	11.61	-	-	-	-
CFR DIF (%)	64	18.75	10.82	0.00	38.72	-	-	-	-
ln (*Sales*)	64	13.83	1.75	8.92	17.28	12.43	1.82	6.22	15.85
Advertising (%)	64	1.47	3.88	0.00	27.94	1.27	3.88	0.00	29.14
RPT Rev (%)	64	21.73	28.61	0.00	100.00	17.96	24.98	0.00	99.30
Age	64	31.84	21.17	1.00	87.00	32.94	21.17	2.10	88.10
Leverage (%)	64	47.11	18.42	3.75	95.73	47.51	18.31	5.48	96.17
ROE (%)	64	7.74	10.11	-44.35	32.42	2.01	3.40	-7.77	15.16
FCF (%)	64	14.99	12.26	-10.28	59.41	2.51	5.03	-10.93	15.77
Sales Growth (%)	64	4.00	13.17	-18.11	86.58	4.00	13.17	-18.11	86.58
Foreign Ownership (%)	64	13.65	12.27	0.00	45.68	13.68	12.11	0.00	46.35

Table 3. Intragroup trademark royalty transactions by types of business groups

This table reports the revenue structure of licensor firms and the trademark royalties (*TMR*) paid by licensee firms that belong to family-controlled business groups (Panel A) and non-family business groups (Panel B). We also report the revenue structure of licensor firms that do not collect trademark royalties (last column, where *TMR* = 0).

Panel A. Family-controlled business groups

	TMR > 0			*TMR* = 0
	Pure (N=14)	Business (N=4)	Non-holding (N=11)	Non-holding (N=15)
I. Revenue structure of licensor firms				
Sales without *TM Rev* (mil. KRW)	73,625	836,449	2,816,868	3,702,311
$(TM\ Rev/sales) \times 100$	36.60	12.21	3.25	0.00
$(DIV\ Rev/sales) \times 100$	43.05	26.00	4.96	1.02
II. Trademark royalties paid by licensee firms				
$(TM\ Rev/Group\ sales\ ) \times 100$	0.26	0.19	0.09	0.00
Group average of $(TMR/Sales) \times 100$	0.28	0.17	0.22	0.00

Panel B. Non-family business groups

	TMR > 0	*TMR* = 0
	Non-holding (N=3)	Non-holding (N=4)
I. Revenue structure of licensor firms		
Sales without *TM Rev* (mil. KRW)	22,258,202	8,915,606
$(TM\ Rev/sales) \times 100$	0.02	0.00
$(DIV\ Rev/sales) \times 100$	0.46	0.76
II. Trademark royalties paid by licensee firms		
$(TM\ Rev/Group\ sales\ ) \times 100$	0.03	0.00
Group average of $(TMR/Sales) \times 100$	0.05	0.00

Table 4. Determinants of the licensor's propensity to collect trademark royalty

The table reports the results of OLS regressions, where we investigate how the propensities to collect trademark royalties by licensor firms are associated with their sales volume (excluding trademark royalty revenue), average *CFR DIF*, advertising expenditures, and age. Regression in Column (1) uses the full sample of 44 business groups (i.e., group-level analyses sample), whereas regression in Column (3) uses the sample excluding one outlier (Hankook Technology Group) which has a *TM Rev*/*Group Sales* value higher than 1% (mean value = 0.1%). Regressions in Columns (2) and (4) lose three additional observations whose average *CFR DIF* values are missing. The *t*-values, in brackets, are based on standard errors clustered at the group level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
Dependent Var. = *TM Rev*/*Group Sales* (%)	Full Sample		Without Outlier	
ln (*Sales* without *TM Rev*)	-0.031**	-0.033**	-0.021***	-0.020**
	[-2.54]	[-2.44]	[-2.99]	[-2.54]
Average CFR DIF		0.001		0.001
		[0.46]		[1.15]
ln (*Advertising*)		0.013		0.007
		[1.53]		[1.46]
Age		0.003*		0.001
		[1.95]		[1.11]
Constant	Yes	Yes	Yes	Yes
# observations	44	41	43	40
Adjusted R2	0.113	0.156	0.159	0.158

