

Tunneling Through Group Trademarks*

Sojung Kim[†] and Woochan Kim[‡]

First Draft: August 2019
This Draft: November 2019

Abstract

This study documents how group trademarks, comprising the business group's name and logo, can be used for the benefit of controlling families at the expense of outside minority shareholders. Using a sample of business groups in Korea, we find evidence consistent with this hypothesis. 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 rates if their sales volume is larger and the controlling family's cash flow rights in such firms are further below those in the licensor firms. Third, dividend payouts and market value of licensee firms are negatively associated with their royalty payments if the controlling family's cash flow rights in such firms are far below those in the licensor firms. Lastly, these results show up more strongly in pure holding company groups, where the licensor firms have no business operation of their own and, thus, rely more heavily on trademark revenue.

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

* This work was supported by Korea University Business School, the Asian Institute of Corporate Governance (AICG), the Ministry of Education of the Republic of Korea, and the 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

1. Introduction

A trademark is a type of intellectual property comprising a recognizable word, phrase, symbol, and/or design that distinguishes 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 entering into a licensing agreement with another party (the licensee), the trademark owner (the licensor) can receive royalties in return for allowing the other party to commercially use the trademark.

However, if the licensor and the licensee are related parties, the agreement may not be a result of arm's length negotiation. It is possible for one member to influence another with respect to the pricing of royalty rates. They could agree upon a rate that is different from the one that would have been agreed 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 group trademarks, comprising the business group's name and logo, are used to benefit controlling family members at the expense of outside minority shareholders.

Our study is motivated by the emergence of holding company business groups in Korea. This is a group structure, wherein a family controls the entire group mainly through a holding company, whose main business is to control other member firms. Since its legalization in 1999, it

gradually became the dominant form of business groups in Korea.¹ According to the Korea Fair Trade Commission (KFTC), there are 173 holding company business groups, among which 29 have group asset size above KRW 5 trillion (approximately USD 5 billion) as of the end of September 2018. What motivates this study is that group trademark royalties are collected predominantly by the licensor firms in these holding company business groups. Out of KRW 1,143 billion collected by the licensor firms in 34 sample groups of this study, KRW 882 billion (77.1%) is collected by those in holding company business groups and the remaining by those in other types of business groups. This is because many groups started to collect royalties only after they have established a holding company.

As in other tunneling studies, the greatest challenge 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 by making use of the cash flow rights the controlling family holds in each member firm.

Using a sample of 34 family-controlled business groups that charged group trademark royalties in 2017, we find evidence consistent with the presence of tunneling. First, we find that trademarks tend to be owned by firms wherein the controlling family holds high cash flow rights.

Second, we find that firms with larger sales volume are more likely to be licensee firms and

¹ Historically, the establishment of holding companies was banned in 1987 by law for fear that they would form pyramids with many layers of control, but legalized in 1999 for the sake of facilitating corporate restructuring in the aftermath of the Asian financial crisis. In the beginning, they were allowed under the condition that their debt-to-equity ratio be maintained under 100% and own at least 30% of shares in their subsidiary companies if they are listed and 50% if not. Additionally, subsidiary companies had to own 100% of sub-subsubsidiary companies, which had to be in the same line of business with the subsidiary company. These conditions, however, were relaxed gradually over time, which encouraged many business groups to reorganize themselves as holding company business groups.

that this likelihood increases further as the controlling family's cash flow rights in such firms fall further below those in the licensor firms.

Third, we find that trademark royalty rates rise with the sales volume of the licensee firms only if the controlling family's cash flow rights in such firms are far below those in the licensor firms.

Fourth, we explore the main concern to outside minority shareholders that hold the shares of licensee firms—that is, the consequence of trademark royalty payments by licensee firms on their dividend payouts to shareholders. We find that dividend payouts are negatively associated with royalty payments in firms where the controlling family's cash flow rights in licensee firms are far below those in the licensor firms.

Fifth, we investigate if tunneling through the collection of trademark royalties dampens the market value of licensee firms. We find that the market value of licensee firms are negatively associated with their royalty payments if the controlling family's cash flow rights in licensee firms are far below those in the licensor firms.

Sixth, we find that the results mentioned above are stronger for pure holding company groups—where their licensor firms do not have business operations of their own and, thus, rely heavily on trademark royalty revenue—than for other business groups—where their licensor firms have business operations of their own and, thus, do not rely heavily on trademark revenue.

Lastly, we investigate the relative importance trademark royalties and dividends for pure holding companies. We find that pure holding companies increase their reliance on trademark royalties as the controlling family's average cash flow rights in other member firms fall. As a corollary, we find that they increase their reliance on dividends as the controlling family's average cash flow rights in other member firms fall.

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 holding companies can lower the dividend payout to shareholders in firms where the controlling family's cash flow rights are lower than those in the holding 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 parents 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 use of pyramids, we believe the new tunneling channel we document in this study can also take place in other countries (Khanna and Yafeh, 2007).

The remaining paper is organized as follows: Section 2 develops the hypotheses and section 3 describes the data. Section 4 provides the results and section 5 concludes the paper.

2. Hypotheses Development

This paper explores the possibility of intragroup transactions of trademark ownership and royalties being misused for the benefit of a group's controlling family at the expense of outside minority shareholders. In this section, we develop several hypotheses under a setting wherein the licensor and licensee firms both belong to the same business group and are commonly controlled by a single family. We further assume that this controlling family holds different levels of cash flow rights in the member firms.

Tunneling through intragroup trademark transactions can take place in two ways: One is for the firm with high family ownership to obtain trademarks at an unfairly cheap price from other member firms with low family ownership (*tunneling through transfer of trademark ownership*). The other is for the licensor firm with high family ownership to charge unfairly high trademark royalties to other member firms with low family ownership (*tunneling through charges of trademark royalties*).

As in many other tunneling studies, the greatest challenge is discerning whether the terms applied to trademark transactions are fair or not. In case of Korea, this is nearly impossible. First, it is rare to see the ownership of existing group trademarks being transferred from one group firm to another. Also, in case we do find such ownership transfers, no information is provided on the detailed terms of such transfers.

Second, in case of trademark royalties, information on royalty rates is available. However, the base to which these rates apply vary considerably across business groups, making it almost impossible to compare one group with the other. In some business groups, the formula includes adjustment factors that are not publicly disclosed. Furthermore, we find that the actual charges collected or paid are not always identical to the amount computed using the formulas disclosed.

As such, in this study, we do not make use of trademark royalty rates to discern their fairness. Instead, we take an indirect approach of predicting the pattern of intragroup trademark transactions in the presence of tunneling and find evidence that is consistent with these predictions. Like in many other tunneling studies, we make predictions by making use of the cash flow rights the controlling family holds in each member firm.

When developing our hypotheses, we also consider two different types of business groups, for which we have different predictions. In one type of business group, the family mainly controls the entire group through a single holding company that owns the group's trademark and has no business operation of its own.² For these holding companies, dividends and trademark royalties are the two main sources of revenue. We label these business groups as “pure holding company groups.” In the other type of business group, the family mainly controls the entire group either through a single holding company or through multiple firms that own the group's trademark and have business operations of their own. For these controlling firms, dividends and trademark royalties are not the main sources of their revenue, as they also have revenue coming from their own business operations. We label this second type simply as “other business groups.”

We first ask which firms in the group are likely to be trademark licensors. In the presence of 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

² Not all member firms are controlled by the group's holding company. They can be directly owned and controlled by the family members themselves without going through the holding company. This point applies to both pure holding company groups and other business groups. Although they are not holding company subsidiaries, they often pay trademark royalties to the holding company, which is why, in this study, we do not exclude them from our sample.

own the trademark.³ Either way, the positive association between the two is consistent with the existence of tunneling. Similar discussions can be made for all other hypotheses laid out hereafter.

We next explore which firms in the group are likely to be trademark licensees. Given that trademark royalty charges are set to be proportional to the licensee firm's sales volume, we expect the licensor firms wishing to maximize their royalty revenue to enter into an agreement with firms that have large sales volume. However, in the presence of tunneling, we do not expect the licensor firms to consider the sales volume alone. Among the firms with 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 others (**H2a**).

We develop **H2a** further by contrasting pure holding company groups and other business groups. Given the importance of trademark royalty revenues for pure holding companies, we expect families that mainly control the entire group through such pure holding companies to be more inclined toward engaging in tunneling through trademark transactions than families that control the group through firms with their own business operations. As such, we predict that the pattern described in **H2a** is stronger in pure holding company groups than in others (**H2b**). If so, it provides additional evidence in support of the tunneling hypothesis.

Next, we investigate the factors that determine the level of trademark royalty rates. To maximize the amount of trademark royalty collections, we expect the rates to rise with the sales volume of the licensee firms. However, in the presence of tunneling, we expect this only in firms wherein the controlling family's cash flow rights are far below those in the licensor firms (**H3a**). Given that tunneling through trademark transactions is more likely to take place in pure holding company groups, we predict the pattern described in **H3a** is stronger in pure holding company

³ As mentioned earlier, we believe the second possibility is more likely for holding company business groups in Korea.

groups than in others (**H3b**).

We next explore the main concern to outside minority shareholders that hold the shares of the licensee firms—that is, the consequence of trademark royalty payments by the licensee firms on their dividend payouts to shareholders. Given that trademark royalties are expensed before the dividend payout, the dividend amount may fall if the amount of royalty payments rises excessively. If this is the case, it provides clear evidence that there exists a conflict between the interest of the controlling families and the interest of the licensee firm minority shareholders. From **H3a**, we also predict that the licensee firms wherein the controlling family’s cash flow rights are far below those in the licensor firms tend to make more royalty payments than others. Putting these two together, we expect dividend payouts to be negatively associated with royalty payments in firms wherein the controlling family’s cash flow rights are far below those in the licensor firms (**H4a**). Again, we predict that this pattern described in **H4a** is stronger in pure holding company groups than in others (**H4b**).

As mentioned earlier, we predict that higher royalty rates are charged to the licensee firms when they have large sales volume and the controlling family’s cash flow rights in such firms are far below those in the licensors firms (**H3a**). We also predict that the trademark royalties paid by the licensee firms reduce their dividend payouts when the controlling family’s cash flow rights in the firms are far below those in the licensor firms (**H4a**). Putting these two predictions together, we expect the dividend payouts and trademark royalty payments of the licensee firms to increase with the sales volume, but the former to increase less and the latter to increase more if the controlling family’s cash flow rights in the licensee firms are far below those in the licensor firms (**H5a**). Note that this prediction is in line with the findings of Faccio, Lang, and Young (2001). They document that firms with high control-ownership disparity tend to pay less dividends. As in

prior hypotheses, we expect this pattern described in **H5a** is stronger in pure holding company groups than in others (**H5b**).

All the hypotheses we outline above, put together, suggest that the controlling families are expropriating licensee firms by the collection of trademark royalties. If this is the case, the collection of trademark royalties should dampen the market value of licensee firms that are prone to tunneling. In particular, we predict that the market value of licensee firms to be negatively associated with their royalty payments if the controlling family's cash flow rights in such firms are far below those in the licensor firms (**H6a**). As in prior hypotheses, we also expect this pattern to be stronger in pure holding company groups than in others (**H6b**).

