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Sojung Kim
Korea University Business School

Woochan Kim
Korea University Business School and ECGI

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Abstract

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Keywords: Trademark royalties, tunneling, holding companies, business groups, cash flow rights, dividends

JEL Classifications: G3, G32, G34

Sojung Kim*
Researcher
Korea University Business School
145, Anam-Ro
Seoul, 02841, Korea
e-mail: sjkim5280@gmail.com

Woochan Kim
Professor of Finance
Korea University Business School, Department of Finance
Anam, Seongbuk
Seoul 136-701, Korea
phone: +822 3290 2816
e-mail: wckim@korea.ac.kr

*Corresponding Author

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Sojung Kim† and Woochan Kim‡

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† Corresponding author, Korea University Business School, Seoul, Korea; e-mail: sjkim5280@gmail.com
‡ 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-subsidiary 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 such firms are far below those in the licensor firms.

Fifth, we find that the dividend payouts and trademark royalty payments of licensee firms increase with their sales volume, but the former increase less and the latter more if the controlling family's cash flow rights in the 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*). This is equivalent to the controlling family members obtaining the shares of the licensor firms at an unfairly cheap price. 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. Instead, we observe controlling families increasing their share ownership in newly established holding companies before these holding companies start to collect trademark royalties from theirs subsidiaries. However, it is impossible to figure out how undervalued the shares of these holding companies were at the time the controlling family members increased their share ownership. In the Appendix attached to this paper, we discuss the three steps business groups in Korea typically go through in establishing holding companies. We also explain why it is impossible

to determine how undervalued the shares of holding companies – the future licensor firm – are and how overvalued the shares of future licensee firms are at the time of new share issuance by the holding companies.

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

[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.

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 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

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

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 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 so, 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**).

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 (**H6a**). 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 (**H6b**).

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 to the new disclosure rule adopted in March 2018, these business groups also had to disclose the details of their 2017 trademark royalty transactions in May 2018. From this list of 60 business groups, we exclude groups with no record to intragroup trademark transactions (23 groups) and 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. The information on intragroup trademark transactions became available to the public for the first time in May 2018 when KFTC released the 2017 data.

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 33% 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.

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

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.

[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.

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.

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, and method of calculating royalties. The first disclosure following the new rule was released in May 2018.

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 same group. However, most of them fall into the following three categories: (1) sales × royalty rate; (2) (sales – advertisement expenditure) × royalty rate; and (3) (sales – advertising expenditure – related-party sales) × royalty rate.[6] In some cases, business groups use EBITDA

[6] For financial companies, royalties are based on operating revenue, not on sales.

instead of sales, or even combine the two. Some apply adjustment coefficients that are not publicly disclosed. The royalty rate ranges from 0.01% to 1%. However, it should be noted that the actual charges collected or paid are not always identical to the amount computed using the formulas disclosed.

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.[7] We follow the method introduced in Kim, Lim, and Sung (2007) to compute *CFR*. For ownership information, we use KFTC data that 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 include privately held firms, allowing us to know the complete control chain for each member firm and compute precise cash flow rights.

We use two variants of *CFR*: the difference in cash flow rights between the licensor firm and the licensee member firms (*CFR DIF*) and a binary indicator variable that takes a value of 1 if *CFR DIF* is above the median, and 0 otherwise (*High DIF*). Note that the median values of *CFR DIF* are obtained from a combined sample of pure holding company groups and other business groups. When obtaining the median values, we also consider firms with missing financial data and eventually dropped in our regression analyses. We consider them because controlling families would do the same when choosing the firms for expropriation. Note also that *CFR DIF* is measured

[7] In the calculation of CFR, we use ownership based on common shares.

in the beginning of the year wherein trademark royalties are paid—that is, measured at year-end 2016 for payments made throughout year 2017. This is based on our observation that licensing agreements are made annually in the beginning of the year. 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 302 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*.[8] 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 groups, whereas Panel D provides the statistics for 354 member firms from 14 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 four groups (Doosan, Jungheung, Hyundai Motor, and Samsung) 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.

From Table 4, two points are noteworthy for *CFR*. First, the licensor firms in pure holding company groups have average cash flow rights (51.76%), considerably higher than those in other business groups (33.6%). 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 (12.81%) than in other

[8] 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

business groups (10.84%). 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 (3) report the results of the

probit analyses, whereas the regressions in Columns (4) to (6) 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. The coefficient of 0.0016 in Column (3) suggests that a 10-percentage-point increase in *CFR* increases the probability to own a license by 0.016 or 1.6 percentage points. Given that only 4.6% of the member firms in our sample own the group's trademark, this is a 35% (= 1.6/4.6) 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 larger and older firms 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: 39% of the member firms in case of pure holding company groups and 22% 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.[9] 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 six 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.