Table 5. Determinants of licensor company choice

This table reports the results of probit regressions, where we investigate the factors that determine the choice of licensor companies. The dependent variable is *Licensor*, which takes a value of 1 if the company is a trademark royalty collecting licensor company and 0 otherwise. The covariates include controlling families' cash flow rights (*CFR*), group fixed effects, and others. We use the firm-level analyses sample of 27 family-controlled business groups with trademark royalty transactions (see Table A1). Note also that sample firms include licensor firms, licensee firms, and firms outside the license agreement. Regressions in Columns (1) to (3) use firms in 13 pure holding company groups, whereas regressions in Columns (4) to (6) use firms in 14 other business groups. The coefficient estimates are average marginal effects on probability. The *z*-values, in brackets, are based on standard errors clustered at the group level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var. = *Licensor*	Pure Holding Company Groups			Other Business Groups		
CFR (%)	0.001***	0.001***	0.001*	0.001***	0.001***	0.002***
	[5.73]	[4.97]	[1.94]	[2.71]	[2.66]	[3.81]
Tax Bracket		-0.007	-0.004		0.040**	0.013
		[-0.34]	[-0.19]		[2.06]	[0.68]
ln (*Sales without TMR Rev*)			-0.002			0.018**
			[-0.81]			[2.52]
Age			0.001***			<0.001
			[7.59]			[0.59]
Leverage (%)			-0.002**			-0.001
			[-2.45]			[-1.53]
ROE (%)			<0.001			>-0.001*
			[0.31]			[-1.95]
FCF (%)			>-0.001			-0.001*
			[-1.53]			[-1.87]
Sales Growth (%)			<0.001			>-0.001
			[1.41]			[-0.01]
Foreign Ownership (%)			0.004***			0.003***
			[4.04]			[3.21]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	320	320	320	336	336	336
Pseudo R^2	0.107	0.109	0.735	0.110	0.162	0.453

Table 6. Determinants of licensee company choice

This table reports the results of linear probability model (LPM) regressions, where we investigate the factors that determine the choice of licensee companies. The dependent variable is *Licensee* which takes a value of 1 if the company is a trademark royalty paying licensee company, and 0 otherwise. The covariates include the difference in controlling families' cash flow rights between the licensor firm and the subject firm (*CFR DIF*), sales volume, the interaction between the two, group fixed effects, and others. We use the firm-level analyses sample of 27 family-controlled business groups with trademark royalty transactions (see Table A1). Note also that sample firms include licensee firms and firms outside the license agreement, but exclude licensor firms. Regressions in Columns (1) to (3) use firms in 13 pure holding company groups, whereas regressions in Column (4) to (6) use firms in 14 other business groups. The *t*-values, in brackets, are based on standard errors clustered at the group level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var. = *Licensee*	Pure Holding Company Groups			Other Business Groups		
ln (*Sales*)	0.088***	0.063***	0.070***	0.107***	0.117***	0.102***
	[5.16]	[3.22]	[3.33]	[5.99]	[6.75]	[7.45]
ln (*Sales*) × *CFR DIF* (%)		0.002***	0.002**		-0.001	-0.001
		[3.15]	[3.04]		[-1.46]	[-1.69]
ln (*Sales*) × *RPT Rev* (%)			>-0.001			<0.001
			[-0.35]			[0.34]
ln (*Sales*) × *Tax Bracket DIF*			0.017			-0.025***
			[1.58]			[-4.00]
CFR DIF (%)	-0.002	-0.022**	-0.020**	-0.005**	<0.001	0.002
	[-1.12]	[-2.87]	[-2.63]	[-2.17]	[0.08]	[0.37]
RPT Rev (%)	<0.001	<0.001	0.001	0.001	0.001	>-0.001
	[0.21]	[0.38]	[0.40]	[0.91]	[0.84]	[-0.01]
Advertising (%)	-0.001	-0.002	-0.002	0.004*	0.004*	0.005**
	[-0.72]	[-1.40]	[-1.19]	[1.86]	[1.89]	[2.40]
Tax Bracket DIF	-0.033	-0.029	-0.241	-0.011	-0.013	0.284***
	[-1.17]	[-1.03]	[-1.76]	[-0.20]	[-0.22]	[3.13]
Age	-0.002*	-0.002*	-0.002*	0.001	0.001	0.001
	[-1.97]	[-1.87]	[-2.12]	[0.62]	[0.61]	[0.65]
Leverage (%)	>-0.001	<0.001	<0.001	-0.001	-0.001	-0.001
	[-0.27]	[0.08]	[0.13]	[-1.31]	[-1.31]	[-1.01]
ROE (%)	<0.001	<0.001	0.001	>-0.001	>-0.001	>-0.001
	[0.93]	[0.87]	[1.05]	[-0.20]	[-0.07]	[-0.11]
FCF (%)	-0.001	-0.001	-0.001	<0.001	<0.001	<0.001
	[-0.83]	[-0.83]	[-0.68]	[0.11]	[0.10]	[0.14]
Sales Growth (%)	>-0.001	<0.001	>-0.001	>-0.001	>-0.001	>-0.001
	[-0.13]	[0.04]	[-0.19]	[-0.82]	[-0.88]	[-0.85]
Foreign Ownership (%)	0.010***	0.008***	0.008***	<0.001	0.001	0.002
	[4.23]	[3.98]	[3.98]	[0.14]	[0.34]	[0.72]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	307	307	307	322	322	322
Adjusted R^2	0.302	0.309	0.310	0.411	0.411	0.413