Lastly, we investigate the relative importance trademark royalties and dividends for pure holding companies. If the prediction in **H5b** is true, we expect pure holding companies to increase their reliance on trademark royalties, as the controlling family's average cash flow rights in other member firms fall (**H7a**). As a corollary, we expect they increase their reliance on dividends as the controlling family's average cash flow rights in other member firms fall (**H7b**).

3. Data and Key Covariates

3.1. Sample Business Groups

Each year, 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 fiscal year immediately preceding the designation must be above a given threshold.⁴ In May 2018, KFTC designated 60 business groups. Thanks

⁴ This threshold has been revised over time; since 2009, the threshold of KRW 5 trillion has been used.

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. From this list of 60 business groups, we first exclude groups with no record to intragroup trademark transactions (23 groups, including 5 non-family controlled and 18 family-controlled) and then exclude 3 additional groups that are not under family control (KT, S-Oil, and POSCO). This leaves us with 34 business groups.

Table 1 lists the names of these 34 business groups along with the number of member firms, number of licensor firms, number of licensee firms, and total amount of trademark royalties paid by the licensee firms in the fiscal year of 2017. Note that we do not require a member firm to be a part of the business group throughout the year. In case licensing contract period is less than a year, we use annualized royalty figures. We exclude firms with no sales from our sample.

There are several points to note from Table 1. First, there is typically one licensor firm per group. Exceptionally, when there are multiple licensor firms within a group, they receive royalties either separately from different sets of licensee firms or jointly from the same set of licensees.

Second, not all member firms are trademark licensees—only 34.8% pay trademark royalties on average. However, this is surprising given that virtually every member firm operates its business using the group’s trademark. It raises a suspicion that the licensee firms may have been carefully chosen to maximize the controlling family’s interest.

Lastly, the total amount of trademark royalties varies considerably across groups. LG group, which has the longest history of being a pure holding company group, recorded KRW 277 billion (approximately USD 277 million), whereas Taekwang recorded only KRW 31 million.

3.2. Pure Holding Company Groups vs. Other Business Groups

Table 1 divides sample business groups (34) into two types: pure holding company groups (15)

and other business groups (19). As mentioned earlier, in case of pure holding company groups, the family mainly controls the entire group mainly through a single holding company that owns the group's trademark and has no business operation of its own.⁵ Their sole business is to control other member firms in the group; their revenue mainly comes from dividends or royalties received from the firms they control. In case of other business groups, the family mainly controls the entire group either through a single holding company or by multiple firms that own the group's trademark and also have business operations of their own. For these controlling firms, dividends and trademark royalties are not the main sources of revenue, as they have revenue from their own business operations.

Table 3 compares the two groups in greater detail. Several points are noteworthy. First, pure holding company groups collect trademark royalties more aggressively. The amount of royalties collected by the licensor firms and its percentage out of sales aggregated across all member firms (excluding licensor firms) are greater for pure holding company groups than for other business groups.

Second, pure holding company groups reach out to more licensee firms. The number of licensee firms and their percentage out of total member firms are greater for pure holding company groups than for other business groups.

Third, pure holding company groups have smaller licensor firms in terms of sales volume. The licensor firms in other business groups are larger because they have their own business operations.

⁵ Exception includes Hanjin and Harim. Although they are both pure holding company groups, each have two licensor firms. Hanjin group's licensor firms include Hanjin Kal (pure holding company) and Hanjin Transportation (logistics business). Note that the family controls Hanjin Transportation through Hanjin Kal. In case of Harim, Jeil Holdings (pure holding company) and Harim Holdings (pure holding company) are the licensor firms. Note that the family controls Harim Holdings through Jeil Holdings. In 2018, Jeil Holdings merged Harim Holdings. The newly created merged company is named Harim Holdings.

Fourth, the licensor firms in pure holding company groups rely more heavily on trademark royalties and dividends. Their respective percentages out of licensor firm sales are greater for pure holding company groups than for other business groups.

3.3. Data on Trademark Royalties

Prior to 2018, information on intragroup transactions of trademark royalties was in the dark. 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 KFTC (2018a), this disclosure rule left 67.1% of the licensee firms in the dark. However, owing to the new disclosure rule adopted in March 2018, KFTC-designated large business groups are now obligated to disclose the details of their yearly transactions every year in May. The new rule requires business groups to disclose the licensor firm, licensee firm, license agreement period, amount of royalties paid by each licensee firms (regardless of the amount), and method of calculating royalties. The first disclosure following the new rule was released in May 2018.

It is worth noting that the new rule was introduced *after* the 2017 royalties were paid and that the controlling families did not know in 2017 that the new rule would be introduced in the following year March.⁶ Because of this, 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, controlling families had no reason to disguise their tunneling activities by changing the pattern of trademark transactions. transactions.

The newly available data shows that the methods of calculating trademark royalties are different across business groups and sometimes different even across licensee firms within the

⁶ The draft rule was released for the first time in January 31st.

same group. However, most of them fall into the following three categories: (1) sales \times royalty rate; (2) (sales – advertisement expenditure) \times royalty rate; and (3) (sales – advertising expenditure – related-party sales) \times royalty rate.⁷ In some cases, business groups use EBITDA instead of sales, or even combine the two. Some apply adjustment coefficients the exact value of which are not publicly disclosed. The royalty rate ranges from 0.01% to 1%.

3.4. Cash Flow Rights and Other Covariates

Table 2 lists the name and the definition of the variables used in this study. Table 4 shows their summary statistics. Cash flow rights (*CFR*), our key explanatory variable, is defined as the sum of direct and indirect ownerships that a controlling family has in a subject firm along the control chains.⁸ We follow the method introduced in Kim, Lim, and Sung (2007) to compute *CFR*. For ownership information, we use the KFTC data that can be accessed either through the Large Business Group Portal (www.egroup.go.kr) or through the Data Analysis, Retrieval and Transfer System, in short, DART (dart.fss.or.kr). These data include the controlling family's direct ownership in each member firm and intragroup shareholdings (in a matrix form) among the member firms. The latter information allows us to compute the controlling family's indirect ownership. Note that these KFTC data also include privately held firms, allowing us to consider control chains that go through privately held firms and compute cash flow rights more precisely.

However, KFTC data does not provide sufficient data to consider control chains that go through overseas subsidiaries, which is why it is ignored for the calculation of *CFR* in prior studies using KFTC data. In this study, we partially fix this shortcoming by making use of the information

⁷ For financial companies, royalties are based on operating revenue, not on sales.

⁸ In the calculation of *CFR*, we use ownership based on common shares (excluding treasury shares).

on the shares overseas subsidiaries own in each domestic member firm (available in DART), and the shares the largest domestic member firm owns in each overseas subsidiaries (also available in DART). This enables us to identify and consider the control chains that go through a *single* overseas subsidiary, but not the ones that go through *multiple* overseas subsidiaries. That is, a control chain where domestic member firm owns the shares of an overseas subsidiary, and then this overseas subsidiary owning the shares of another domestic member firm. Note that *CFR* is measured in the middle of 2017, which is the year the royalty payments are made.⁹

In many of our regression analyses, we 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 (*CFR DIF*), where the negative values are replaced with “0”. We make this latter adjustment on the basis that the incentive to tunnel from firms with *CFR* higher than that of licensor firms (original *CFR DIF* < 0) is no different from firms with *CFR* equal to that of licensor firms (original *CFR DIF* = 0).

Table 4 shows the summary statistics of these variables. Panel A provides the statistics for 16 licensor firms from 14 pure holding company groups, whereas Panel B provides the statistics for 287 member firms from 12 pure holding company groups. Note that we exclude from Panels A and B one group (Meritz Financial Group) that lacks the 2017 group ownership data and, thus, it is impossible to compute *CFR*.¹⁰ Additionally, we exclude from Panel B two groups (Hanjin and Harim) that have multiple licensor firms in their respective groups and, thus, it is impossible to compute *CFR DIF*. Panel C provides the statistics for 34 licensor firms from 18 other business

⁹ In 2017, KFTC designated large business groups twice. Once in May for business groups with total sum of assets above 10 trillion won, and in September for those with total sum of assets between 5 and 10 trillion won.

¹⁰ KFTC designated Meritz Financial Group and Eugene as large business groups for the first time in May 2018. Thus, the earliest group ownership data available for these groups are the May 2018 data

groups, whereas Panel D provides the statistics for 262 member firms from 13 other business groups. Note that we exclude from Panels C and D one group (Eugene) that lacks the 2017 group ownership data and, thus, it is impossible to compute *CFR*. Additionally, we exclude from Panel B five groups (Doosan, Jungheung, Hyundai Motor, Samsung, and SK) that have multiple licensor firms in their respective groups and, thus, it is impossible to compute *CFR DIF*. The sample used in Table 4 also excludes firms with no revenue or firms with missing financial data

From Table 4, two points are noteworthy for *CFR*. First, the licensor firms in pure holding company groups have median cash flow rights (52.57%), considerably higher than those in other business groups (23.62%). This is because, in pure holding company groups, families mainly control the group through a single company, whereas in other business groups, they may control through multiple firms.

Second, *CFR DIF* is also greater in pure holding company groups (13.44%) than in other business groups (8.04%). This difference suggests that intragroup transactions of trademark royalties are more likely to be used for tunneling purposes in pure holding company groups than in other business groups.

The other covariates used in this study are measured at the end of 2017 and come from KIS-Value, a financial database managed by NICE Credit Information Service. This is supplemented by TS-2000, another database managed by 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, return on equity (ROE), and Earnings volatility.

4. Results

4.1. Which firms own the trademark license?

We first ask which firms in the group are likely to be trademark licensors. In the presence of 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 and linear probability model (LPM) 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. The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data). 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 (2) report the results of the probit analyses, whereas the regressions in Columns (3) to (4) report the results of the LPM analyses. The coefficient estimates in the probit analyses are the average marginal effects on probability. The coefficient of *CFR*, our key explanatory variable of interest, is positive and statistically significant at the 1% level across all specifications. In Column (1) we only include *CFR*, which is our main variable, without controlling for other covariates. In Column (2), we control for other firm characteristics. As a proxy for growth opportunity, we use sales growth, which is available for privately held firms that constitute a large fraction of our sample firms. The coefficient of 0.0017 in Column (2) suggests that a 10-percentage-point increase in *CFR* increases the probability to own a license by 0.017 or 1.7 percentage points. Given that only 6.2% of the member firms in our sample own the group's trademark, this is a 27.4% ($= 1.7/6.2$) jump in likelihood. In unreported analyses (available upon request), we run the same regressions separately for pure holding company groups and other business groups. We find that the coefficient of *CFR*

is positive and statistically significant in both types of groups, but larger with higher t-values for pure holding company groups. Among other covariates, we find that firms with higher proportion of related-party sales, older age, lower debt ratio, lower free cash flows, and higher foreign ownership are more likely to own the group's trademark.