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*(sales) and *CFR DIF* is positive and statistically significant at the 5% level. The coefficients in Column (3) suggests that, for firms with *CFR DIF* equal to 0, a 1-SD increase in *ln*(sales) increases the probability of being a licensee firm by 50.8 (= 0.0643 × 7.9) percentage points. However, for firms with *CFR DIF* of 14.8% (the median value for pure holding company groups), a 1-SD percent increase in *ln*(sales) increases the probability of being a licensee firm by 60.15 (= (0.0643 × 7.9 + (0.0008 × 14.8) × 7.9) 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

[9] 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.

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 three different ways: *TMR* scaled by sales; (sales – advertisement expense); and (sales – advertisement expense – related-party transaction revenue). They are all in percentage terms. The covariates include *High DIF* (1 if *CFR DIF* > median, 0 otherwise), 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 six 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) or (sales – advertisement expense – related-party transaction revenue) are nonpositive.

Panel A of Table 7 shows the results for pure holding company groups. For firms whose cash flow rights are close to those of licensor firms (*High DIF* = 0), we do not find the trademark royalty rates increasing with sales. When controlling for all covariates, the coefficient of *ln*(sales) is either insignificant or negative. However, for firms whose controlling family's cash flow rights are far below those in the licensor firms (*High DIF* = 1), we find that the trademark royalty rates do increase with sales. The coefficient of the interaction term between *ln*(sales) and *High DIF* is

positive and statistically significant at the 5% level across all three measures of royalty rates even when controlling for all covariates. The coefficients in Column (2) suggests that, for firms with *High DIF* equal to 0, a 1-SD increase in *ln*(sales) increases the rates by 0.09 (= 0.0114 × 7.9) percentage points. However, for firms with *High DIF* equal to 1, a 1-SD percent increase in *ln*(sales) increases the rates by 0.20 (= (0.0114 + 0.0139 × 1) × 7.9) percentage points, which is twice as high as that of firms with low *CFR DIF* (*High DIF* = 0). This is a significant jump given that the average level of royalty rate based on sales (*TMR*/Sales) is only 0.09%. In unreported analyses (available upon request), we use *CFR DIF* in lieu of *High DIF* and find similar results. Among other covariates, we find evidence indicating that firms with high financial leverage are subject to lower royalty rates.

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 is stronger in firms wherein the controlling family's cash flow rights are far below those in the licensor firms (**H4a**).

To test this, we run OLS regressions, where we investigate how dividend payout (*ln*(Div +

1)) is associated with trademark royalty payments, *High DIF* (1 if *CFR DIF* > median, 0 otherwise), 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 six 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 firms with low *CFR* difference (*High DIF* = 0), we find that dividend payout rises with the increase in trademark royalty payments, whereas for firms with high *CFR* difference (*High DIF* = 1), we find that the dividend payout drops with the increase in trademark royalty payments. When controlling for all covariates, the coefficient of the interaction term between *ln*(TMR+1) and *High DIF* is negative and statistically significant at the 5% level (Column (2)). The coefficients in Column (2) suggests that the elasticity of dividend payouts with respect to trademark payments is 0.12 for firms with low *CFR* difference, whereas the elasticity for firms with high *CFR* difference is -0.04 (= 0.1207 – 0.1611) for firms with high *CFR* difference. In unreported analyses (available upon request), we use *CFR DIF* in lieu of *High DIF* and find similar results. Moreover, both interaction terms in Column (1) and (2) are significant at the 1% level when we use *CFR DIF* instead of *High DIF*.

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, foreign ownership, and prior dividend payout level have positive coefficients, whereas sales growth and leverage 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 *High DIF* (1 if *CFR DIF* > median, 0 otherwise), 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 six 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 *High DIF* and *ln*(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)). Using the coefficients in Columns (2) and (4), we find that the elasticity of dividend payout with respect to sales is 0.406 for low *CFR* difference firms, whereas it is 0.214 (= 0.406 – 0.192) for high *CFR* difference firms. We also find that the elasticity of trademark royalty payments with respect to sales is 0.666 for low *CFR* difference firms, whereas it is 1.118 (= 0.666 + 0.352) for high *CFR* difference firms. The results in Columns (5) and (6) show that the divergence between the two elasticities is statistically significant at the 1% to 5 level. In unreported analyses (available upon request), we use CFR DIF in lieu of High DIF and find similar results.

In Panel B, we show the results for other business groups. Similar to pure holding company groups, we find the elasticity of trademark royalty payments with respect to sales rising as the controlling family's cash flow rights in the licensee firms fall further below those in the licensor firms, although it is partially and weakly significant (Columns (3) and (4)). However, we do not find the elasticity of dividend payouts with respect to sales dropping (Columns (1) and (2)), which is different from what we find for pure holding company groups. 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. Average Group cash flow rights and the breakdown of licensor firm's revenue by source

Lastly, we investigate the relative importance 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 (**H6a**). 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 (**H6b**).

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.[10] 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 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 (**H6a**).[11] 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 -0.634 and statistically significant at the 5% level.

To the contrary, we find from Plot B that the pure holding company's reliance on dividends

[10] 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.

