

Related Party Transactions with Foreign Affiliates: New Evidence on Determinants and Firm Value

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Abstract

We extend the existing literature on related party transactions from a domestic to an international dimension and uncover new evidence of resource transfer by FDI firms to their foreign affiliates through overseas related party transactions. Employing uniquely-constructed data of Korean firms during 2005-2010, we find that a KOSPI or KOSDAQ FDI firm of a larger size with a higher export ratio, a lower import ratio and/or a higher major shareholder's stock ownership is likely to engage in more overseas related party transactions. We also document non-positive effects of overseas related party transactions on firm value for the whole sample period but negative valuation effects of such transactions during the post-global financial crisis period. This negative valuation effect is associated mainly with the related party transactions of high-tech KOSPI (KOSDAQ) firms whose foreign affiliates are in developed (emerging) countries during the post-crisis period. These results suggest that FDI firms use related party transactions as a means of transferring their resources and supporting their financially-distressed foreign affiliates, especially after the crisis. Our results remain robust to the potential endogeneity issue.

Keywords: overseas related party transactions with foreign affiliates; FDIs, determinants, firm value, Korean firms

JEL Classification: G34, G31

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Abstract

We extend the existing literature on related party transactions from a domestic to an international dimension and uncover new evidence of resource transfer by FDI firms to their foreign affiliates through overseas related party transactions. Employing uniquely-constructed data of Korean firms during 2005-2010, we find that a KOSPI or KOSDAQ FDI firm of a larger size with a higher export ratio, a lower import ratio and/or a higher major shareholder's stock ownership is likely to engage in more overseas related party transactions. We also document non-positive effects of overseas related party transactions for the whole sample period but negative valuation effects of such transactions during the post-global financial crisis period. This negative valuation effect is associated mainly with the related party transactions of high-tech KOSPI (KOSDAQ) firms whose foreign affiliates are in developed (emerging) countries during the post-crisis period. These results suggest that FDI firms use related party transactions as a means of transferring their resources and supporting their financially-distressed foreign affiliates, especially after the crisis. Our results remain robust to the potential endogeneity issue.

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I. Introduction

Firms often engage in transactions with their related parties such as executives, board members, principal owners, immediate families of any of these groups, and their affiliates.¹ While the great majority of related party transactions are normal and legal, the special relationship inherent between the involved parties creates potential conflicts of interest that can result in actions benefitting the parties involved as opposed to the shareholders.² In essence, related party transactions may have different purposes than common market transactions, bring in distorted effects on firm performance and value, and discourage fair competitions in the market, causing social costs.³ Because of these reasons, researchers have focused on the motives and effects of related party business transactions.

One of the key issues on related party transactions examined in the existing literature is whether such transactions are used to transfer the wealth of the related firms and thus shareholders' wealth illegally. The existing literature has advanced two theoretical hypotheses to explain the resource transfer through related party transactions, the tunneling hypothesis and the propping hypothesis with empirical evidence generally consistent with the two hypotheses (Bae, Kang and Kim, 2002; Deloof and Jegers, 2002; Cheung, Rau and Stouraitis, 2004; Baek, Kang and Lee, 2006). Several later studies also document direct evidence on the negative effects of domestic related party transactions on the values of firms in the U.S. and China (Gordon et al., 2004; Kohlbeck and Mayhew, 2010; Cheung et al., 2009).

The existing studies on related party transactions have so far examined domestic transactions with a focus on firms in the U.S. and China. In this paper, we extend the scope of the research from domestic to overseas related party transactions. In particular, we investigate two main issues pertaining to the overseas related party transactions between parent firms and their foreign affiliates—what factors determine these transactions

¹ According to FASB Statement No. 57, affiliates are defined as entities with any of the following relationships: they control the company; they are controlled by the company; or they are controlled by another entity which also controls the company.

² Public companies in the U.S. are required to disclose all related party transactions in their annual 10-K reports with details on the nature of the relationship, a transaction description, and information on amounts involved.