4.2. Which firms pay the trademark royalties?

From Tables 1 and 3, we know that only a subset of member firms pays trademark royalties: 43% of the member firms in case of pure holding company groups and 28% in other business groups. In this subsection, we ascertain how this subset is determined. As discussed in Section 2, we expect the licensor firms wishing to maximize their royalty revenue to enter into agreements with firms with large sales volume. Furthermore, among the firms with 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 others (**H2a**).

To test this, we run further LPM regressions, where we investigate the factors that determine the choice of the licensee companies. Note that we use LPM in lieu of probit or logit that makes the interpretation of the interaction effects difficult.^{1 1} The dependent variable takes a value of 1 if the company is a licensee company, and 0 otherwise. The covariates include the difference in cash flow rights between the licensor firm and the subject firm (*CFR DIF*), sales, interaction between the two, group fixed effects, and others. The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms). Note that *CFR DIF* cannot be defined for firms paying royalties to multiple licensor firms; also note that sample firms include licensee firms

^{1 1} According to Ai and Norton (2003), interaction effects estimated from logit or probit have z-statistics that have a distribution of their own. The LPM, which does not have this problem, is more interpretable.

and firms outside the license agreement, but not licensor firms.

Table 6 shows the results. As expected, sales volume is an important predictor of the licensee firms. The coefficient of sales is positive and statistically significant across all specifications. Next, we find that *CFR DIF* amplifies the effect of sales for pure holding company groups (Columns (1) – (3)). The coefficient of the interaction term between $\ln(\text{sales})$ and *CFR DIF* is positive and statistically significant at the 5~10% level. This suggests that firms with larger sales volume and larger gaps in cash flow rights have a higher chance of signing a contract than firms with lower sales volume or firms with lower gaps in cash flow rights.

In Column (1), we control for the variables that typically enter in the trademark royalty formula: RTP Revenue (%) and Advertising expenditure (%). Given that firms with high fractions of related-party sales or firms that spend heavily on advertisement are less in need to rely on group trademark, we expect such firms to be less likely to enter licensing contracts. Contrary to this prediction, however, neither of them shows up as lowering the likelihood of becoming a licensee firm. The coefficients on RTP Revenue (%) and Advertising expenditure are mostly insignificant or positive with marginal significance.

In Column (2), we add other firm characteristics as additional controls and in Column (3), we add the interaction between sales volume and RTP Revenue (%). This latter control is motivated by the finding in the existing literature that chaebol firms heavily owned by controlling family members tend to have higher fraction of related-party sales (Hwang and Kim, 2016). If this is also the case in our sample, the coefficient on the interaction term may not be capturing the effect of *CFR DIF* but the effect of RTP Revenue (%). With these controls, the coefficient on $\ln(\text{Sales}) \times \text{CFR DIF} (\%)$ drop slightly, but remain statistically significant at the 10 percent level.

The coefficients in Column (3) suggest that, for firms with *CFR DIF* equal to 0, a 1-SD increase in $\ln(\text{sales})$ increases the probability of being a licensee firm by 15.7 ($= 0.0708 \times 2.22$) percentage points. However, for firms with *CFR DIF* of 13.44% (the median value for pure holding company groups), a 1-SD percent increase in $\ln(\text{sales})$ increases the probability of being a licensee firm by 20.47 ($= (0.0708 \times 2.22 + (0.0016 \times 13.44) \times 2.22)$) percentage points.

As for other business groups, we do not find this amplifying effect. The coefficients of the interaction terms are smaller and statistically insignificant. This confirms our prediction that the cash flow rights of licensee firms are stronger predictors in pure holding company groups that rely heavily on trademark revenue, than in other business groups that do not (**H2b**). The contrasting results between the two provide additional evidence in support of the tunneling hypothesis.

4.3. *What determines the trademark royalty rates?*

Next, we investigate the factors that determine the level of trademark royalty rates. As discussed in Section 2, in the presence of tunneling, we expect the rates to rise with the sales volume only in firms wherein the controlling family's cash flow rights are far below those in the licensor firms (**H3a**). To test this, we run ordinary least squares (OLS) regressions, where we investigate the determinants of trademark royalty (*TMR*) rates computed in two different ways: *TMR* scaled by sales and *TMR* scaled by (sales – advertisement expense).^{1 2} They are all in percentage terms. The covariates include *CFR DIF*, sales, interaction between the two, group fixed effects, and others.

The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms).

^{1 2} We do not consider TRM scaled by scaled by (sales – related-party transactions – advertisement expense) as we are including related-party transactions in all of our regressions.

Note that *CFR DIF* cannot be defined for firms paying royalties to multiple licensor firms; also note that sample firms include licensee firms and firms outside the license agreement, but not licensor firms. We also exclude firms if (sales – advertisement expense) are nonpositive.

Panel A of Table 7 shows the results for pure holding company groups. For licensee firms whose controlling family's cash flow rights are equal to or greater than those of licensor firms (*CFR DIF* = 0), we do not find the trademark royalty rates increasing with sales. The coefficient on $\ln(\text{sales})$ is insignificant across all specifications (Columns (1)-(6)). However, for licensee firms whose controlling family's cash flow rights are below those in licensor firms (*CFR DIF* > 0), we find that trademark royalty rates do increase with sales. The coefficient of the interaction term between $\ln(\text{sales})$ and *CFR DIF* is positive and statistically significant at the 5% level for both measures of royalty rates in the specification where we include all controls (Columns (2) and (4)). Moreover, the results survive even after we control for the interaction term between $\ln(\text{sales})$ and RPT revenue in Columns (3) and (6). The coefficients in Column (3) suggest that, for firms with *CFR DIF* of 24.32 percent (the 75th percentile value for pure holding company groups), a 1-SD increase in $\ln(\text{sales})$ increases the rates by 0.06 (= (0.01 + 0.0007 × 24.32) × 2.22) percentage points. This is a significant jump given that the average level of royalty rate based on sales (*TMR/Sales*) is only 0.03%.

As for other business groups, we do not find evidence indicating that the difference in cash flow rights between the licensor and the licensee firms matters in determining trademark royalty rates (Panel B). The coefficients of the interaction terms are smaller and statistically insignificant throughout. This confirms our prediction that families controlling pure holding company groups are more inclined toward engaging in tunneling through trademark transactions than families that control other business groups (**H3b**).

4.4. The elasticity of dividend payouts in respect to royalty payments

We next explore the main concern to outside minority shareholders that hold the shares of the licensee firms—that is, the consequence of trademark royalty payments by the licensee firms on their dividend payouts to shareholders. As discussed in Section 2, we expect the negative association between royalty payments and dividend payouts to be stronger in firms where controlling family has higher tunneling incentives. That is, in firms where the controlling family's cash flow rights are far below those of the licensor firms (**H4a**).

To test this, we run OLS regressions, where we investigate how dividend payout ($\ln(\text{Div} + 1)$) is associated with trademark royalty payments, *CFR DIF*, interaction between the two, group fixed effects, and others controls, which are considered important in prior studies of Korean firms (Park, Lee, and Lee, 2003; Chay and Suh, 2005; Sul and Jung, 2006). The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms). Note that *CFR DIF* cannot be defined for firms paying royalties to multiple licensor firms; also note that sample firms include the licensee firms and firms outside the license agreement, but not licensor firms.

Columns (1) and (2) in Table 8 show the results for pure holding company groups. For licensee firms whose controlling family's cash flow rights are equal to or greater than those of licensor firms (*CFR DIF* = 0), we do not find the dividend payout dropping with the increase in trademark royalty payments. The coefficient on $\ln(\text{TMR}+1)$ is insignificant across all specifications (Columns (1)-(2)). However, for licensee firms whose controlling family's cash flow rights are below those in licensor firms (*CFR DIF* > 0), we find that the dividend payout drops with the increase in trademark royalty payments. The coefficient on the interaction term between $\ln(\text{TMR}+1)$ and *CFR DIF* is negative and statistically significant at the 5% level. The

coefficients in Column (1) suggest that the elasticity of dividend payouts with respect to trademark payments is $-0.1018 (= 0.1025 - 0.0084 \times 24.32)$ for firms with *CFR DIF* of 24.32 percent (the 75th percentile value for pure holding company groups).

As for other business groups, we do not find evidence that *CFR* difference changes the relationship between trademark royalty payments and dividend payouts (Columns (3) and (4)). The coefficients of the interaction terms are smaller and statistically insignificant 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 (**H4b**).

The results for other covariates are consistent with the previous literature on dividend payout. Sales and foreign ownership have positive coefficients, whereas leverage and sales growth have negative coefficients. Note that we use Sales growth as a proxy of growth opportunity instead of Tobin's *Q*. Our sample includes a considerable number of privately held firms whose share prices are unavailable.

4.5. The elasticity of dividend payouts and royalty payments in respect to sales.

Putting together the results in previous subsections, we expect dividend payouts and trademark royalty payments of the licensee firms to increase with sales volume, but the former to increase less and the latter to increase more if the controlling family's cash flow rights in the licensee firms are far below those in the licensor firms (**H5a**). To test this, we run OLS regressions, where we investigate how dividend payouts (Columns (1–2)), trademark royalty payments (Columns (3–4)), and the relative size of both (Columns (5–6)) are associated with *CFR DIF*, sales, interaction between the two, group fixed effects, and others. The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms). Note that *CFR DIF* cannot be defined for

firms paying royalties to multiple licensor firms; also note that sample firms include the licensee firms and firms outside the license agreement, but not the licensor firms.

Panel A in Table 9 shows the results for pure holding company groups. As expected, dividend payouts and trademark royalty payments both increase with sales volume (Columns 1–4). However, their elasticities, with respect to sales, change in opposite directions as the controlling family’s cash flow rights in licensee firms fall further below those in the licensor firms. The coefficients of the interaction term between *CFR DIF* and $\ln(\text{sales})$ suggest that the elasticity of dividend payouts in respect to sales drops (Columns (1) and (2)), whereas the elasticity of trademark royalty payments with respect to sales rises (Columns (3) and (4)). The coefficients interaction term are statistically significant at the 1 to 5 percent level. Using the coefficients in Columns (1) and (3), we find that the elasticity of dividend payout with respect to sales is 1.231 for firms with *CFR DIF* = 0, whereas it is 0.818 ($= 1.231 - 0.017 \times 24.32$) for firms with *CFR DIF* of 24.32 percent. We also find that the elasticity of trademark royalty payments with respect to sales is 0.849 for firms with *CFR DIF* = 0, whereas it is 1.141 ($= 0.849 + 0.012 \times 24.32$) for firms with *CFR DIF* of 24.32 percent. The results in Column (5) show that the divergence between the two elasticities is statistically significant at the 1% level.

In Panel B, we show the results for other business groups. As for other business groups, we do not find evidence that the elasticity of dividend payouts or trademark royalty payments with respect to sales changes as the controlling family’s cash flow right in the licensee firms fall further below those in the licensor firms. The coefficients on the interaction terms are smaller and statistically insignificant throughout. This 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 (**H5b**).