[11] 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.

rises with the controlling family's average cash flow rights in other member firms (**H6b**). 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 0.489 with a t-value of 1.50. 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.

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.[12] As a profit-shifting mechanism, tunneling is no different from transfer pricing. We believe that the 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.[13]

[12] Some jurisdictions follow the OECD Base Erosion and Profit Shifting (BEPS) project's transfer pricing guidance.

[13] 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.

Appendix:

Establishing Holding Companies in Korea

In Korea, business groups typically go through the following three steps in establishing a holding company: First, a firm (the Original Co.) that owns the group trademark repurchases its own stocks and holds them in the form of treasury stocks. Second, this Original Co. demerges into two firms: Hold Co. and Op Co. When splitting the assets of Original Co., the group trademark is assigned to Hold Co. Concurrently, Op Co. offers all its treasury stocks to Hold Co., while Hold Co. continues to hold its treasury stocks. Note that this treasury stock offering enables Hold Co. to own the shares of Op Co. Third, the controlling family purchases newly issued shares of Hold Co, but pays for this transaction in kind using the shares it owns in Op Co. As a result, the controlling family's share ownership in Hold Co. rises, whereas its ownership in Op Co. falls. After this exchange of shareholdings, Hold Co. starts collecting trademark royalties from Op Co.

At the time of new share issuance by Hold Co. (Step 3), no information is provided to the market regarding how Hold Co. will generate revenue from trademarks royalties and how much royalties Op Co. will pay in the future. Market participants have no choice, but to speculate. If there is a Hold Co. that eventually collects more royalties from Op Co. than expected, we can say that this Hold Co. is undervalued and the Op Co. overvalued at the time of new share issuance. In this case, the controlling family members make an immediate monetary gain by purchasing the undervalued shares of Hold Co. using the overvalued shares of Op Co. However, since we do not know how market participants would value the trademarks, it is impossible to determine how undervalued the shares of Hold Co. are and how overvalued the shares of Op Co. are at the time of new share issuance by Hold Co.

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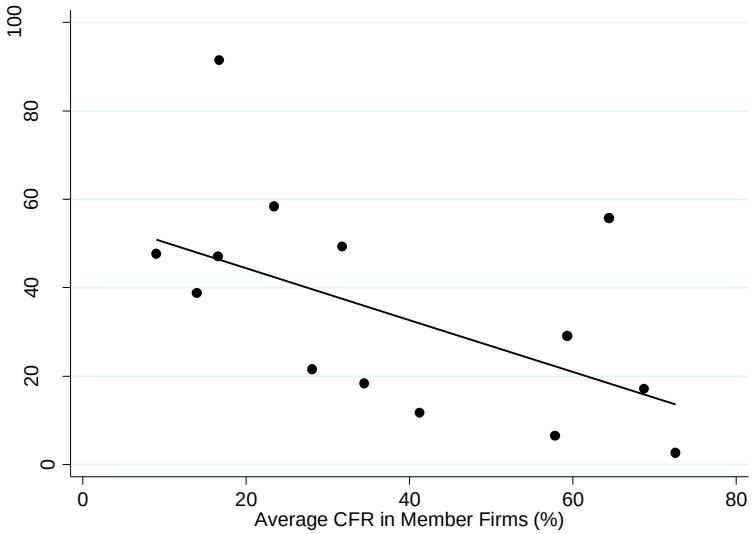
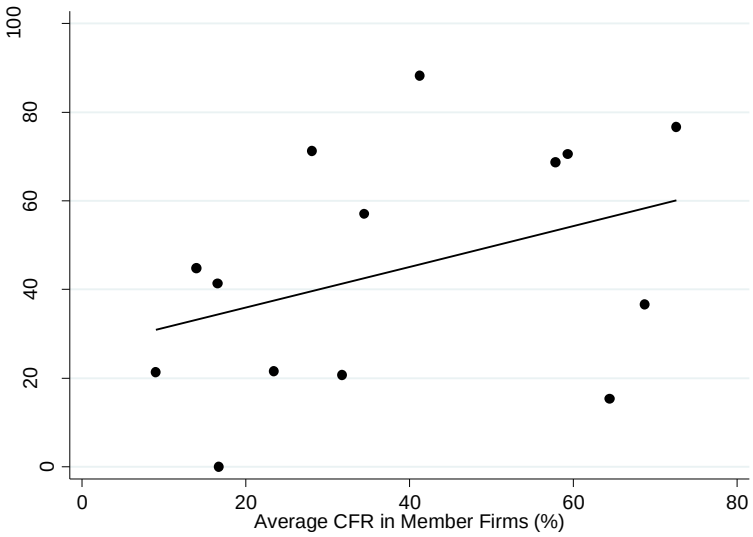
Figure 1. Average Group cash flow rights and the breakdown of licensor firm's revenue by source

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.