Table 7. Determinants of trademark royalty payments

This table reports the results of *OLS* regressions, where we investigate the determinants of trademark royalty payments, measured by *ln* (*TMR*+1). The covariates include *CFR DIF*, sales volume, the interaction between the two, group fixed effects, and others. We use the firm-level analyses sample of 27 family-controlled business groups with trademark royalty transactions (see Table A1). Note also that sample firms include licensee firms and firms outside the license agreement, but exclude licensor firms. Regressions in Columns (1) to (3) use firms in 13 pure holding company groups, whereas regressions in Columns (4) to (6) use firms in 14 other business groups. The *t*-values, in brackets, are based on standard errors clustered at the group level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var. = *ln* (*TMR* + 1)	Pure Holding Company Groups			Other Business Groups		
ln (*Sales*)	0.865***	0.640***	0.694***	1.000***	1.005***	0.974***
	[6.53]	[3.67]	[5.19]	[7.86]	[6.66]	[6.14]
ln (*Sales*) × *CFR DIF* (%)		0.016**	0.013***		>-0.001	>-0.001
		[2.95]	[3.46]		[-0.08]	[-0.14]
ln (*Sales*) × *RPT Rev* (%)			>-0.001			<0.001
			[-0.02]			[0.34]
ln (*Sales*) × *Tax Bracket DIF*			0.205**			-0.041
			[2.83]			[-0.59]
CFR DIF (%)	-0.004	-0.185**	-0.152***	-0.019	-0.016	-0.014
	[-0.34]	[-2.91]	[-3.26]	[-1.33]	[-0.44]	[-0.37]
RPT Rev (%)	-0.003	-0.002	>-0.001	0.002	0.001	-0.003
	[-1.48]	[-1.04]	[-0.01]	[0.28]	[0.28]	[-0.22]
Advertising (%)	0.025**	0.014	0.019**	0.043**	0.044**	0.046**
	[2.81]	[1.34]	[2.64]	[2.98]	[2.62]	[2.80]
Tax Bracket DIF	0.060	0.088	-2.510**	-0.085	-0.085	0.413
	[0.33]	[0.49]	[-2.85]	[-0.24]	[-0.24]	[0.57]
Age	-0.009	-0.008	-0.010	<0.001	<0.001	0.001
	[-1.35]	[-1.26]	[-1.77]	[0.03]	[0.02]	[0.07]
Leverage (%)	0.001	0.004	0.005	-0.002	-0.002	-0.001
	[0.09]	[0.80]	[0.91]	[-0.38]	[-0.38]	[-0.26]
ROE (%)	-0.002	-0.003	-0.001	-0.001	-0.001	-0.001
	[-0.52]	[-0.52]	[-0.30]	[-0.25]	[-0.23]	[-0.25]
FCF (%)	-0.004	-0.004	-0.002	-0.005	-0.005	-0.005
	[-1.05]	[-1.13]	[-0.63]	[-0.69]	[-0.69]	[-0.67]
Sales Growth (%)	0.001	0.001	0.001	-0.001*	-0.001*	-0.001*
	[0.79]	[1.20]	[0.56]	[-1.87]	[-1.89]	[-1.92]
Foreign Ownership (%)	0.105***	0.089***	0.083***	0.050**	0.051**	0.052**
	[5.94]	[6.21]	[5.42]	[2.83]	[2.74]	[2.86]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	307	307	307	322	322	322
Adjusted R^2	0.532	0.547	0.565	0.574	0.573	0.570

Table 8. The elasticity of shareholder distribution in respect to trademark royalty payments

This table reports the results of *OLS* regressions, where we investigate how dividend payouts (*ln* (*DIV* + 1)) and share repurchases (*ln* (*Repurchase* + 1) are associated with trademark royalty payments, *CFR DIF*, the interaction between the two, group fixed effects, and others. We use industry-adjusted measures for dividend payouts and share repurchases, where we use two-digits KSIC codes to classify manufacturing industries and KSIC divisions (A~U) to classify all other industries. We use the firm-level analyses sample of 27 family-controlled business groups with trademark royalty transactions (see Table A1). Note also that sample firms include licensee firms and firms outside the license agreement, but not licensor firms. Panel A uses firms belonging to 13 pure holding company groups, whereas Panel B uses firms belonging to 14 other business groups. The *t*-values, in brackets, are based on standard errors clustered at the group level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Pure holding company groups