4.6. *The elasticity of firm's market value in respect to royalty payments*

All the findings we outline above, put together, suggest that the 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 dampen the market value of licensee firms that are prone to expropriation. As discussed in Section 2, we predict that the market value of licensee firms to be negatively associated with their royalty payments if the controlling family's cash flow rights in such firms are far below those in the licensor firms (**H6a**).

To test this, we run OLS regressions in Table 10, where we investigate how firm's market value (industry-adjusted Tobin's q) is associated with trademark royalty payments, $CFR DIF$, interaction between the two, group fixed effects, and others controls. We measure firm value at three different points in time: December 2017 (at the end of fiscal year immediately preceding the first disclosure of the trademark royalties transactions, Columns (1)-(2)), June 2018 (at the end of 2018 1H, which is one month after the disclosure, Columns (3)-(4)), and December 2018 (at the end of 2018, which is seven months after the disclosure, Columns (5)-(6)). Accordingly, we measure $CFR DIF$ as of 2017 when regressing for Tobin's q (2017.12) and measure as of 2018 when regressing for Tobin's q (2018.6) and Tobin's q (2018.12). More specifically, $CFR DIF$ (2017) is based on ownership as of May for groups above 10 trillion won and September for groups between 5-10 trillion won, whereas $CFR DIF$ (2018) is based on ownership structure as of May 2018. All other covariates are measured either at the end of 2017 (Columns (1)-(4)) or at the end of 2018 (Columns (5)-(6)). When computing for industry median Tobin's q , we use 4-digit KSIC codes for manufacturing sector firms (considering their dominance in our sample) and 2-digit KSIC codes for all other firms.

The sample includes publicly traded firms belonging to the business groups listed in Table

1 (excluding two groups that lacks the 2017 group ownership data and seven groups that have multiple licensor firms). It includes listed licensee firms and listed firms outside the licensee agreement, but not licensor firms. Since we only include listed firms, the sample size is down to 62-63, depending upon specification. Also note that *CFR DIF* cannot be defined for firms paying royalties to multiple licensor firms.

Panel A in Table 10 shows the results for pure holding company groups. In Columns (2), (4), and (6), we include the interaction between $\ln(\text{TMR}+1)$ and RPT Revenue (%) as additional control. The results show that the coefficients on the main interaction term between $\ln(\text{TMR}+1)$ and *CFR DIF* are statistically significant at 5 to 10 percent level, throughout our specifications, suggesting that investors value licensee firms less as the amount of trademark royalty payments increase for firms that are prone to tunneling. Interestingly, this is the case not only after the detailed royalty payments were disclosed in May 2018 (Columns (3)-(6)), but even before then (Columns (1) and (2)). This is not surprising because market participants knew very well that pure holding companies were collecting trademark revenues even before May 2018. As for pure holding companies, the total amount of trademark royalty revenue has been disclosed to the public in their income statement.^{1 3} Investors did not know the exact amount of trademark royalty payments each member firms made, but they knew that they were paying non-trivial amounts of payments and could have easily guessed which member firms were taking up most of the burden (e.g., firms wherein controlling family owns low cash flow rights).

The coefficients in Column (3) suggest that a 1-SD increase in $\ln(\text{TMR}+1)$ drops Tobin's q by 50.25 $(=(2.752 - 0.607 \times 28.05) \times 3.52)$ percentage points for firms with *CFR DIF* of 28.05

^{1 3} The income statement of LG (the pure holding company of LG Group), for example, discloses that LG collected group trademark royalties from 2004, which is a year after LG Group completed its transformation into a holding company business group structure.

percent (the 75th percentile value for pure holding company groups). This is a significant drop given that the average level of Tobin's q in our sample is 132.30%.

In Panel B, we show the results for other business groups. As for other business groups, we do not find evidence that the payment of trademark royalties dampen the market value of licensee firms prone to expropriation (i.e., licensee firms wherein controlling family has cash flow rights far below those of licensor firms). The coefficients of the interaction terms are smaller and statistically insignificant throughout. This 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 (**H6b**).

4.7. Average Group cash flow rights and the breakdown of licensor firm's revenue by source

Lastly, we investigate the relative importance of trademark royalties and dividends for pure holding companies. As discussed in Section 2, we expect pure holding companies to increase their reliance on trademark royalties as the controlling family's average cash flow rights in other member firms fall (**H7a**). As a corollary, we expect they increase their reliance on dividends as the controlling family's average cash flow rights in other member firms fall (**H7b**).

To test this, we plot the relationship between the controlling family's cash flow rights, averaged across all member firms (excluding licensor firms) within the same business group (x -axis) and the percentage of each revenue source of the licensor firm (y -axis) in 2017.¹⁴ The sample includes the licensor firms and other member firms of pure holding company groups listed in Table 1 (excluding one group that lacks 2017 group ownership data). We compare four main

¹⁴ Cash flow rights are averaged across member firms without weights. In unreported analysis (available upon request), we find similar results when using book equity as weights.

types of revenues that pure holding companies collect: dividends, trademark royalties, service fees (e.g., consulting fees), and rents (e.g., office rents). For business groups with multiple licensor firms, we first compute the sum of each revenue type across all the licensor firms (e.g., \sum trademark royalties) and then compute their percentage out of total revenue summed across all the licensor firms (e.g., \sum trademark royalties / \sum total revenue). Total revenue is simply a sum of dividends, trademark royalties, service fees, and rents.

Plots A, B, C, and D in Figure 1, respectively, present the relative ratio of trademark royalties, dividends, service fees, and rents, in percentage terms. From Plot A, we find that the pure holding company's reliance on trademark royalties falls with the controlling family's average cash flow rights in other member firms (**H7a**).^{1 5} The fitted line shows that trademark royalties that take up around 50% of revenue fall down to 20% when cash flow rights in other member firms rise from 10% to 70%. The exact slope coefficient of the fitted line is -0.637 and statistically significant at the 10% level.

To the contrary, we find from Plot B that the pure holding company's reliance on dividends rises with the controlling family's average cash flow rights in other member firms (**H7b**). The fitted line shows that dividends that take up around 30% of revenue rise up to 60% when cash flow rights in other member firms rise from 10% to 70%. The exact slope coefficient of the fitted line is 0.494 with a t-value of 1.53. As for other revenues, we find from Plots C and D that they account for only a small portion of total revenue and do not vary with average cash flow rights in other member firms.

^{1 5} A similar point is made in KFTC (2018b), which shows the negative relationship between the holding company's fraction of non-dividend revenue and the controlling family's average ownership in other member firms.

5. Conclusion

Trademark is an important corporate asset. It distinguishes a company from others and 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 case of business groups, there are two important questions that need to be answered. Which member firm should legally own the trademark and how much should this firm charge others for the trademark's usage?

In this study, we explore these questions and document the risk that decisions can be made in a way benefitting controlling families at the expense of outside minority shareholders. Using 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 rates if their sales volume is larger and the controlling family's cash flow rights in such firms are further below those in the licensor firms. Third, dividend payouts of licensee firms are negatively associated with their royalty payments if the controlling family's cash flow rights in such firms are far below those in the licensor firms. Lastly, these results are stronger for pure holding company groups, where their licensor firms have no business operation of their own and rely heavily on trademark revenues.

Policy wise, this calls for the adoption of the arm's length principle in assessing the fairness of trademark ownership transfers and trademark royalty charges. This principle, which is widely adopted by tax authorities to regulate transfer pricing, can also be adopted to regulate tunneling.^{1 6} As a profit-shifting mechanism, tunneling is no different from transfer pricing. We believe that the

^{1 6} Some jurisdictions follow the OECD Base Erosion and Profit Shifting (BEPS) project's transfer pricing guidance.

methods used to implement 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.¹⁷

¹⁷ OECD (2015) regards the comparable-uncontrolled-price method or the transactional profit split method as the most useful arm's length transfer pricing methods 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). (2018a). Adoption of new disclosure rule mandating large business groups to disclose detailed trademark transactions from this year May. *KFTC press release* (2018. 3. 29.)
- KFTC (Korea Fair Trade Commission). (2018b). Analysis of revenue structure and subsidiary investments of holding company. *KFTC press release* (2018. 7. 4.)
- 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.

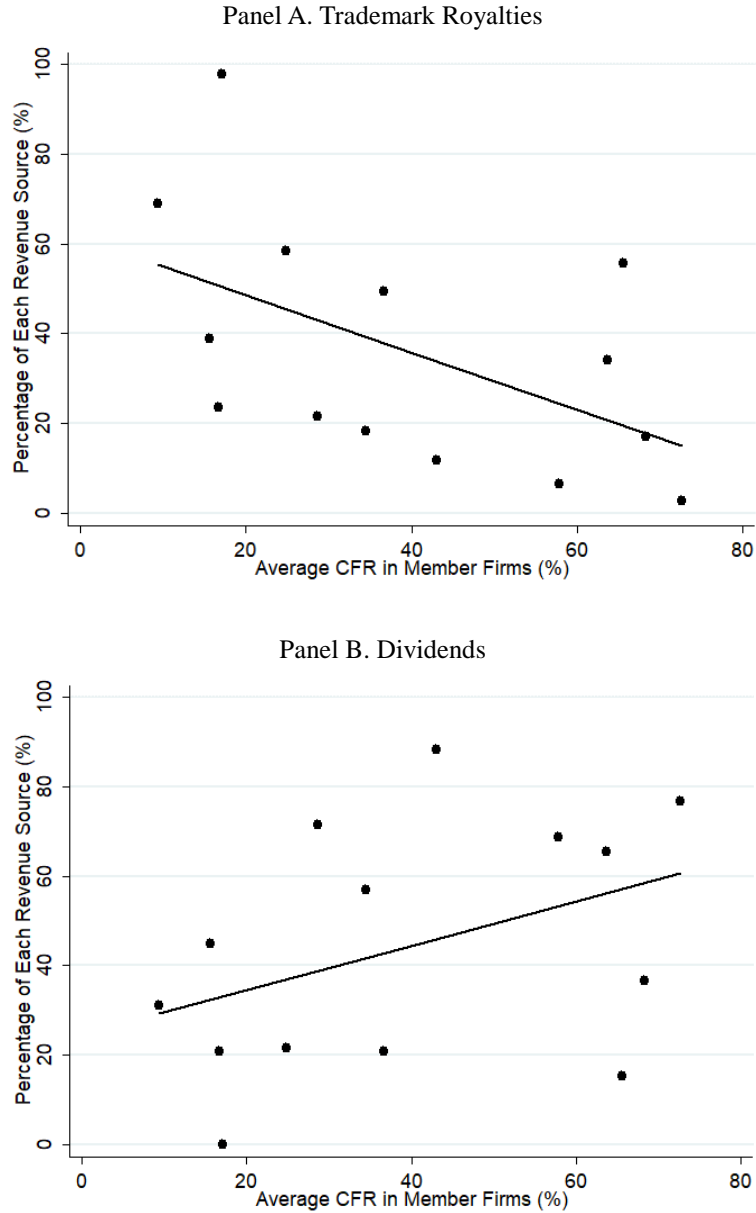
OECD (2015), Aligning Transfer Pricing Outcomes with Value Creation, Actions 8-10-2015 Final Reports, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264241244-en>