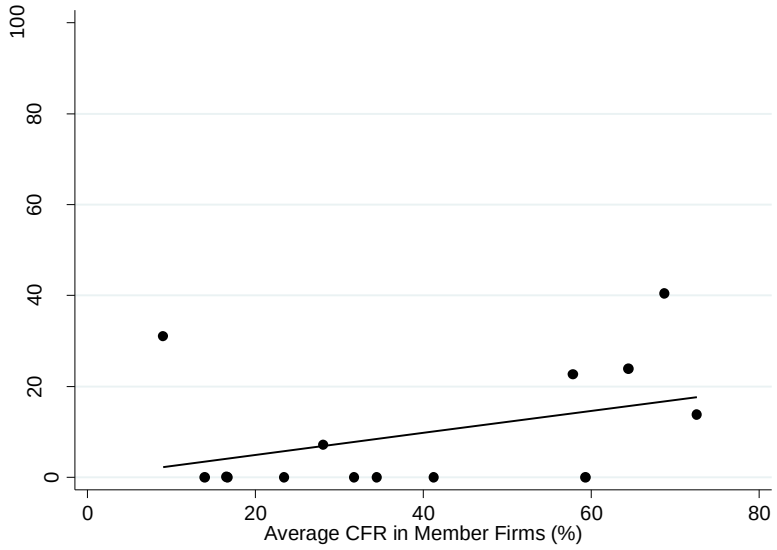
Panel A. Trademark Royalties



Panel B. Dividends



Panel C. Service Fees



Panel D. Rents

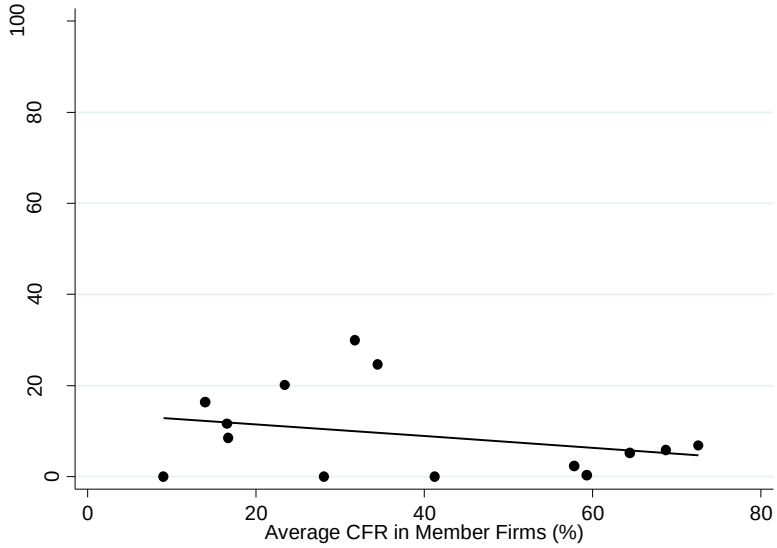


Table 1. Sample business groups and their trademark royalties in 2017

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	85	1	18	92,075
	Dongwon	35	1	17	8,861
	Hanjin	36	2	5	27,643
	Hanjin Heavy Industries	7	1	6	2,013
	Hankook Tire	23	1	1	48,715
	Hansol	20	1	17	12,957
	Harim	64	2	9	5,378
	Hite Jinro	11	1	2	4,418
	Kolon	45	1	16	27,973
	LG	81	1	17	276,389
	Lotte	98	1	49	24,047
	LS	54	1	12	24,103
	Meritz Financial Group	7	1	7	29,986
	Seah	24	1	8	1,147
Other Business Groups	Booyoung	22	1	6	1,163
	Doosan	29	3	8	36,422
	Eugene	74	1	1	1,077
	GS	67	1	23	78,688
	Halla	20	1	5	24,686
	Hanhwa	80	1	26	137,515
	HDC	21	1	11	1,391
	Hyundai Motors	53	3	12	36,682
	Jungheung	60	2	17	2,354
	Kakao	84	1	5	1,384
	Kumho Asiana	31	1	12	19,527
	Mirae Asset	53	1	7	9,791
	Nexen	24	1	3	3,128
	Samsung	52	12	8	9,129
	Shinsegae	42	1	2	1,926
	SK	113	1	62	184,909
	SM	73	1	4	930
	Taekwang	30	1	1	31
	Taeyoung	55	1	5	504