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var.	Industry-adjusted *ln* (*DIV* + 1)			Industry-adjusted *ln* (*Repurchase* + 1)		
ln (*TMR* + 1)	0.066	0.158**	0.139*	-0.039	0.068	0.068
	[0.91]	[2.80]	[1.97]	[-0.73]	[1.36]	[1.36]
ln (*TMR* + 1) × *CFR DIF*		-0.006**	-0.005*		-0.007**	-0.007**
		[-2.38]	[-1.97]		[-2.32]	[-2.31]
CFR DIF	-0.023**	-0.008	-0.010	-0.002	0.015	0.015
	[-2.48]	[-0.62]	[-0.92]	[-0.33]	[1.77]	[1.78]
ln (*Sales*)	0.649***	0.653***	0.207*	0.060	0.066	0.065
	[4.76]	[4.76]	[2.18]	[0.86]	[0.91]	[0.89]
RPT Rev (%)	-0.009	-0.009	-0.003	<0.001	<0.001	<0.001
	[-1.22]	[-1.23]	[-0.56]	[0.38]	[0.31]	[0.33]
Advertising (%)	0.008	0.010	0.002	-0.001	0.001	0.001
	[0.69]	[0.83]	[0.21]	[-0.18]	[0.18]	[0.18]
Age	0.012	0.011	0.006	0.007	0.006	0.006
	[0.55]	[0.54]	[0.36]	[0.80]	[0.75]	[0.71]
Leverage (%)	-0.025**	-0.026***	-0.008	-0.001	-0.002	-0.002
	[-2.96]	[-3.11]	[-0.88]	[-0.46]	[-0.95]	[-0.95]
ROE (%)	0.003	0.004	0.003	0.002**	0.002***	0.002***
	[1.19]	[1.24]	[1.70]	[2.68]	[3.34]	[3.28]
FCF (%)	0.015	0.014	0.006	-0.006*	-0.006*	-0.006*
	[1.15]	[1.11]	[0.76]	[-1.87]	[-1.92]	[-1.95]
Sales Growth (%)	-0.001	-0.001	<0.001	<0.001	<0.001	<0.001
	[-0.64]	[-0.68]	[0.36]	[1.56]	[1.27]	[1.27]
Foreign Ownership (%)	0.127***	0.136***	0.049**	0.039**	0.049**	0.049**
	[5.27]	[5.03]	[2.39]	[2.28]	[2.36]	[2.38]
ln (DIV_{t-1} + 1)			0.592***			
			[19.58]			
ln ($Repurchase_{t-1}$ + 1)						0.016
						[0.42]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	307	307	307	307	307	307
Adjusted R^2	0.347	0.348	0.578	0.014	0.048	0.044

Panel B. Other business groups

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var.	Industry-adjusted *ln* (*DIV* + 1)			Industry-adjusted *ln* (*Repurchase* + 1)		
ln (*TMR* + 1)	0.024	0.009	-0.035	0.013	-0.007	0.018
	[0.28]	[0.07]	[-0.34]	[0.16]	[-0.08]	[0.24]
ln (*TMR* + 1) x *CFR DIF*		0.001	0.003		0.001	>-0.001
		[0.24]	[1.23]		[0.63]	[-0.29]
CFR DIF	-0.015	-0.017	0.008	-0.001	-0.003	-0.005
	[-1.18]	[-1.31]	[0.81]	[-0.26]	[-0.57]	[-1.36]
ln (*Sales*)	0.366***	0.365***	0.087	0.048	0.046	0.046
	[4.13]	[4.17]	[0.97]	[0.59]	[0.57]	[1.16]
RPT Rev (%)	0.004	0.004	0.011**	-0.004	-0.004	-0.003*
	[0.81]	[0.82]	[2.87]	[-1.63]	[-1.56]	[-1.89]
Advertising (%)	0.010	0.009	0.021*	0.019	0.018	0.016
	[0.61]	[0.56]	[2.06]	[1.08]	[1.03]	[1.13]
Age	0.040***	0.040***	0.033**	0.006	0.006	-0.002
	[3.41]	[3.40]	[2.62]	[0.51]	[0.52]	[-0.33]
Leverage (%)	-0.025***	-0.025***	-0.007	<0.001	<0.001	<0.001
	[-3.61]	[-3.64]	[-1.00]	[0.18]	[0.16]	[0.02]
ROE (%)	0.006*	0.006	0.001	0.001	0.001	>-0.001
	[1.97]	[1.71]	[0.49]	[0.41]	[0.28]	[-0.18]
FCF (%)	-0.006	-0.005	<0.001	-0.009**	-0.009*	-0.008**
	[-0.48]	[-0.41]	[0.05]	[-2.22]	[-2.07]	[-2.17]
Sales Growth (%)	-0.002***	-0.002***	-0.001*	>-0.001	>-0.001*	>-0.001*
	[-3.65]	[-3.57]	[-2.04]	[-1.71]	[-1.84]	[-2.10]
Foreign Ownership (%)	0.151***	0.149***	0.057***	0.050	0.048	0.022
	[7.84]	[7.00]	[4.01]	[1.35]	[1.26]	[1.27]
ln (DIV_{t-1} + 1)			0.582***			
			[21.95]			
ln ($Repurchase_{t-1}$ + 1)						0.600***
						[5.82]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	322	322	322	322	322	322
Adjusted R^2	0.283	0.281	0.548	0.026	0.024	0.291

Table 9. The elasticity of a firm's market value in respect to trademark royalty payments