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

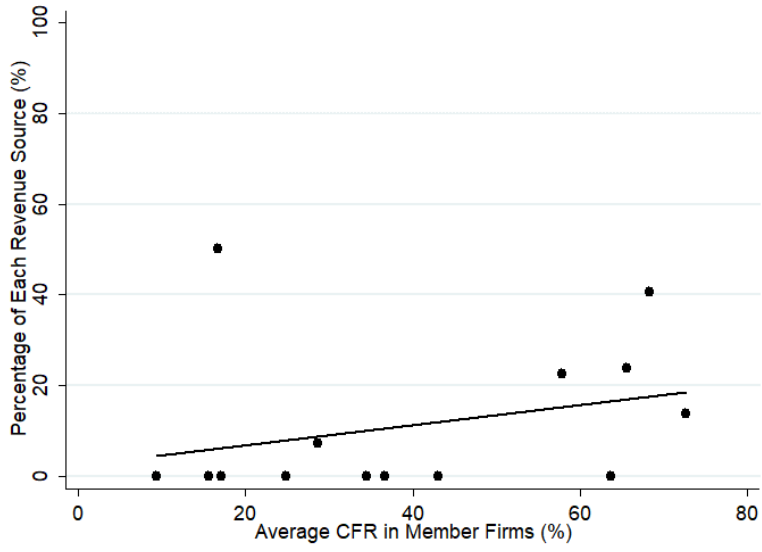
Sul, W., & Kim, S. J. (2006). Impact of foreign investors on firm's dividend policy. *Asia-Pac J Financ Stud*, 35(1), 1–40.

Figure 1. Average Group cash flow rights and the breakdown of licensor firm's revenue by source

The figures below plot the relationship between controlling family's cash flow rights, averaged across all member firms (excluding licensor firms) within the same business group (*x-axis*), and the percentage of each revenue source of the licensor firm (*y-axis*) in 2017. The sample includes licensor firms and other member firms of pure holding company groups listed in Table 1 (excluding one group that lacks 2017 group ownership data). Plots A, B, C, and D, respectively, present the relative ratio of trademark royalties, dividends, service fees, and rents.



Panel C. Service Fees



Panel D. Rents

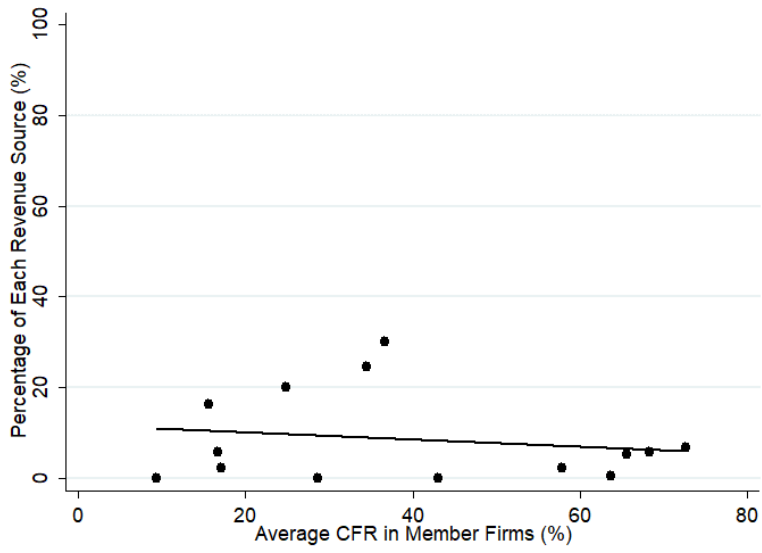


Table 1. Sample business groups and their trademark royalties in 2017

This table reports the number of member firms, the number of licensor firms, the number of licensee firms, and trademark royalty payments of 34 large business groups that made trademark royalty transactions in fiscal year 2017. Firms with no sales are excluded from the sample. Trademark royalties are calculated at an annualized rate.

Type	Group Name	# of member firms	# of licensor firms	# of licensee firms	Trademark Royalties (mil. KRW)
Pure Holding Company Groups	Amorepacific	12	1	4	6,442
	CJ	70	1	18	92,075
	Dongwon	29	1	16	8,843
	Hanjin	34	2	5	27,643
	Hanjin Heavy Industries	8	1	6	2,013
	Hankook Tire	15	1	1	48,715
	Hansol	19	1	16	12,786
	Harim	56	2	9	5,378
	Hite Jinro	12	1	2	4,418
	Kolon	32	1	16	27,973
	LG	63	1	16	276,373
	Lotte	94	1	49	95,768
	LS	46	1	12	24,103
	Meritz Financial Group	8	1	7	29,986
Seah	21	1	8	1,147	
Other Business Groups	Booyoung	20	1	6	1,163
	Doosan	27	3	8	36,422
	Eugene	51	1	1	1,077
	GS	59	1	23	78,688
	Halla	15	1	5	24,686
	Hanhwa	58	1	25	137,515
	HDC	13	1	11	1,658
	Hyundai Motors	53	3	12	36,682
	Jungheung	50	2	17	2,354
	Kakao	58	1	5	1,880
	Kumho Asiana	26	1	12	19,527
	Mirae Asset	32	1	7	9,791
	Nexon	23	1	3	3,128
	Samsung	62	12	8	9,088
	Shinsegae	34	1	2	2,242
	SK	91	2	55	182,464
	SM	53	1	4	930
Taekwang	26	1	1	31	
Taeyoung	44	1	4	410	

Table 2. Definition of variables

	Name	Definition
Groups	Group TMR	Trademark royalty revenues, aggregated across licensor firms, within a group (unit: million KRW). We use annualized royalty figures if licensing contract period is less than a year.
	Group Sales	Sales, aggregated across all member firms (excluding licensor firms), within a group (unit: million KRW)
	# of licensor firms	Number of firms collecting trademark royalties within a group
	# of licensee firms	Number of firms paying trademark royalties within a group
	# of member firms	Number of member firms within a group
	Group Average CFR	Cash flow rights (CFR), averaged across all member firms (excluding licensor firms), within a group (%)
Licensor firms	TMR/Licensor Sales	Percentage of licensor firm's trademark royalty revenue out of its own sales
	Dividend/Licensor Sales	Percentage of licensor firm's dividend income out of its own sales
	Service Fee/Licensor Sales	Percentage of licensor firm's service fee revenue out of its own sales
	Rent/Licensor Sales	Percentage of licensor firm's rental fee revenue out of its own sales
Member firms (less licensor firms)	TMR/Sales	Percentage of licensee firm's trademark royalty payments out of its own sales. We use annualized royalty figures if licensing contract period is less than a year.
	TMR/(Sales – ADexp)	Percentage of licensee firm's trademark royalty payments out of its own sales, less advertisement expenditure. We use annualized royalty figures if licensing contract period is less than a year.
	$\ln(\text{Div} + 1)$	Natural logarithm of cash dividend payout (in million KRW) added by 1
	$\ln(\text{TMR} + 1)$	Natural logarithm of trademark royalty payments (in million KRW) added by 1. We use annualized royalty figures if licensing contract period is less than a year.
	Tobin's q	$[(\text{Market value of common equity} + \text{book value of debt}) / \text{book value of assets}] \times 100$
	CFR	Sum of direct and indirect ownerships a controlling family has in a subject firm along the control chains (%), computed following the method in Kim, Lim, and Sung (2007). We also consider control chains that go through overseas subsidiaries.
	CFR DIF	$[\text{CFR on licensee firm} - \text{CFR of licensor firm}] \times 100$. If it has a negative value it is replaced with 0.
	Foreign ownership	Percentage of common shares held by foreigners
	$\ln(\text{Sales})$	Natural logarithm of sales (in million KRW)
	RPT revenue	$(\text{Related party transaction(RPT) revenue} / \text{Sales}) \times 100$. Related party transaction revenue includes only sales of goods and services and does not include non-operating income.
	Advertising expenditure	$(\text{Advertising expense} / \text{Sales}) \times 100$
	$\ln(\text{Age})$	Natural logarithm of years since establishment added by 1.
	Leverage	$(\text{Debt} / \text{Assets}) \times 100$
	ROE	$(\text{Net income} / \text{Equity}) \times 100$ (winsorized at the upper and lower 1 percentile values)
	FCF	$[(\text{Operating cash flows} - \text{Investment cash flows}) / \text{Assets}] \times 100$

Sales growth	Five-year geometric average of sales growth. We use less number of years if data is missing (winsorized at the upper and lower 1 percentile values)
Earnings volatility	Standard deviation of past five years of operating profit margin (winsorized at the upper and lower 1 percentile values). Operating profit margin is defined by $(\text{operating profit}/\text{sales}) \times 100$

Table 3. Pure holding company groups vs. other business groups

This table conducts the difference-in-mean test for trademark royalty-related variables between pure holding company groups and other business groups.

Variables	Total #	Pure		Other		Diff. in Mean Test	
		Mean (A)	#	Mean (B)	#	A – B	t-stat
Group TMR (mil. KRW)	34	44,244	15	28,933	19	-15,311	-0.71
Group Sales (mil. KRW)	34	21,291,396	15	24,728,568	19	3,437,172	0.27
Group TMR/Group Sales (%)	34	0.25	15	0.12	19	-0.13*	-1.76
# of licensor firms	34	1.13	15	1.89	19	0.76	1.29
# of licensee firms	34	12.33	15	11	19	-1.33	-0.32
# of member firms	34	34.53	15	41.84	19	7.31	0.9
# of licensee/# of member (%)	34	43.28	15	28.16	19	-15.12	-1.65
Licensor Sales (mil. KRW)	34	162,789	15	4,748,960	19	4586171.67**	2.64
TMR/Licensor Sales (%)	34	46.34	15	4.99	19	-41.35**	-2.22
Divided/Licensor Sales (%)	34	39.75	15	7.3	19	-32.45**	-3.72
Service Fee/Licensor Sales (%)	34	10.02	15	5.48	19	-4.54	-0.96
Rent/Licensor Sales (%)	34	8.08	15	3.57	19	-4.51	-1.33

Table 4. Summary statistics

The tables below provide the summary statistics of the covariates used in this study. Panel A provides the statistics for 16 licensor firms from 14 pure holding company groups, where Panel B provides the statistics for 287 member firms from 12 pure holding company groups. Note that we exclude from Panels A and B one group (Meritz Financial Group) that lacks the 2017 group ownership data and, thus, it is impossible to compute the cash flow rights (CFR). Additionally, we exclude from Panel B two groups (Hanjin and Harim) that have multiple licensor firms in their respective groups and, thus, it is impossible to compute the CFR difference (CFR DIF). Panel C provides the statistics for 35 licensor firms from 18 other business groups, whereas Panel D provides the statistics for 262 member firms from 13 other business groups. Note that we exclude from Panels C and D one group (Eugene) that lacks the 2017 group ownership data and, thus, it is impossible to compute CFR. Additionally, we exclude from Panel B five groups (Doosan, Jungheung, Hyundai Motor, Samsung, and SK) that have multiple licensor firms in their respective groups and, thus, it is impossible to compute CFR DIF. The sample used in Table 4 also excludes firms with missing financial data.