Table 2. Definition of variables

	Name	Definition
Groups	Group TMR	Trademark royalty revenues, aggregated across licensor firms, within a group (unit: million KRW)
	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
	TMR/(Sales – ADexp)	Percentage of licensee firm's trademark royalty payments out of its own sales, less advertisement expenditure
	TMR/(Sales – ADexp – RPTrev)	Percentage of licensee firm's trademark royalty payments out of its own sales, less advertisement expenditure and related-party transaction revenue. Treat as missing value if the denominator is nonpositive.
	ln(Div + 1)	Natural logarithm of cash dividend payout (in million KRW) added by 1
	ln(TMR)	Natural logarithm of trademark royalty payments (in million KRW) added by 1.
	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)
	CFR DIF	[CFR on licensee firm – CFR of licensor firm] × 100
	High DIF	1 if CFR DIF > median, 0 otherwise. The median is 14.34%.
	Foreign ownership	Percentage of common shares held by foreigners
	ln(Assets)	Natural logarithm of assets (in million KRW)
	ln(Sales)	Natural logarithm of sales (in million KRW)
	Leverage	(Debt/Assets) × 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)
	ROE	(Net income/Equity) × 100 (winsorized at the upper and lower 1 percentile values)
	FCF	[(Operating cash flows – Investment cash flows)/Assets] × 100
	ln(Age)	Natural logarithm of years since establishment added by 1.
	ln(Advertising expenditure + 1)	Natural logarithm of advertising expenditure (in million KRW) added by 1
	ln(RPT revenue + 1)	Natural logarithm of related-party transaction revenue (in million KRW) added by 1. Related-party transaction revenue

		includes sales of goods and services and non-operating income generated from member firms.
	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 (operating profit/sales) × 100
	Prior Yr. *ln*(Div + 1)	Natural logarithm of prior year's cash dividend payout (in million KRW) added by 1

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	39,476	15	29,012	19	10,464	0.49
Group Sales (mil. KRW)	34	21,287,047	15	24,798,767	19	-3,511,720	-0.27
Group TMR/Group Sales (%)	34	0.24	15	0.11	19	0.13	1.69
# of licensor firms	34	1.13	15	1.84	19	-0.71	-1.20
# of licensee firms	34	12.53	15	11.47	19	1.06	0.24
# of member firms	34	40.13	15	51.74	19	-11.6	-1.19
# of licensee/# of member (%)	34	39.09	15	21.83	19	17.27*	2.05
Licensor Sales (mil. KRW)	34	111,650	15	21,459,009	19	-21,347,359	-1.36
TMR/Licensor Sales (%)	34	32.73	15	5.2	19	27.53***	4.68
Divided/Licensor Sales (%)	34	46.6	15	9.36	19	37.24***	-4.39
Service Fee/Licensor Sales (%)	34	8.74	15	11.45	19	-2.7	-0.44
Rent/Licensor Sales (%)	34	8.46	15	3.62	19	4.83	1.43

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 302 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 34 licensor firms from 18 other business groups, whereas Panel D provides the statistics for 354 member firms from 14 other business groups. Note that we exclude from Panels A and B one group (Eugene) that lacks the 2017 group ownership data and, thus, it is impossible to compute *CFR*. Additionally, we exclude from Panel B four groups (Doosan, Jungheung, Hyundai Motor, and Samsung) 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	51.76	26.63	12.77	52.57	94.57
ln(Assets)	16	14.27	0.93	12.36	14.42	16.04
Leverage (%)	16	18.6	18.44	2.78	13.66	58.94
ln(Age + 1)	16	3.79	0.77	1.61	4.09	4.44
FCF (%)	16	2.14	6.17	-13.9	2.57	10.49
Foreign ownership (%)	16	10.46	9.48	0	7.68	31.09

Panel B. Member firms belonging to pure holding company groups

	N	Mean	SD	Min	Median	Max
TMR/Sales (%)	302	0.09	0.16	0	0.01	1.49
TMR(Sales – ADexp) (%)	300	0.09	0.16	0	0	1.58
TMR/(Sales – ADexp – RPT) (%)	288	0.96	7.6	0	0.03	116.63
ln(Div + 1)	298	3.1	4.42	0	0	12.93
ln(TMR + 1)	302	2.88	3.33	0	0.69	11.61
ln(Div + 1) – *ln*(Div + TM + 1)	298	0.19	4.23	-9.99	0	11.51
CFR (%)	302	29.51	24.79	0	20.68	100
CFR DIF (%)	302	12.81	18.63	-67.46	14.79	66.24
High DIF	302	0.51	0.5	0	1	1
Foreign ownership (%)	302	11.94	1.97	7.74	11.64	17.15
ln(Assets)	302	11.7	2.21	2.08	11.5	17.28
ln(Sales)	302	2.76	7.88	0	0	45.68
Leverage (%)	302	53.08	34.18	0.4	50.75	319.2
Sales growth (%)	292	16.42	73.15	-59.27	3.38	904.56
ROE (%)	302	0.73	47.47	-303.31	5.23	161.92
FCF (%)	298	11.3	22.96	-96.78	9.1	237.86
ln(Age + 1)	302	2.74	0.86	0	2.83	4.48
ln(Advertising expenditure + 1)	300	3.76	3.93	0	2.75	13.36
ln(RPT revenue + 1)	302	9.08	3.63	0	9.93	17.04
Earnings volatility (%)	292	14.48	77.34	0.2	2.76	836.4
Prior Yr. *ln*(Div + 1)	292	3.29	4.33	0	0	12.82