This table reports the results of OLS regressions, where we investigate how a firm's market value (Tobin's *q*) prior to the full disclosure of trademark royalty payments (Columns (1)-(2)) and immediately after the disclosure (Columns (3)-(4)) are associated with trademark royalty payments, *CFR DIF*, interaction between the two, group fixed effects, and others. *CFR DIF* is based on the ownership structure in 2017 (to be exact, May of 2017 for groups above KRW 10 trillion and September of 2017 for groups between KRW 5~10 trillion). Regarding all other covariates, we use the 2017 year-end measures when regressing for Tobin's *q* measured as of April 2, 2018 and the 2018 first quarter-end measures when regressing for Tobin's *q* measured as of June 1, 2018. When computing industry-adjusted Tobin's *q*, we use two-digits KSIC codes to classify manufacturing industries and KSIC divisions (A~U) to classify all other industries. We use the firm-level analyses sample of 27 family-controlled business groups with trademark royalty transactions (see Table A1). Note also that sample firms include licensee firms and firms outside the license agreement, but not licensor firms. Panel A uses firms belonging to 13 pure holding company groups, whereas Panel B uses firms belonging to 14 other business groups. The *t*-values, in brackets, are based on standard errors clustered at the group level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Pure holding company groups

	(1)	(2)	(3)	(4)
Dependent Var.	Industry-adjusted Tobin's *q* (2018.04.02)		Industry-adjusted Tobin's *q* (2018.06.01)	
ln (*TMR*+1)	-2.811	3.262	-2.978	7.583
	[-0.76]	[1.14]	[-0.55]	[1.00]
ln (*TMR*+1) × *CFR DIF*		-0.424*		-0.666**
		[-1.89]		[-2.51]
CFR DIF	-1.366	1.285	-1.777	2.425
	[-1.20]	[0.64]	[-1.29]	[1.41]
ln (*Sales*)	-0.218	1.612	3.160	4.451
	[-0.04]	[0.33]	[0.42]	[0.72]
RPT Rev (%)	-0.193	-0.234	0.026	0.092
	[-0.44]	[-0.55]	[0.05]	[0.16]
Advertising (%)	1.034	1.196	4.150***	3.702**
	[0.90]	[0.97]	[3.45]	[2.96]
Age	0.576	0.433	0.803	0.659
	[1.29]	[0.93]	[1.05]	[0.88]
Leverage (%)	-0.109	0.097	0.352	0.468
	[-0.17]	[0.13]	[0.49]	[0.61]
ROE (%)	1.974	1.812	2.245	2.791
	[0.93]	[0.81]	[0.47]	[0.65]
FCF (%)	-1.748*	-1.436	-0.946	1.361
	[-1.98]	[-1.29]	[-0.31]	[0.39]
Sales Growth (%)	4.958***	4.686***	5.649***	5.147***
	[8.34]	[8.48]	[10.14]	[14.48]
Foreign Ownership (%)	0.955	1.256	0.422	0.823
	[0.74]	[1.40]	[0.32]	[0.80]
Constant	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes
# observations	64	64	64	64
Adjusted R^2	0.420	0.434	0.356	0.390

Panel B. Other business groups

Dependent Var.	(1)	(2)	(3)	(4)
	Industry-adjusted Tobin's *q* (2018.04.02)		Industry-adjusted Tobin's *q* (2018.06.01)	
ln (*TMR*+1)	-4.553	-0.727	-6.201	1.055
	[-0.57]	[-0.09]	[-0.77]	[0.17]
ln (*TMR*+1) × *CFR DIF*		-0.207		-0.416*
		[-1.05]		[-1.81]
CFR DIF	-1.335***	-0.654	-0.278	1.126
	[-3.99]	[-0.78]	[-0.40]	[0.74]
ln (*Sales*)	-3.017	-4.836	-2.768	-5.045
	[-0.31]	[-0.53]	[-0.32]	[-0.64]
RPT Rev (%)	-0.152	-0.076	-0.386	-0.279
	[-0.47]	[-0.22]	[-0.99]	[-0.69]
Advertising (%)	-1.178	-1.042	3.864	5.106
	[-0.50]	[-0.39]	[0.99]	[1.03]
Age	0.083	0.208	-0.269	-0.162
	[0.11]	[0.29]	[-0.41]	[-0.27]
Leverage (%)	0.088	0.148	0.588	0.782
	[0.28]	[0.50]	[1.17]	[1.36]
ROE (%)	0.459	0.535	5.826	6.568
	[0.90]	[0.99]	[1.68]	[1.53]
FCF (%)	0.951	0.804	3.560*	3.883**
	[1.25]	[1.08]	[2.18]	[2.38]
Sales Growth (%)	2.044	2.072	0.887	0.804
	[1.21]	[1.21]	[0.59]	[0.54]
Foreign Ownership (%)	-1.536*	-1.021	-1.917	-1.048
	[-1.87]	[-1.20]	[-1.35]	[-0.63]
Constant	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes
# observations	55	55	55	55
Adjusted R^2	0.162	0.158	0.231	0.294

Appendix

Table A1. Composition of sample business groups

Panel A shows the composition of 60 business groups (combined assets > KRW 5 trillion), designated by KFTC in 2018. Panel B shows the composition of 51 business groups used in our group-level analyses. Panel C shows the composition of 27 business groups used in our firm-level analyses.