³ Allen, Gu and Kowalewski (2011) examine the related party transactions between the parent bank and its foreign affiliates in European Union countries during the global financial crisis and document that such transactions create a serious threat to the financial system stability of the host countries.

and how such transactions affect parent firms' values. In doing so, we develop testable hypotheses drawing from the existing literature and test them using uniquely-constructed firm-level data.

A firm's related party transactions with its foreign affiliates may have different motivations and purposes and thus affect the firm's value differently than its domestic related party transactions do. Relative to domestic transactions, a firm's overseas transactions with its foreign affiliates that are either set up independently or by the executives' families through foreign direct investments (FDIs, hereafter) are often vague in nature and difficult to detect and monitor. Furthermore, unlike domestic transactions, overseas related party transactions must be understood in the context of firms' FDIs because the related party transaction plays as an important mechanism to generate and transfer investment outcomes of foreign affiliates from FDIs. Firms make FDIs to actively take advantage of investment opportunities in foreign countries and/or supplement domestic business activities. A firm's FDI may allow the investing firm to internalize its resources overseas and reduce its transaction costs when the transactions are performed inefficiently due to the imperfect domestic market (Buckley and Casson, 1976; Dunning, 1977; Rugman, 1981; Buckley, 1989).⁴ A firm's FDI can also be understood as a decision to diversify the firm's business operations globally (Denis, Denis and Yost, 2002).⁵

Regardless of whether the outcome of a firm's FDIs comes from reduced transaction costs or from diversification benefits, the investment outcome of foreign affiliates is either kept as retained earnings for reinvestment in the local country or transferred back to the parent firm. One way for the latter strategy is to distribute the investment outcome in the form of dividends. However, dividend payments to the parent firm are often subject to hefty taxation by the local country and may also have a negative effect on the localization strategy of FDIs. Hence, an alternative mechanism to dividend payments is the related party transaction, or intra-firm transaction, with the foreign affiliate through pricing adjustments for sales and

⁴ According to the Internalization and Eclectic paradigm, a firm's operations become internationalized whenever markets are internalized across national boundaries, providing a firm with firm specific advantages in knowledge and proprietary information.

⁵ See Lewellen (1971), Jensen (1986), Stulz (1990), Meyer et al. (1992) and Chandler (1997) for detailed discussions of benefits and costs of corporate diversification.

purchases of goods and services transferred. Furthermore, an FDI firm can also use the related party transaction to support poorly-performing foreign affiliates without an infusion of additional capital when the parent firm values good business prospects and/or reputation of the foreign affiliate in the local market. In this regard, overseas related party transactions must be understood from the perspective of transferring resources and investment outcomes between parent firms and foreign affiliates, rather than from the perspective of transferring shareholders' wealth between majority and minority shareholders through tunneling or propping activities as advanced in the exiting literature for domestic related party transactions.

Our paper focuses on Korean manufacturing firms, known to have engaged in significant outward FDI and overseas related party transactions in recent years. Since Korean firms made their first outward FDI in 1968, their FDI has grown substantially over the years, directed toward both developed and emerging countries and largely propelled by the firms' desire to reduce production costs. For example, Korean FDI amounted more than \$24 billion in 2013 with new 2,776 foreign affiliates, making Korea the 13th largest outward FDI country, compared to slightly less than \$5 billion in 2003. Furthermore, according to the 2012 Korea EXIM Bank data, foreign affiliates of Korean FDI firms generated total sales of approximately \$674 billion, of which 35.9% were sales to their related firms in Korea (17.9%), in the local countries (11.5%), and in third countries (6.5%), whereas they had total purchases of \$532 billion, of which 58.7% were purchases from their related firms in Korea (34.6%), in local countries (13.4%), and in third countries (10.7%).⁶ For example, Samsung Telecommunications America, a foreign affiliate of Samsung Electronics, reported sales and purchases with its Korean parent firm in the amount of \$10.653 billion in 2010.⁷ In this regard, the case of growing FDI activities and overseas related party transactions of Korean

⁶ According to Korea Fair Trade Commission, forty-seven large Korean firms engaged in domestic related party transactions in the total amount of \$18 billion in 2013 alone. For example, Hyundai Glovis Co Ltd., an affiliated logistics firm of Hyundai Motor Co., had sales of approximately \$1 billion in 2013, of which \$300 million were reportedly attributed to the related party transactions. In February 2015, Hyundai Motor Co.'s chairman and his son sold \$1.1 billion worth of shares in Hyundai Glovis Co Ltd., equivalent to a 13 percent ownership of the affiliate, to comply with new antitrust rules (*Reuters via Yahoo! Finance, February 5, 2015*).