Panel C. Licensor firms belonging to other business groups

	N	Mean	SD	Min	Median	Max
CFR (%)	34	33.61	32.63	1.89	23.43	100
ln(Assets)	34	15.91	1.59	13.02	15.6	19.37
Leverage (%)	34	46.67	24.94	3.42	45.53	93.33
ln(Age + 1)	34	3.44	0.72	1.39	3.64	4.44
FCF (%)	34	5.17	14.11	-47.76	5.75	33.81
Foreign ownership (%)	34	18.64	17.54	0	16.96	52.74

Panel D. Member firms belonging to other business groups

	N	Mean	SD	Min	Median	Max
TMR/Sales (%)	354	0.08	0.14	0	0	1.34
TMR(Sales – ADexp) (%)	350	0.07	0.13	0	0	1.37
TMR/(Sales – ADexp – RPT) (%)	338	0.61	3.98	0	0	51.81
ln(Div + 1)	349	2.91	4.38	0	0	13.59
ln(TMR + 1)	354	2.56	3.3	0	0	10.79
ln(Div + 1) – *ln*(Div + TM + 1)	349	0.36	4.37	-9.57	0	10.43
CFR (%)	354	31.46	27.26	0	20.82	100
CFR DIF (%)	354	10.84	23.56	-69.62	12.98	80.15
High DIF	354	0.47	0.5	0	0	1
Foreign ownership (%)	354	12.13	1.96	8.5	11.95	18.52
ln(Assets)	354	11.51	2.12	3.39	11.42	17.21
ln(Sales)	354	1.6	5.93	0	0	47.53
Leverage (%)	354	51.43	28.69	0.26	52.38	182.44
Sales growth (%)	340	57.83	189.42	-59.27	6.97	1163.52
ROE (%)	353	5.78	46.25	-303.31	8.08	161.92
FCF (%)	348	9.52	69.31	-1215.27	10.39	100.23
ln(Age + 1)	354	2.65	0.88	0	2.74	4.28
ln(Advertising expenditure + 1)	350	3.87	3.45	0	3.61	11.92
ln(RPT revenue + 1)	354	7.8	4.47	0	9.16	17.18
Earnings volatility (%)	340	27.43	92.65	0.2	5.09	836.4
Prior Yr. *ln*(Div + 1)	340	2.83	4.27	0	0	13.36

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 (3) report the results of probit analyses, whereas regressions in Columns (4) to (6) 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)	(5)	(6)
	Probit			LPM		
CFR (%)	0.0010***	0.0015***	0.0016***	0.0010***	0.0010***	0.0013***
	[3.03]	[6.29]	[5.95]	[2.84]	[3.63]	[4.63]
ln(Assets)		0.0432***	0.0409***		0.0325***	0.0211**
		[14.26]	[11.16]		[3.13]	[2.15]
Leverage (%)		-0.0015***	-0.0015***		-0.0002	-0.0002
		[-7.11]	[-7.03]		[-1.48]	[-1.41]
ln(Age + 1)		0.0246***	0.0252***		0.0028***	0.0023***
		[3.41]	[3.52]		[3.80]	[2.84]
FCF (%)			-0.0002***			-0.0001
			[-5.98]			[-1.27]
Foreign ownership (%)			0.0008			0.0062***
			[1.51]			[3.70]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	893	893	881	893	893	881
Pseudo (Adjusted) R^2	0.117	0.652	0.666	0.026	0.198	0.233

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 six 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) × CFR DIF (%)	0.0009**	0.0008**	0.0008**	-0.0002	-0.0004	-0.0001
	[2.98]	[2.96]	[2.38]	[-0.30]	[-0.68]	[-0.13]
CFR DIF (%)	-0.0097***	-0.0096***	-0.0101**	0.0014	0.0039	0.0005
	[-3.32]	[-3.45]	[-2.51]	[0.22]	[0.57]	[0.07]
ln(Sales)	0.0879***	0.0863***	0.0643***	0.0983***	0.0992***	0.0688**
	[6.83]	[4.97]	[7.07]	[4.97]	[4.96]	[2.98]
Foreign ownership (%)		0.0065**	0.0060**		0.0011	-0.0007
		[2.61]	[2.34]		[0.37]	[-0.24]
Leverage (%)		-0.0009	-0.0008		<0.0001	0.0002
		[-0.97]	[-1.03]		[0.02]	[0.27]
Sales growth		0.0001	0.0001		-0.0001	>-0.0001
		[0.31]	[0.36]		[-0.55]	[-0.32]
ROE (%)		-0.0004	-0.0003		0.0001	0.0002
		[-0.67]	[-0.50]		[0.11]	[0.27]
FCF (%)		-0.0013	-0.0012		-0.0002*	-0.0002**
		[-1.61]	[-1.45]		[-1.90]	[-2.81]
Earnings volatility (%)		-0.0004***	-0.0004***		-0.0001	-0.0002
		[-4.66]	[-3.87]		[-0.31]	[-0.71]
ln(Age + 1)		-0.0205	-0.0212		0.0267	0.0375
		[-0.86]	[-0.85]		[0.75]	[1.00]
ln(Advertising expense + 1)			0.0033			0.0210**
			[0.30]			[2.37]
ln(RPT revenue + 1)			0.0227***			0.0064
			[4.84]			[0.94]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	302	289	289	354	336	336
Adjusted R^2	0.281	0.286	0.299	0.37	0.385	0.398