Panel A. Composition of full sample

	$TMR > 0$			$TMR = 0$				Sum
	Single Licensor	Multiple Licensors	Missing Ownership in 2017	Single Licensor	Multiple Licensors	Missing Ownership in 2017	Disclosure Exempt	
Family-controlled	27	5	2	14	3	1	-	52
Not family-controlled	3	-	-	3	-	1	1	8
Sum	37			23				60

Panel B. Group-level analyses sample

	$TMR > 0$		$TMR = 0$		Sum
	Single Licensor	Missing Ownership in 2017	Single Licensor	Missing Ownership in 2017	
Family-controlled	27	2	14	1	44
Not family-controlled	3	-	3	1	7
Sum	32		19		51

Panel C. Firm-level analyses sample

	Single Licensor			Sum
	Pure holding company groups	Business-operating company groups	Non-holding company groups	
Family-controlled	13	4	10	27

Table A2. Tax savings through intragroup trademark royalty transactions

This table shows how much tax business groups saved or dissaved through trademark royalty transactions in 2017 for 27 family-controlled business groups in our sample. Regarding licensor firms, we compute the increase in tax liability by (royalty revenue × marginal tax rate) or [(EBT *after* royalty revenue – lower end figure in the tax bracket) × marginal tax rate *after* royalty revenue + (upper end figure in the tax bracket – EBT *before* royalty revenue) × marginal tax rate *before* royalty revenue]. We apply the former if licensor firms stay in the same tax bracket and the latter if they moved to a higher tax bracket. Regarding licensee firms, we compute the fall in tax liability by (royalty payment × marginal tax rate) or [(EBT *before* royalty payment – lower end figure in the tax bracket) × marginal tax rate *before* royalty payment + (upper end figure in the tax bracket – EBT *after* royalty payment) × marginal tax rate *after* royalty payment]. We apply the former if licensee firms stay in the same tax bracket and the latter if they moved to a lower tax bracket. Note that there are three types of licensor firms: *P* (pure holding companies), *B* (business holding companies), and *N* (non-holding companies). We exclude firms with no sales or firms with impaired capital. Also, firms with missing financial data are excluded from the sample.

Group Name	Type	Changes in Tax Liabilities (mil. KRW)		
		Licensee (A)	Licensor (B)	(A) + (B)
CJ	*P*	-16,802	12,096	-4,706
Lotte	*P*	-4,297	0	-4,297
Kolon	*P*	-5,652	1,891	-3,761
Hansol	*P*	-2,472	0	-2,472
Dongwon	*P*	-1,904	785	-1,119
Harim	*P*	-792	190	-602
Kumho Asiana	*N*	-2,779	2,359	-420
Hankook Tire	*P*	-10,717	10,379	-338
HDC	*N*	-338	0	-338
Hite Jinro	*P*	-962	884	-78
Booyoung	*B*	-41	0	-41
Taeyoung	*N*	-7	7	0
Taekwang	*N*	-80	80	0
SM	*N*	-204	205	1
Mirae Asset	*N*	-2,152	2,154	3
Amorepacific	*P*	-1,410	1,417	7
Kakao	*N*	-289	297	8
Hanjin	*P*	-6,069	6,080	11
LG	*P*	-60,748	60,802	54
Shinsegae	*N*	-340	424	84
LS	*P*	-5,147	5,303	156
Hanjin Heavy Industries	*P*	-34	403	368
Nexon	*N*	-1	688	687
SK	*B*	-39,234	40,384	1,150
GS	*B*	-15,098	17,296	2,198
Hanhwa	*N*	-26,304	30,253	3,950
Halla	*B*	-427	5,431	5,004
Total		-204,300	199,808	-4,491