⁷ We offer two examples of Korean FDI firms' related party transactions with their foreign affiliates in Appendix A.

FDI firms provides a rich experimental laboratory to investigate various aspects of related party transactions of FDI firms with their foreign affiliates.

Employing uniquely-developed related party transaction data of Korean firms during 2005-2010, we find that an FDI firm's overseas related party transactions is significantly influenced by firm attributes such as firm size, R&D expense, export activity, import ratio, debt ratio, operating cash flow to assets ratio, and major shareholder's stock ownership. Our results also reveal that the exchange where the investing firm is listed also plays a role in the determinants of FDI firms' related party transactions. While an FDI firm listed on KOSPI or KOSDAQ of a larger size with a higher export ratio, a lower import ratio and/or a higher major shareholder's stock ownership engages in more overseas related party transactions, the relationships of other firm attributes with such transactions differ based on the listed exchange. For example, a firm's debt ratio affects its related party transactions negatively for KOSPI firms but positively for KOSDAQ firms. A firm's R&D ratio and operating cash flow to total assets ratio are significant for KOSPI firms, but do little impact for KOSDAQ firms.

Our results also show that overseas related party transactions of Korean FDI firms bring in non-positive effects on firm value for the whole sample period but affect firm value negatively during the post-crisis period for KOSPI and KOSDAQ firms. While there are notable differences in the valuation effects for subsamples classified by several firm attributes between KOSPI and KOSDAQ firms, the negative effects are associated mainly with overseas related party transactions of high-tech KOSPI (KOSDAQ) firms whose foreign affiliates are located in developed (emerging) countries during the post-crisis period. These results are in supportive of the notion that Korean FDI firms use related party transactions as a means of transferring their resources and supporting their financially-distressed or poor-performing foreign affiliates with a focus on the long-term profit maximization of their FDIs. The consistent evidence of the negative valuation effects of related party transactions during the post-crisis period supports this implication. We find little evidence that FDI firms use the related party transactions to withdraw investment returns back to the parent firm.

The contribution of our paper is three-fold. First, our paper is the first one to offer empirical evidence on the determinants and valuation effects of overseas related party transactions of FDI firms with

their foreign affiliates. Second, our paper employs a uniquely-constructed dataset of overseas related party transactions of Korean FDI firms. As there is no machine-readable database on overseas related party transactions of Korean firms, we construct our data for the overseas related party transaction index by combining several data sources together.⁸ Third, we offer a new perspective to the research on overseas related party transactions, different from the conventional perspective of wealth transfer between majority and minority shareholders through tunneling or propping activities as advanced in the literature for domestic related party transactions. We argue that a firm's overseas related party transactions must be understood in the context of its FDIs as the related party transaction plays as an important mechanism to transfer resources and investment outcomes between the investing firm and its foreign affiliates.

Our paper is organized as follows. In Section 2, we review related studies and develop testing hypotheses on the determinants and the valuation effects of related party transactions with foreign affiliates. Section 3 presents data and empirical designs, and Section 4 reports empirical results, with summary and conclusion in Section 5.

2. Related Studies and Development of Hypotheses

2.1. Related studies

Previous studies have examined the effect of FDI on the value of the investing firm by analyzing the responses of investors (or the market) to the firm's FDI decision. These studies investigate the changes in stock prices before and after the announcements of FDI decisions by employing an event study approach (see, e.g., Doukas and Travlos, 1988; Chen, Hu and Shieh, 1991). However, these studies focus primarily on the effect of a firm's FDI decision on its value but do not examine how the operating performance of foreign affiliates after FDI is made affects the value of the investing firm or how (e.g., through what channels) this valuation effect occurs.