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 three different ways: *TMR* scaled by sales, (sales – advertisement expense), and (sales – advertisement expense – related-party transaction revenue). They are all in percentage terms (%). The covariates include *High DIF* (1 if *CFR DIF* > median, 0 otherwise), 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 six 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) or (sales – advertisement expense – related-party transaction revenue) 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

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var.	TMR/Sales (%)		TMR/(Sales – ADexp) (%)		TMR/(Sales – ADexp – RPTrev) (%)	
ln(Sales) × High DIF	0.0180**	0.0139**	0.0204**	0.0138**	0.6961***	0.6291**
	[2.42]	[2.63]	[2.29]	[2.59]	[3.13]	[2.84]
ln(Sales)	0.0129*	0.0114	0.0132*	0.0114	-0.5859**	-0.6108**
	[2.03]	[1.39]	[2.04]	[1.37]	[-2.53]	[-2.41]
High DIF	-0.2020**	-0.1727**	-0.2304**	-0.1720**	-9.6680**	-9.0693**
	[-2.42]	[-2.45]	[-2.22]	[-2.41]	[-3.04]	[-2.88]
Foreign ownership (%)		0.0045		0.005		0.0257
		[1.36]		[1.41]		[1.71]
Leverage (%)		-0.0004*		-0.0004*		-0.0107
		[-2.18]		[-2.13]		[-1.77]
Sales growth (%)		<0.0001		<0.0001		-0.0026**
		[0.24]		[0.25]		[-3.06]
ROE (%)		-0.0003		-0.0003		-0.0002
		[-1.62]		[-1.55]		[-0.08]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	302	292	300	291	288	281
Adjusted R^2	0.344	0.408	0.345	0.408	-0.02	-0.033

Panel B. Other Business Groups

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var.	TMR/Sales (%)		TMR/(Sales – ADexp) (%)		TMR/(Sale – ADexp –RPTrev) (%)	
ln(Sales) × High DIF	0.0018	-0.0018	0.0028	>-0.0001	0.1105	0.1100
	[0.28]	[-0.31]	[0.45]	[-0.01]	[1.43]	[1.40]
ln(Sales)	0.0171***	0.0157**	0.0169***	0.0153**	-0.0364	-0.0181
	[3.17]	[2.39]	[3.12]	[2.35]	[-0.66]	[-0.34]
High DIF	-0.0200	0.0213	-0.0359	-0.0048	-0.6334	-0.5566
	[-0.29]	[0.31]	[-0.56]	[-0.08]	[-1.31]	[-1.09]
Foreign ownership (%)		0.0021		0.0021		-0.0300*
		[0.82]		[0.83]		[-1.79]
Leverage (%)		0.0001		>-0.0001		0.0029
		[0.45]		[-0.15]		[1.11]
Sales growth (%)		>-0.0001		>-0.0001		-0.0005
		[-1.14]		[-1.00]		[-1.33]
ROE (%)		0.0001		0.0001		0.0029
		[0.97]		[0.72]		[1.01]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	354	340	350	338	338	327
Adjusted R^2	0.205	0.205	0.223	0.224	0.005	-0.004

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*(Div + 1)) is associated with trademark royalty payments, *High DIF* (1 if *CFR DIF* > median, 0 otherwise), 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 six 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(TMR + 1) × High DIF	-0.2041	-0.1611**	0.0588	0.0233
	[-1.39]	[-2.33]	[0.38]	[0.23]
ln(TMR + 1)	0.1499*	0.1207**	0.0409	0.0591
	[2.04]	[2.92]	[0.34]	[0.51]
High DIF	0.119	0.3917	-1.3208**	0.0424
	[0.27]	[1.75]	[-2.20]	[0.10]
Foreign ownership (%)	0.1749***	0.0678**	0.1634***	0.0517***
	[5.08]	[2.29]	[6.94]	[3.52]
ln(Sales)	0.9028***	0.2793***	0.6598***	0.3246***
	[7.75]	[3.74]	[4.17]	[3.45]
Leverage (%)	-0.0278***	-0.0098**	-0.0255***	-0.0058
	[-4.73]	[-2.36]	[-6.50]	[-1.39]
Sales growth (%)	-0.0044**	-0.0005	-0.0029***	-0.0013***
	[-2.80]	[-0.74]	[-4.79]	[-3.17]
ROE (%)	0.0016	0.0006	0.0058*	0.0021
	[0.59]	[0.50]	[1.82]	[1.08]
FCF (%)	0.0131	0.0022	0.0041**	0.0008
	[0.89]	[0.24]	[2.66]	[0.95]
Earnings volatility (%)	-0.0004	0.0007	0.0008	0.0015***
	[-0.64]	[1.41]	[0.70]	[3.27]
Prior Yr *ln*(Div + 1)		0.7034***		0.6731***
		[16.59]		[17.88]
Constant	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes
# observations	289	289	336	336
Adjusted R^2	0.447	0.718	0.335	0.643