Table A3. Definition of variables

Name	Definition
Licensor	1 if a firm owns trademark and collects royalties from licensee firms, 0 otherwise
Licensee	1 if a firm pays trademark royalties to licensor firms, 0 otherwise.
Member Firms	Firms that are included as a member firm of a group in the latest fiscal year (KFTC standards)
TM Rev	Licensor firm's trademark royalty revenue (in million KRW)
DIV Rev	Licensor firm's dividend income (in million KRW)
Group Sales	Sales, aggregated across all member firms (excluding licensor firms), within a group (in million KRW)
TMR	Trademark royalty payments by a licensee firm. We use annualized royalty figures if the licensing contract period is less than a year (in million KRW)
Sales	Sales (in million KRW)
Average CFR DIF (%)	Cash flow rights (CFR), averaged across all member firms (excluding licensor firms), within a group, expressed in percentage terms.
CFR (%)	Sum of direct and indirect shareholdings a controlling family has in subject firms along the control chains, expressed in percentage terms. Computed following the method in Kim, Lim, and Sung (2007). It is based on the ownership structure as of 2017 (May for groups above KRW 10 trillion and September for groups between KRW 5-10 trillion). We also consider control chains that go through overseas subsidiaries.
Tax Bracket	Takes an integer value from 1 to 3, where 3 indicates the highest tax bracket. Three tax brackets include (i) EBT $\leq$ KRW 200 million, (ii) KRW 200 million $<$EBT $\leq$ KRW 20 billion, and (iii) EBT $>$ KRW 20 billion.
CFR DIF (%)	Max[*CFR* in licensor firm $-$ *CFR* in member firm, 0] $\times$ 100.
Tax Bracket DIF	[*Tax Bracket* of member firm – *Tax Bracket* of licensor firm]
DIV	Cash dividend payout (in million KRW)
Repurchase	Amount of stock repurchase (in million KRW)
Tobin's q (%)	[(Market value of common equity + book value of debt)/ book value of assets] $\times$ 100
RPT Rev (%)	Related-party transaction (RPT) revenue over *Sales*. Related party transaction revenue includes only sales of goods and services, but not non-operating income.
Advertising	Advertising expense (in million KRW)
Advertising (%)	(Advertising expense / *Sales*) $\times$ 100
Age	2018 – year of establishment.
Leverage (%)	(Debt/Assets) $\times$ 100
ROE (%)	(Net income/Book equity) $\times$ 100 (winsorized at the upper and the lower 1 percentile values)
FCF (%)	[(Operating cash flows – Investment cash flows)/Assets] $\times$ 100
Sales Growth (%)	Five-year geometric average of annual sales growth expressed in percentage terms. We use less than five-years if data is missing (winsorized at the upper and the lower 1 percentile values)
Foreign Ownership (%)	Percentage of common shares held by foreigners.

Table A4. Summary statistics

This table provides the summary statistics of the covariates used in our firm-level analyses. Panel A provides the statistics for licensor firms, Panel B for member firms (less licensor firms), and Panel C for listed member firms (less licensor firms) from a sample of 14 family-controlled business-operating holding company groups. We exclude firms with no sales or firms with impaired capital. Also, firms with no financial data are excluded from the sample.

Panel A. Licensor firms

	N	Mean	SD	Min	Median	Max
CFR (%)	14	49.86	32.63	8.16	37.93	100.00
ln (*Sales* without *TM Rev*)	14	13.37	2.30	8.34	13.65	16.34
Age	14	29.64	18.85	6.00	24.50	67.00
Tax Bracket	14	2.50	0.85	1.00	3.00	3.00
Leverage (%)	14	44.18	22.18	9.52	41.46	93.33
ROE (%)	14	7.28	11.51	-11.03	5.99	32.31
FCF (%)	14	6.50	8.18	-13.08	7.62	19.88
Sales Growth (%)	14	22.83	90.50	-57.61	2.82	308.46
Foreign Ownership (%)	14	14.58	17.17	0.00	7.46	48.68

Panel B. Member firms (less licensor firms)

	N	Mean	SD	Min	Median	Max
ln (*TMR* + 1)	322	2.66	3.37	0.00	0.00	10.79
Industry-adjusted *TMR*	322	0.00	3.04	-7.71	-0.92	8.04
Industry-adjusted *DIV*	322	0.00	4.09	-7.75	-2.00	11.32
Industry-adjusted *Repurchase*	322	0.00	1.88	-3.38	-0.10	10.45
ln (*Sales*)	322	11.65	2.05	6.32	11.51	17.21
CFR (%)	322	31.45	28.07	0.00	20.82	100.00
CFR DIF (%)	322	16.44	19.99	0.00	12.60	100.00
RPT Rev (%)	322	25.53	32.87	0.00	6.71	100.00
Advertising (%)	322	0.90	5.40	0.00	0.04	91.32
Tax Bracket	322	2.12	0.72	1.00	2.00	3.00
Tax Bracket DIF	322	-0.60	0.87	-2.00	-1.00	2.00
Age	322	19.51	15.66	1.00	15.50	71.00
Leverage (%)	322	49.48	25.34	0.26	52.03	99.86
ROE (%)	322	4.26	42.13	-267.05	8.05	111.44
FCF (%)	322	12.93	21.80	-97.95	10.26	100.23
Sales Growth (%)	322	59.70	191.45	-65.24	7.39	1142.95
Foreign Ownership (%)	322	1.82	6.27	0.00	0.00	47.53
ln (DIV_{t-1} + 1)	322	2.88	4.29	0.00	0.00	13.36

Panel C. Listed member firms (less licensor firms)