The effect of FDI on the value of the investing firm can also be examined from the perspective of the

⁸ See section 3.3 for the detailed discussion of data sources used to construct the overseas related party transaction index for our study.

benefits and costs associated with a firm's diversification. Considering the low correlation between the operating performance of an investing firm and that of its foreign affiliate even in the investment in the same industry, the results from the analyses of the benefits and costs associated with industrial diversification can be adopted to explain the benefits and costs of the global diversification through FDIs. Denis et al. (2002) define FDI as a firm's global diversification and compare the effect of the global diversification on firm value with that of the domestic industrial diversification on firm value. They show that the costs of global diversification exceed its benefits, leading a firm's global diversification to reduce firm value by the same magnitude as the industrial diversification does.

Several studies have examined the issue of whether the related party transactions of a parent firm with its related firms are used to transfer the wealth of the related firms and thus their shareholders' wealth illegally by testing two theoretical hypotheses—the tunneling hypothesis and the propping hypothesis. The tunneling hypothesis posits that the majority shareholder of the investing firm engages in related party transactions to tunnel or exploit the wealth of minority shareholders and debtholders, whereas the propping hypothesis posits that the majority shareholder does so to prop or support its financially-distressed affiliated or related firm.

In their analysis of large business groups in Belgium, Buyschaert, Deloof and Jegers (2002) report no evidence of wealth transfer or tunneling. In contrast, Cheung, Rau and Stouraitis (2004) provide evidence supporting the tunneling hypothesis for listed firms in Hong Kong during 1998-2000. Cheung et al. (2009) find similar evidence for publicly listed firm in China during 2001-2002. They show that while minority shareholders in Chinese publicly listed firms also gain from propping up through related party transactions, tunneling is more prevalent than propping up on balance. Combined with firm performance results, their results indicate that controlling shareholders tunnel assets out of firms that have performed well and prop up under-performing firms. Focusing on transaction prices, Cheung et al. (2009) show that publicly listed firms in Hong Kong enter into deals with related parties at unfavorable prices, paying a higher price for asset purchases and receiving a lower price for asset sales than similar arms' length deals. Their results suggest that related party transactions transfer resources away from the minority shareholders but provide direct benefits to the controlling shareholders. Bae, Kang and Kim (2002) also report evidence in supportive of the tunneling hypothesis from their analysis of the M&A cases of large business groups in Korea. On the other hand, Baek, Kang and Lee (2006) document evidence in supportive of both

the tunneling and propping hypotheses for Korean large business groups. They show that rights offerings are associated with both tunneling and propping activities, though the privately-placed equity offerings are with tunneling activities. In sum, the empirical results of the existing literature indicate that a firm's related party transactions with its domestic related or affiliated firms are used as a means of transferring firm resources, and that the characteristics of the resource transfer can be explained to some extent by the tunneling and propping hypotheses.

Several other studies investigate the effect of a firm's domestic related party transactions on its value. Examining related party transactions of U.S. firms during the pre-Sarbanes-Oxley (SOX) period of 2001 and 2002, Gordon, Henry and Palia (2004) report that related party transactions are wide spread in such a manner that over 80% of sample firms disclose at least one related party transaction, with approximately 10% reporting 10 or more. They also report that about 23% of all related party transactions in their sample are loans to executives or board members, and the rest are primarily transactions such as purchases of goods and services from executives or board members, or direct or employment services. They find that industry-adjusted stock returns are negatively associated with both the number and dollar amounts of related party transactions, implying that these transactions are harmful to shareholders. They also find weaker corporate governance mechanisms associated with more and larger dollar amounts of related party transactions. Similarly, studying S&P 1500 firms in 2001, Kohlbeck and Mayhew (2010) show that firms engaged in related party transactions have significantly lower valuations and marginally lower subsequent returns than non-RPT firms, suggesting that the market discounts firms that engage in simple related party transactions. Their results, however, show that the market generally does not value more complex related party transactions or those involving a firm's investments such as partnerships and joint ventures negatively. Cheung et al. (2009) find that the majority of publicly listed Chinese firms in their sample experience a reduction in firm value at the announcement of related party transactions, while the reduction in value is not present in similar arms' length transactions. Their results suggest that related party transactions are unlikely to be motivated by purely economic considerations.