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 *High DIF* (1 if *CFR DIF* > median, 0 otherwise), 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 six 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)
Dependent Var.	*ln*(Div + 1)		*ln*(TMR + 1)		*ln*(Div + 1) – *ln*(TMR +1)	
ln(Sales) × High DIF	-0.454***	-0.192	0.352**	0.352**	-0.799***	-0.535**
	[-3.64]	[-1.33]	[2.62]	[2.22]	[-4.30]	[-3.03]
ln(Sales)	1.154***	0.406***	0.828***	0.666***	0.326	-0.223*
	[10.42]	[4.35]	[7.74]	[7.01]	[1.70]	[-1.95]
High DIF	4.881***	2.201	-4.376**	-4.366**	9.177***	6.449**
	[3.16]	[1.25]	[-2.75]	[-2.26]	[4.56]	[2.93]
Foreign ownership (%)	0.183***	0.068**	0.081***	0.074***	0.101***	-0.002
	[7.64]	[2.63]	[4.48]	[4.05]	[3.59]	[-0.09]
Leverage (%)	-0.029***	-0.010**	-0.001	0.001	-0.027**	-0.010*
	[-4.61]	[-2.53]	[-0.16]	[0.28]	[-2.62]	[-1.92]
Sales growth (%)	-0.005**	-0.001	<0.001	<0.001	-0.005***	-0.001
	[-2.67]	[-1.22]	[0.03]	[0.03]	[-3.73]	[-0.56]
ROE (%)	0.002	0.001	-0.004	-0.003	0.005	0.004
	[0.67]	[0.50]	[-1.26]	[-0.96]	[1.15]	[1.11]
FCF (%)	0.013	0.002			0.016	0.005
	[0.86]	[0.25]			[1.01]	[0.54]
Earnings volatility (%)	>-0.001	0.001			0.001	0.002*
	[-0.23]	[1.40]			[1.08]	[2.06]
Prior Yr. *ln*(Div + 1)		0.699***				0.688***
		[17.11]				[14.32]
ln(Advertising expense + 1)				0.065		-0.084
				[1.02]		[-0.90]
ln(RPT revenue + 1)				0.111***		-0.129**
				[3.88]		[-3.00]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	289	289	292	291	289	289
Adjusted R^2	0.453	0.717	0.564	0.573	0.158	0.442

Panel B. Other Business Groups

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var.	*ln*(Div + 1)		*ln*(TMR + 1)		*ln*(Div + 1) – *ln*(TMR +1)	
ln(Sales) × High DIF	0.099	0.018	0.246	0.313*	-0.151	-0.387*
	[0.38]	[0.12]	[1.39]	[1.83]	[-0.48]	[-1.94]
ln(Sales)	0.678***	0.382***	0.789***	0.630***	-0.122	0.013
	[3.99]	[5.54]	[4.12]	[3.56]	[-0.50]	[0.08]
High DIF	-2.307	-0.109	-3.025	-3.774*	0.725	4.522*
	[-0.74]	[-0.06]	[-1.49]	[-1.94]	[0.19]	[1.84]
Foreign ownership (%)	0.168***	0.057***	0.048**	0.038	0.120***	0.037
	[6.33]	[3.23]	[2.17]	[1.61]	[3.39]	[1.43]
Leverage (%)	-0.025***	-0.006	0.003	0.003	-0.027***	-0.01
	[-6.14]	[-1.36]	[0.80]	[0.80]	[-5.11]	[-1.64]
Sales Growth (%)	-0.003***	-0.001***	-0.001	-0.001	-0.002*	>-0.001
	[-5.31]	[-3.76]	[-1.40]	[-1.53]	[-1.81]	[-0.22]
ROE (%)	0.006	0.002	-0.002	-0.001	0.008*	0.003
	[1.70]	[0.90]	[-0.65]	[-0.37]	[2.15]	[0.73]
FCF (%)	0.004**	0.001			0.007***	0.004***
	[2.78]	[0.79]			[6.01]	[5.20]
Earnings Volatility (%)	0.001	0.002***			>-0.001	0.002
	[0.72]	[3.60]			[-0.17]	[1.67]
Prior Yr. *ln*(Div + 1)		0.673***				0.659***
		[18.29]				[13.04]
ln(Advertising expense + 1)				0.133**		-0.337***
				[2.88]		[-3.75]
ln(RPT revenue + 1)				0.018		-0.049
				[0.61]		[-1.21]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Group FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	336	336	340	338	336	336
Adjusted R^2	0.335	0.643	0.572	0.585	0.115	0.473

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