	N	FY 2017				1Q FY2018			
		Mean	SD	Min	Max	Mean	SD	Min	Max
Industry-adjusted Tobin's q (2018.04.02) (%)	55	-5.57	60.00	-114.79	215.99	.	.	.	.
Industry-adjusted Tobin's q (2018.06.01) (%)	55	.	.	.	.	-6.27	61.79	-122.02	198.03
ln (*TMR* + 1)	55	5.16	3.94	0.00	10.79	.	.	.	.
CFR DIF (%)	55	21.70	19.24	0.00	100.00	.	.	.	.
ln (*Sales*)	55	13.72	1.82	9.17	17.21	12.28	1.88	7.63	15.98
Advertising (%)	55	0.50	1.58	0.00	11.42	0.33	0.80	0.00	5.53
RPT Rev (%)	55	21.11	25.72	0.00	98.58	17.54	21.10	0.00	71.74
Age	55	38.13	17.99	3.00	71.00	39.23	17.99	4.10	72.10
Leverage (%)	55	2.18	14.17	-59.27	43.52	2.18	14.17	-59.27	43.52
ROE (%)	55	9.72	12.17	-23.41	56.19	1.97	4.62	-7.49	16.62
FCF (%)	55	50.26	25.56	0.26	94.36	50.27	25.95	0.22	94.55
Sales Growth (%)	55	8.16	16.65	-21.48	96.78	2.24	2.31	-0.84	11.16
Foreign Ownership (%)	55	10.57	11.80	0.00	47.53	10.79	11.56	0.00	49.87

Table A5. Determinants of trademark royalty payments (industry-adjusted *TMR*)

This table reports the results of OLS regressions, where we investigate the determinants of trademark royalty payments, measured by industry-adjusted *ln* (*TMR*+1). We use two-digit KSIC codes to classify manufacturing industries and KSIC divisions (A~U) to classify all other industries. The covariates include *CFR DIF*, sales volume, the interaction between the two, group fixed effects, and others. We use the firm-level analyses sample of 27 family-controlled business groups with trademark royalty transactions (see Table A1). Note also that sample firms include licensee firms and firms outside the license agreement, but exclude licensor firms. Regressions in Columns (1) to (3) use firms in 13 pure holding company groups, whereas regressions in Columns (4) to (6) use firms in 14 other business groups. The *t*-values, in brackets, are based on standard errors clustered at the group level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Var.	(1)	(2)	(3)	(4)	(5)	(6)
= industry adjusted *TMR*	Pure Holding Company Groups			Other Business Groups		
ln (*Sales*)	0.690***	0.530**	0.613***	0.778***	0.784***	0.785***
	[5.36]	[3.02]	[4.63]	[6.78]	[5.40]	[5.79]
ln (*Sales*) × *CFR DIF* (%)		0.011*	0.009**		>-0.001	>-0.001
		[2.18]	[2.47]		[-0.09]	[-0.11]
ln (*Sales*) × *RPT Rev* (%)			-0.002			-0.002
			[-1.02]			[-1.58]
ln (*Sales*) × *Tax Bracket DIF*			0.203**			-0.095
			[2.94]			[-1.16]
CFR DIF (%)	-0.003	-0.130*	-0.101*	-0.016	-0.012	-0.010
	[-0.20]	[-2.14]	[-2.17]	[-1.13]	[-0.30]	[-0.26]
RPT Rev (%)	-0.001	>-0.001	0.018	0.002	0.002	0.028
	[-0.20]	[-0.04]	[1.07]	[0.44]	[0.44]	[1.36]
Advertising (%)	0.026***	0.018*	0.024***	0.057**	0.057**	0.062**
	[3.17]	[1.81]	[3.58]	[2.97]	[2.63]	[2.99]
Tax Bracket DIF	0.070	0.089	-2.481***	-0.167	-0.168	0.969
	[0.33]	[0.43]	[-3.11]	[-0.51]	[-0.52]	[0.96]
Age	-0.004	-0.004	-0.006	0.006	0.006	0.004
	[-0.57]	[-0.53]	[-0.88]	[0.56]	[0.56]	[0.41]
Leverage (%)	0.002	0.005	0.006	0.002	0.002	0.003
	[0.33]	[0.76]	[0.91]	[0.50]	[0.50]	[0.74]
ROE (%)	0.001	<0.001	0.002	0.002	0.002	0.002
	[0.13]	[0.10]	[0.43]	[0.52]	[0.53]	[0.52]
FCF (%)	-0.004	-0.004	-0.002	-0.001	-0.001	-0.001
	[-1.35]	[-1.44]	[-0.54]	[-0.08]	[-0.08]	[-0.12]
Sales Growth (%)	0.002**	0.002**	0.001	-0.001*	-0.001*	-0.001*
	[2.32]	[2.70]	[1.60]	[-2.00]	[-2.00]	[-2.09]
Foreign Ownership (%)	0.098***	0.086***	0.079***	0.069***	0.069**	0.073***
	[5.11]	[5.16]	[5.38]	[3.08]	[3.01]	[3.53]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	307	307	307	322	322	322
Adjusted R^2	0.423	0.430	0.451	0.425	0.423	0.424