Panel A. Licensor firms belonging to pure holding company groups

	N	Mean	SD	Min	Median	Max
CFR (%)	16	52.25	26.56	12.85	52.57	94.57
Foreign ownership (%)	16	10.46	9.48	0	7.68	31.09
$\ln(\text{Sales})$	16	11.04	1.42	8.83	10.99	14.29
RPT Revenue (%)	16	83.41	32.42	0	96.49	100
Advertising expenditure (%)	16	5.49	9.38	0	2.48	35.95
$\ln(\text{Age} + 1)$	16	3.79	0.77	1.61	4.09	4.44
Leverage (%)	16	18.6	18.44	2.78	13.66	58.94
ROE (%)	16	1.05	10.17	-33.39	2.06	15.97
FCF (%)	16	2.14	6.17	-13.9	2.57	10.49
Sales growth (%)	16	7.58	23.85	-53.54	5.52	58.24
Earnings volatility (%)	16	24.98	47.63	1.45	6.97	160.46

Panel B. Member firms belonging to pure holding company groups

	N	Mean	SD	Min	Median	Max
TMR/Sales (%)	287	0.11	0.16	0	0.03	1.49
TMR(Sales – ADexp) (%)	287	0.11	0.16	0	0.03	1.58
$\ln(\text{Div} + 1)$	286	3.23	4.46	0	0	12.93
$\ln(\text{TMR} + 1)$	287	3.22	3.49	0	2.56	11.61
$\ln(\text{Div} + 1) - \ln(\text{Div} + \text{TM} + 1)$	286	0	4.41	-9.99	0	11.51
Tobin's q (2017.12) (%)	63	131.39	85.42	47.27	112.53	565.09
Tobin's q (2018.06) (%)	63	133.84	112.58	51.74	105.78	721.56
Tobin's q (2018.12) (%)	63	118.38	82.42	27.89	102.41	548.43
CFR (%)	287	31.09	25.05	0	22.1	100
CFR DIF (2017) (%)	287	14.84	13.63	0	13.44	66.24
CFR DIF (2018) (%)	272	15.42	13.43	0	14.97	66.24
Foreign ownership (%)	287	2.91	8.06	0	0	45.68
$\ln(\text{Sales})$	287	11.74	2.22	2.08	11.57	17.28
RPT Revenue (%)	287	30.45	33.73	0	15.25	100
Advertising expenditure (%)	287	1.39	7.92	0	0.02	127.67
$\ln(\text{Age} + 1)$	287	2.76	0.87	0	2.83	4.48
Leverage (%)	287	48.71	24.45	0.4	49.78	99.97
ROE (%)	287	0.88	38.78	-250	5.24	115.46
FCF (%)	286	11.06	23.07	-96.78	8.97	237.86

Sales growth (%)	278	17.2	74.6	-63.07	3.33	889.43
Earnings volatility (%)	278	13.69	62.94	0.21	2.8	517.41

Panel C. Licensor firms belonging to other business groups

	N	Mean	SD	Min	Median	Max
CFR (%)	35	33.37	32.31	2.13	23.62	100
Foreign ownership (%)	35	19.29	17.7	0	17.39	52.74
$\ln(\text{Sales})$	35	14.68	2.32	8.59	15.3	18.9
RPT Revenue (%)	35	35.91	34.69	0	24	98.71
Advertising expenditure (%)	35	0.77	1.74	0	0.19	9.72
$\ln(\text{Age} + 1)$	35	3.45	0.71	1.39	3.58	4.44
Leverage (%)	35	46.52	24.59	3.42	44.48	93.33
ROE (%)	35	6.17	11.07	-19.6	5.57	37.39
FCF (%)	35	5.62	14.16	-47.76	6.56	33.81
Sales growth (%)	35	14.04	57.87	-53.54	2.77	308.46
Earnings volatility (%)	35	20.72	83.04	0.49	3.7	495.32

Panel D. Member firms belonging to other business groups

	N	Mean	SD	Min	Median	Max
TMR/Sales (%)	262	0.07	0.16	0	0	1.79
TMR(Sales – ADexp) (%)	262	0.07	0.16	0	0	1.83
$\ln(\text{Div} + 1)$	260	2.61	4.12	0	0	13.26
$\ln(\text{TMR} + 1)$	262	2.05	3.14	0	0	10.79
$\ln(\text{Div} + 1) - \ln(\text{Div} + \text{TM} + 1)$	260	0.55	4.28	-9.35	0	9.94
Tobin's q (2017.12) (%)	40	136.44	142.45	43.32	97.37	910.94
Tobin's q (2018.06) (%)	40	128.7	94.23	44.58	97.67	538.89
Tobin's q (2018.12) (%)	42	118.21	76.52	38.58	96.04	441.04
CFR (%)	262	35.46	29.54	0	25.15	100
CFR DIF (2017) (%)	262	14.31	21.18	0	8.04	100
CFR DIF (2018) (%)	247	11.83	15.24	0	5.85	80.15
Foreign ownership (%)	262	1.43	5.04	0	0	43.06
$\ln(\text{Sales})$	262	11.24	2.13	2.4	11.17	17.17
RPT Revenue (%)	262	23.28	31.73	0	5.62	100
Advertising expenditure (%)	262	1.51	8.6	0	0.03	94.01
$\ln(\text{Age} + 1)$	262	2.67	0.89	0	2.74	4.28
Leverage (%)	262	49.69	26.54	0.26	52.03	99.17
ROE (%)	262	4.51	39.49	-250	7.61	111.44
FCF (%)	260	12.92	21.98	-97.95	10.09	100.23
Sales growth (%)	252	59.3	171.08	-63.73	9.19	889.43
Earnings volatility (%)	252	23.86	64.14	0.21	5.77	517.41

Table 5. Determinants of licensor company choice

This table reports the results of the probit and linear probability model (LPM) regressions, where we investigate the factors that determine the choice of licensor companies. The dependent variable takes a value of 1 if the company is a licensor company, and 0 otherwise. The covariates include controlling family's cash flow rights (*CFR*), group fixed effects, and others. The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data). Note that sample firms include licensor firms, licensee firms, and firms outside the license agreement. Regressions in Columns (1) to (2) report the results of probit analyses, whereas regressions in Columns (3) to (4) report the results of the LPM analyses. The coefficient estimates in the probit analyses are average marginal effects on probability. *z*-values (*t*-values in case of Columns (4) to (6)), 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)
	Probit		LPM	
CFR (%)	0.0010*** [2.76]	0.0017*** [4.87]	0.0010*** [2.76]	0.0017*** [3.91]
<i>ln</i> (Sales)		0.0237*** [3.24]		0.0075 [0.95]
RPT Revenue (%)		0.0009*** [5.69]		0.0013*** [4.61]
Advertising expenditure (%)		0.0024*** [4.60]		0.0018 [1.66]
<i>ln</i> (Age + 1)		0.0357*** [3.53]		0.0482*** [3.34]
Leverage (%)		-0.0012*** [-4.48]		-0.0007** [-2.34]
ROE (%)		-0.0001 [-0.52]		-0.0001 [-0.83]
FCF (%)		-0.0017*** [-3.57]		-0.0006** [-2.55]
Sales growth (%)		>-0.0001 [-0.16]		<0.0001 [0.57]
Earnings volatility (%)		0.0001* [1.69]		0.0001 [0.76]
Foreign ownership (%)		0.0032*** [4.44]		0.0091*** [5.48]
Constant	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes
# observations	855	824	855	824
Pseudo (Adjusted) R ²	0.109	0.588	0.109	0.235

Table 6. Determinants of licensee company choice

This table reports the results of the linear probability model (LPM) regressions, where we investigate the factors that determine the choice of licensee companies. The dependent variable takes a value of 1 if the company is a licensee company, and 0 otherwise. The covariates include the difference in cash flow rights between the licensor firm and the subject firm (*CFR DIF*), sales, interaction between the two, group fixed effects, and others. The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms). Note that *CFR DIF* cannot be defined for firms paying royalties to multiple licensor firms; also note that sample firms include licensee firms and firms outside the license agreement, but not licensor firms. Regressions in Columns (1) to (3) use firms in pure holding company groups, whereas regressions in Column (4) to (6) use firms in other business groups. 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)
	Pure Holding Company Groups			Other Business Groups		
ln(Sales) x CFR DIF (%)	0.0018** [2.48]	0.0016* [2.14]	0.0016* [2.09]	0.0002 [0.58]	-0.0003 [-0.60]	-0.0003 [-0.57]
ln(Sales) x RPT Revenue (%)			-0.0001 [-0.42]			0.0003 [0.94]
ln(Sales)	0.0726*** [4.23]	0.0680** [3.03]	0.0708** [2.99]	0.0940*** [3.84]	0.1087*** [4.64]	0.1026*** [4.88]
CFR DIF (%)	-0.0215** [-2.35]	-0.0219* [-2.05]	-0.0219* [-1.99]	-0.0049 [-0.97]	0.001 [0.19]	0.001 [0.17]
RPT Revenue (%)	-0.0003 [-0.74]	-0.0002 [-0.54]	0.0011 [0.35]	0.0004 [0.45]	0.0002 [0.19]	-0.0032 [-0.98]
Advertising expenditure (%)	-0.0009 [-0.52]	-0.0006 [-0.31]	-0.0005 [-0.24]	0.0011 [0.48]	0.0055* [1.87]	0.0055* [1.86]
ln(Age + 1)		-0.0311 [-1.24]	-0.031 [-1.22]		0.0217 [0.37]	0.0262 [0.44]
Leverage (%)		0.0001 [0.06]	0.0001 [0.08]		-0.0011 [-1.20]	-0.001 [-1.04]
ROE (%)		0.0002 [0.26]	0.0002 [0.27]		0.0001 [0.06]	<0.0001 [0.05]
FCF (%)		-0.0013 [-1.44]	-0.0013 [-1.44]		-0.0001 [-0.04]	>-0.0001 [-0.00]
Sales growth (%)		>-0.0001 [-0.08]	>-0.0001 [-0.07]		0.0001 [0.38]	0.0001 [0.44]
Earnings volatility (%)		-0.0005 [-1.78]	-0.0005* [-1.86]		-0.0005 [-1.75]	-0.0004 [-1.74]
Foreign ownership (%)		0.0069*** [3.38]	0.0069*** [3.37]		0.0012 [0.28]	0.0016 [0.36]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	287	277	277	262	250	250
Adjusted R ²	0.307	0.301	0.298	0.361	0.379	0.377

Table 7. Determinants of trademark royalty rates

This table reports the results of OLS regressions, where we investigate the determinants of trademark royalty (*TMR*) rates computed in two different ways: *TMR* scaled by sales and (sales – advertisement expense). They are all in percentage terms (%). The covariates include *CFR DIF*, sales, interaction between the two, group fixed effects, and others. The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms). Note that *CFR DIF* cannot be defined for firms paying royalties to multiple licensor firms; also note that sample firms include licensee firms and firms outside the license agreement, but not licensor firms. We also exclude firms if (sales – advertisement expense) are nonpositive. 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

Dependent Var.	(1)	(2)	(3)	(4)	(5)	(6)
	TMR/Sales(%)			TMR/(Sales – ADexp) (%)		
<i>ln</i> (Sales)×CFR DIF	0.0009* [1.84]	0.0007** [2.22]	0.0007** [2.31]	0.0009* [1.83]	0.0008** [2.27]	0.0008** [2.37]
<i>ln</i> (Sales)×RPT revenue (%)			0.0001 [0.47]			0.0001 [0.48]
<i>ln</i> (Sales)	0.0112 [1.55]	0.0124 [1.67]	0.010 [1.01]	0.0113 [1.53]	0.0119 [1.67]	0.0095 [1.00]
CFR DIF (%)	-0.0099* [-1.88]	-0.0088** [-2.34]	-0.0087** [-2.45]	-0.0104* [-1.87]	-0.0091** [-2.39]	-0.0090** [-2.50]
RPT Revenue (%)		<0.0001 [0.16]	-0.0011 [-0.48]		<0.0001 [0.07]	-0.0011 [-0.51]
Advertising expenditure (%)		0.0004 [0.57]	0.0003 [0.37]			
<i>ln</i> (Age + 1)		-0.0205 [-1.06]	-0.0206 [-1.06]		-0.0217 [-1.08]	-0.0218 [-1.09]
Leverage (%)		-0.0003 [-0.89]	-0.0003 [-0.97]		-0.0003 [-0.88]	-0.0003 [-0.96]
ROE (%)		-0.0004 [-1.38]	-0.0004 [-1.40]		-0.0004 [-1.38]	-0.0004 [-1.39]
FCF (%)		-0.0002 [-0.73]	-0.0002 [-0.72]		-0.0002 [-0.86]	-0.0002 [-0.85]
Sales growth (%)		>-0.0001 [-0.22]	>-0.0001 [-0.23]		>-0.0001 [-0.23]	>-0.0001 [-0.24]
Earnings volatility (%)		-0.0001 [-1.20]	-0.0001 [-1.40]		-0.0001 [-1.13]	-0.0001 [-1.52]
Foreign ownership (%)		0.0044 [1.48]	0.0044 [1.49]		0.0049 [1.54]	0.0049 [1.55]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	287	277	277	287	277	277
Adjusted R ²	0.34	0.378	0.377	0.335	0.382	0.381

Panel B. Other Business Groups

Dependent Var.	(1)	(2)	(3)	(4)	(5)	(6)
	TMR/Sales(%)			TMR/(Sales – ADexp) (%)		
<i>ln</i> (Sales)×CFR DIF	<0.0001 [0.23]	-0.0001 [-0.37]	-0.0001 [-0.37]	<0.0001 [0.35]	<0.0001 [0.08]	<0.0001 [0.08]
<i>ln</i> (Sales)×RPT revenue (%)			<0.0001 [0.09]			<0.0001 [0.07]
<i>ln</i> (Sales)	0.0218*** [3.13]	0.0220** [2.46]	0.0218** [2.26]	0.0218*** [3.10]	0.0209** [2.40]	0.0207** [2.25]
CFR DIF (%)	-0.0006 [-0.43]	0.0003 [0.23]	0.0003 [0.22]	-0.0008 [-0.54]	-0.0004 [-0.26]	-0.0004 [-0.26]
RPT Revenue (%)		0.0001 [0.20]	-0.0001 [-0.06]		<0.0001 [0.01]	-0.0001 [-0.08]
Advertising expenditure (%)		0.0028* [1.93]	0.0028* [1.92]			
<i>ln</i> (Age + 1)		-0.0311 [-1.32]	-0.0309 [-1.24]		-0.0325 [-1.38]	-0.0323 [-1.29]
Leverage (%)		-0.0003 [-1.29]	-0.0003 [-1.30]		-0.0004 [-1.37]	-0.0004 [-1.38]
ROE (%)		<0.0001 [0.22]	<0.0001 [0.22]		>-0.0001 [-0.08]	>-0.0001 [-0.08]
FCF (%)		-0.0001 [-0.17]	-0.0001 [-0.17]		-0.0001 [-0.14]	-0.0001 [-0.14]
Sales growth (%)		>-0.0001 [-0.15]	>-0.0001 [-0.14]		>-0.0001 [-0.80]	>-0.0001 [-0.83]
Earnings volatility (%)		-0.0004 [-1.67]	-0.0004 [-1.65]		-0.0002 [-1.02]	-0.0002 [-1.01]
Foreign ownership (%)		0.0043 [1.19]	0.0043 [1.19]		0.0045 [1.30]	0.0045 [1.30]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	262	250	250	262	250	250
Adjusted R ²	0.188	0.2	0.196	0.186	0.194	0.19

Table 8. The elasticity of dividend payouts in respect to trademark royalty payments

This table reports the results of OLS regressions, where we investigate how dividend payout ($\ln(\text{Div} + 1)$) is associated with trademark royalty payments, CFR DIF, interaction between the two, group fixed effects, and others. The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms). Note that *CFR DIF* cannot be defined for firms paying royalties to multiple licensor firms; also note that sample firms include licensee firms and firms outside the license agreement, but not licensor firms. Regressions in Columns (1) to (2) use firms belonging to pure holding company groups, whereas regressions in Columns (3) to (4) use firms belonging to other business groups. 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)
	Pure Holding Company Groups		Other Business Groups	
$\ln(\text{TMR} + 1) \times \text{CFR DIF}$	-0.0082** [-2.36]	-0.0084** [-2.35]	0.0018 [0.39]	0.002 [0.43]
$\ln(\text{TMR} + 1) \times \text{RPT Revenue (\%)}$		0.0009 [0.72]		0.0012 [0.55]
$\ln(\text{TMR} + 1)$	0.1025 [1.30]	0.079 [1.02]	0.007 [0.05]	-0.0204 [-0.13]
CFR DIF	-0.0002 [-0.02]	0.0006 [0.06]	-0.0281 [-1.77]	-0.0279 [-1.77]
$\ln(\text{Sales})$	1.0147*** [8.52]	1.0218*** [8.55]	0.4848*** [3.27]	0.4830*** [3.27]
RPT revenue (%)	-0.0112 [-1.56]	-0.0128* [-2.13]	-0.0046 [-0.53]	-0.0066 [-0.65]
Advertising expenditure (%)	0.0235* [2.07]	0.0238* [2.11]	-0.0224 [-0.81]	-0.0234 [-0.83]
$\ln(\text{Age} + 1)$	-0.1615 [-0.49]	-0.157 [-0.46]	0.8065** [2.94]	0.8261** [2.97]
Leverage (%)	-0.0374*** [-5.23]	-0.0376*** [-5.12]	-0.0238*** [-3.85]	-0.0231*** [-3.83]
ROE (%)	0.0018 [0.45]	0.0017 [0.41]	0.0055 [1.61]	0.0055 [1.61]
FCF (%)	0.0116 [0.81]	0.0116 [0.82]	-0.0013 [-0.10]	-0.0009 [-0.07]
Sales growth (%)	-0.0054*** [-4.02]	-0.0054*** [-3.94]	-0.0023* [-1.95]	-0.0023* [-2.00]
Earnings volatility (%)	-0.0004 [-0.31]	-0.0005 [-0.39]	0.0013 [0.39]	0.0014 [0.42]
Foreign ownership (%)	0.1676*** [4.38]	0.1680*** [4.44]	0.1447*** [3.41]	0.1471*** [3.52]
Constant	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes
# observations	277	277	250	250
Adjusted R ²	0.451	0.449	0.3	0.298

Table 9. The elasticity of dividend payouts and trademark royalty payments in respect to sales

This table reports the results of OLS regressions, where we investigate how dividend payouts (Columns (1)-(2)), trademark royalty payments (Columns (3)-(4)), and the relative size of both (Columns (5)-(6)) are associated with CFR DIF, sales, interaction between the two, group fixed effects, and others. The sample includes firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms). Note that *CFR DIF* cannot be defined for firms paying royalties to multiple licensor firms; also note that sample firms include licensee firms and firms outside the license agreement, but not licensor firms. Panel A uses firms belonging to pure holding company groups, whereas Panel B uses firms belonging to other business groups. 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

Dependent Var.	(1)	(2)	(3)	(4)	(5)	(6)
	$\ln(\text{Div} + 1)$		$\ln(\text{TMR} + 1)$		$\ln(\text{Div} + 1) - \ln(\text{TMR} + 1)$	
$\ln(\text{Sales}) \times \text{CFR DIF}$	-0.017*** [-3.38]	-0.017*** [-3.51]	0.012** [2.32]	0.012** [2.23]	-0.029*** [-3.51]	-0.029*** [-3.53]
$\ln(\text{Sales}) \times \text{RPT revenue} (\%)$		-0.002 [-0.32]		-0.001 [-0.65]		>-0.001 [-0.12]
$\ln(\text{Sales})$	1.231*** [9.66]	1.273*** [7.67]	0.849*** [6.39]	0.879*** [5.45]	0.381* [1.85]	0.393* [2.12]
CFR DIF (%)	0.167** [2.68]	0.167** [2.81]	-0.149** [-2.30]	-0.150** [-2.21]	0.316** [2.99]	0.316** [3.00]
RPT revenue (%)	-0.012 [-1.73]	0.008 [0.14]	-0.005 [-1.77]	0.009 [0.45]	-0.007 [-1.15]	-0.001 [-0.03]
Advertising expenditure (%)	0.030*** [3.11]	0.032** [2.55]	0.018 [1.47]	0.019 [1.40]	0.013 [0.90]	0.013 [1.00]
$\ln(\text{Age} + 1)$	-0.182 [-0.53]	-0.18 [-0.54]	-0.171 [-1.06]	-0.17 [-1.04]	-0.011 [-0.02]	-0.01 [-0.02]
Leverage (%)	-0.040*** [-4.73]	-0.040*** [-4.61]	0.002 [0.31]	0.002 [0.36]	-0.042*** [-4.54]	-0.042*** [-4.31]
ROE (%)	0.001 [0.34]	0.002 [0.37]	-0.003 [-0.54]	-0.003 [-0.53]	0.004 [0.51]	0.004 [0.51]
FCF (%)	0.012 [0.84]	0.012 [0.83]	-0.006 [-1.52]	-0.006 [-1.57]	0.018 [1.05]	0.018 [1.05]
Sales growth (%)	-0.006*** [-4.38]	-0.006*** [-4.30]	-0.001 [-0.34]	-0.001 [-0.33]	-0.005** [-2.76]	-0.005** [-2.76]
Earnings volatility (%)	>-0.001 [-0.04]	<0.001 [0.07]	-0.001 [-0.45]	-0.001 [-0.39]	0.001 [0.33]	0.001 [0.36]
Foreign ownership (%)	0.168*** [6.60]	0.168*** [6.75]	0.083*** [6.07]	0.083*** [5.91]	0.085** [2.69]	0.085** [2.70]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	277	277	277	277	277	277
Adjusted R ²	0.457	0.456	0.558	0.557	0.165	0.162

Panel B. Other Business Groups

Dependent Var.	(1)	(2)	(3)	(4)	(5)	(6)
	$\ln(\text{Div} + 1)$		$\ln(\text{TMR} + 1)$		$\ln(\text{Div} + 1) - \ln(\text{TMR} + 1)$	
$\ln(\text{Sales}) \times \text{CFR DIF}$	>-0.001 [-0.07]	-0.001 [-0.05]	0.001 [0.32]	0.001 [0.32]	-0.002 [-0.31]	-0.002 [-0.25]
$\ln(\text{Sales}) \times \text{RPT revenue} (\%)$		0.006 [0.66]		>-0.001 [-0.09]		0.006 [0.56]
$\ln(\text{Sales})$	0.529** [2.40]	0.415 [1.76]	0.925*** [4.29]	0.930*** [4.29]	-0.396* [-2.15]	-0.514** [-2.49]
CFR DIF (%)	-0.02 [-0.26]	-0.021 [-0.25]	-0.014 [-0.35]	-0.014 [-0.35]	-0.006 [-0.08]	-0.006 [-0.08]
RPT revenue (%)	-0.005 [-0.60]	-0.067 [-0.71]	-0.003 [-0.53]	<0.001 [0.00]	-0.003 [-0.25]	-0.068 [-0.61]
Advertising expenditure (%)	-0.018 [-0.76]	-0.018 [-0.71]	0.042* [2.09]	0.042* [2.08]	-0.060* [-2.10]	-0.060* [-2.01]
$\ln(\text{Age} + 1)$	0.805** [2.89]	0.889** [2.91]	-0.132 [-0.49]	-0.136 [-0.46]	0.938** [2.30]	1.025* [1.99]
Leverage (%)	-0.024*** [-3.96]	-0.021** [-2.74]	-0.002 [-0.32]	-0.002 [-0.34]	-0.022** [-2.33]	-0.020* [-1.80]
ROE (%)	0.006 [1.73]	0.006 [1.75]	-0.003 [-0.47]	-0.003 [-0.47]	0.009 [1.20]	0.009 [1.21]
FCF (%)	-0.002 [-0.21]	-0.001 [-0.11]	-0.007 [-0.79]	-0.007 [-0.81]	0.004 [0.26]	0.006 [0.35]
Sales growth (%)	-0.002 [-1.78]	-0.002 [-1.76]	-0.001 [-1.32]	-0.001 [-1.32]	-0.001 [-0.80]	-0.001 [-0.67]
Earnings volatility (%)	0.001 [0.35]	0.001 [0.38]	-0.002 [-0.72]	-0.002 [-0.72]	0.003 [0.87]	0.003 [0.88]
Foreign ownership (%)	0.150*** [3.75]	0.158*** [3.63]	0.052 [1.59]	0.051 [1.49]	0.098* [1.85]	0.106* [1.80]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	250	250	250	250	250	250
Adjusted R ²	0.302	0.304	0.542	0.54	0.121	0.122

Table 10. The elasticity of firm's market value in respect to trademark royalty payments

This table reports the results of *OLS* regressions, where we investigate how firm's market value (Tobin's q) prior to the disclosure of trademark royalty payments (Columns (1)-(2)), immediately after the disclosure (Columns (3)-(4)), and a few months after the disclosure (Columns (5)-(6)) are associated with trademark royalty payments, CFR DIF, interaction between the two, group fixed effects, and others. CFR DIF (2017) is based on ownership structure as of 2017 (May for groups above 10 trillion won and September for groups between 5-10 trillion won), whereas CFR DIF (2018) is based on ownership structure as of May 2018. All other covariates are measured either at the end of 2017 (Columns (1)-(4)) or at the end of 2018 (Columns (5)-(6)). Tobin's q is industry-adjusted. That is, the firm's original Tobin's q minus the median value of Tobin's q for the industry the firm belongs to (using 4-digit KSIC code for manufacturing sector firms and 2-digit KSIC code for all other firms). The sample includes listed firms belonging to the business groups listed in Table 1 (excluding two groups that lack the 2017 group ownership data and seven groups that have multiple licensor firms). Note that CFR DIF cannot be defined for firms paying royalties to multiple licensor firms; also note that sample firms include licensee firms and firms outside the license agreement, but not licensor firms. Panel A uses firms belonging to pure holding company groups, whereas Panel B uses firms belonging to other business groups. 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)
	Tobin's q (2017.12)		Tobin's q (2018.6)		Tobin's q (2018.12)	
$\ln(\text{TMR}+1) \times \text{CFR DIF (2017)}$	-0.555*** [-4.29]	-0.627** [-2.62]				
$\ln(\text{TMR}+1) \times \text{CFR DIF (2018)}$			-0.607*** [-3.54]	-0.942*** [-3.13]	-0.497* [-2.07]	-0.540** [-2.26]
$\ln(\text{TMR}+1) \times \text{RPT Revenue (\%)}$		0.216* [1.92]		0.253* [2.01]		0.139** [2.54]
$\ln(\text{TMR}+1)$	3.372 [1.20]	-2.205 [-0.48]	2.752 [0.90]	1.989 [0.70]	4.483 [1.21]	2.383 [0.80]
CFR DIF (2017)	2.867** [2.24]	4.490* [2.06]				
CFR DIF (2018)			2.88 [1.27]	4.665 [1.37]	1.876 [0.79]	2.256 [0.93]
$\ln(\text{Sales})$	-7.559 [-1.75]	-22.621 [-1.36]	5.292 [0.68]	-13.278 [-0.63]	-2.318 [-0.38]	-5.471 [-0.90]
RPT Revenue (%)	-0.562** [-2.41]	-1.899* [-1.85]	-0.618** [-2.22]	-2.069* [-2.00]	-0.337** [-2.35]	-1.034*** [-4.19]
Advertising expenditure (%)	0.915 [0.83]	-1.585 [-0.81]	2.692** [2.42]	2.1 [1.10]	4.047 [1.12]	4.188 [1.28]
$\ln(\text{Age} + 1)$	4.041 [0.55]	-3.396 [-0.37]	4.372 [0.48]	4.626 [0.37]	-6.901 [-0.80]	-7.278 [-0.87]
Leverage (%)	0.822** [2.21]	0.803 [1.76]	-0.077 [-0.15]	0.319 [0.83]	0.189 [0.52]	0.16 [0.39]
ROE (%)	0.692 [0.49]	0.686 [0.53]	1.478 [0.63]	1.01 [0.52]	-0.002 [-0.01]	-0.034 [-0.17]
FCF (%)	-0.851 [-1.29]	-0.599 [-0.59]	-1.740* [-1.81]	-1.675* [-2.08]	-0.174 [-0.25]	-0.108 [-0.18]
Sales Growth (%)	3.000*** [7.15]	3.009*** [4.65]	5.157*** [5.68]	5.563*** [5.95]	3.384** [2.86]	3.730*** [3.25]
Earnings Volatility (%)	0.119 [0.09]	-1.933 [-0.51]	1.024 [0.35]	-0.64 [-0.14]	0.566 [0.35]	-0.436 [-0.24]
Foreign ownership (%)	2.410** [2.39]	4.759* [1.83]	0.912 [0.99]	3.09 [1.26]	0.941 [1.43]	1.162* [1.94]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	63	63	62	62	61	61
Adjusted R ²	0.381	0.393	0.454	0.508	0.339	0.369

Panel B. Other Business Groups

	(1)	(2)	(3)	(4)	(5)	(6)
	Tobin's q (2017.12)		Tobin's q (2018.6)		Tobin's q (2018.12)	
$\ln(\text{TMR}+1) \times \text{CFR DIF}(2017)$	-0.411 [-1.51]	-0.343 [-1.47]				
$\ln(\text{TMR}+1) \times \text{CFR DIF}(2018)$			-0.063 [-0.14]	-0.075 [-0.16]	0.214 [0.75]	0.197 [0.61]
$\ln(\text{TMR}+1) \times \text{RPT Revenue } (\%)$		0.122 [0.63]		0.188 [1.04]		0.062 [0.30]
$\ln(\text{TMR}+1)$	-5.724 [-0.39]	7.39 [1.56]	-2.917 [-0.33]	-5.315 [-0.62]	3.282 [1.33]	2.475 [0.71]
CFR DIF(2017)	-1.077 [-0.50]	0.465 [0.26]				
CFR DIF(2018)			0.201 [0.08]	0.341 [0.12]	3.009 [0.97]	2.965 [0.89]
$\ln(\text{Sales})$	-3.451 [-0.14]	-22.457 [-1.36]	-22.85 [-1.32]	-19.103 [-1.06]	-9.048 [-0.42]	-8.253 [-0.36]
RPT Revenue (%)	-1.41 [-1.22]	-0.607 [-1.17]	-1.117 [-1.76]	-1.559*** [-4.04]	-1.432 [-1.70]	-1.631** [-2.97]
Advertising expenditure (%)	-6.539 [-0.94]	8.013 [1.80]	-12.533 [-1.37]	-11.743 [-1.39]	1.968 [0.37]	1.867 [0.30]
$\ln(\text{Age} + 1)$	-13.311 [-0.30]	12.852 [0.78]	23.465 [0.49]	15.351 [0.32]	27.384 [0.65]	24.244 [0.50]
Leverage (%)	1.344 [1.21]	1.095* [1.92]	0.837 [0.79]	1.058 [1.02]	0.679 [1.09]	0.75 [1.24]
ROE (%)	-2.076** [-2.51]	-1.920*** [-3.43]	2.373 [0.93]	2.4 [0.96]	5.681** [2.31]	5.666* [2.19]
FCF (%)	-1.671 [-0.96]	0.631 [0.82]	-2.862 [-1.59]	-2.651 [-1.41]	3.403 [1.61]	3.244 [1.29]
Sales Growth (%)	2.089 [0.74]	2.595 [1.15]	2.39 [0.99]	2.302 [0.90]	-2.831*** [-3.42]	-2.682** [-2.30]
Earnings Volatility (%)	-0.716 [-0.13]	-2.216 [-0.88]	-4.778 [-0.61]	-3.221 [-0.40]	-2.129 [-0.37]	-1.869 [-0.31]
Foreign ownership (%)	-0.871 [-0.26]	0.2 [0.09]	0.935 [0.21]	1.246 [0.27]	-3.059 [-1.45]	-2.871 [-1.10]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	40	40	37	37	39	39
Adjusted R ²	0.5	0.876	-0.145	-0.179	-0.046	-0.108