Although the tunneling and propping hypotheses on the motives of a firm's related party transactions with its domestic affiliated firms are not directly applicable to the explanation of the characteristics of related party transactions of FDI firms with their foreign affiliates, this theoretical framework at least provides the starting point

of analyzing the motives of FDI firms' related party transactions with their foreign affiliates. Drawing from the theoretical framework of the existing literature, we develop our testing hypotheses in the next section.

2.2. *Development of hypotheses*

If an FDI firm pursues long-term profit maximization through the expansion of its business operation in a foreign country by regarding the foreign affiliate as an independent identity, the investing firm may reinvest the profits from the foreign affiliate locally. However, if the investing firm cannot find better investment opportunities than current business operations in the foreign affiliate or has the goal of withdrawing short-term profits, then the investing firm will attempt to transfer investment profits through dividends or related party transactions. While the reinvestment of profits in local projects of the foreign affiliate may also generate short-term profits, the shareholders of the investing firm may still prefer to withdraw the local affiliate's short-term profits to the investing firm mainly due to the uncertainty associated with the reinvestment in local projects.

From this perspective, it is possible that reinvestment of the local affiliate's profits would lead to a lower value of the investing firm than withdrawal of local profits would. Accordingly, the investing firm may have a motive to withdraw any possible foreign affiliate's profits to the home country. In this case, if the investing firm judges it inappropriate to withdraw local profits through dividends, then the investment firm will attempt to do so by adjusting the terms (mainly transfer price) of the related party transactions with the foreign affiliate. The observation that firms continue to make FDIs even when the outcome of FDI firms is on average inferior to that of domestic firms may support the proposition that investing firms withdraw local affiliates' profits mainly through adjusting transfer prices of individual transactions.

FDI firms do not use the related party transactions solely for transferring local affiliate's profits. The related party transactions can also be used for the purpose of propping (Friedman, Johnson and Mitton, 2003). If the investing firm uses the related party transactions to make up for the foreign affiliate's operating loss, then such transactions may lead to a decrease in firm value. If the foreign affiliate's operating problem is temporary, then the investing firm's value may not suffer, but if it is more of a structural problem, then the related party transactions would result in a decline in firm value. Based on this discussion, we develop our first hypothesis as follows:

Hypothesis I: The related party transactions of an investing firm with its foreign affiliate affect the value of the investing firm.

The effect of the related party transactions on the value of the investing firm may also be closely related to the degree of ownership that the investing firm owns in the foreign affiliate. While the internal constraints on the transfer of operating outcome through related party transactions are not substantial for the wholly-owned FDI, such constraints would be relatively high for joint ventures because the investing firm needs to consider its relationship with local investment partners. For local partners of joint ventures, the related party transactions may be viewed as a mechanism of tunneling local affiliate's wealth and thus would not be easy to perform.

Related party transactions are not only employed to transfer or tunnel a foreign affiliate's business outcome to the investing firm, but can also be used for the investing firm to support or prop the foreign affiliate. However, it is highly unlikely that the investing firm would transfer its resources to the jointly-owned foreign affiliate, that is the joint venture. Accordingly, the propping activity through related party transactions are more likely to be done for the wholly-owned foreign affiliate. If the related party transactions are used for the purpose of propping, then a higher level of the related party transactions would lead to a lower value of the investing firm. Similarly, if the controlling shareholders of the investing firm transfer firm wealth to a foreign affiliate that they own for the purpose of a flight of the firm's resources, such activity would affect the firm value negatively. Hence, it is reasonably expected that the relationship between related party transactions and the value of the investing firm will be more apparent in the wholly-owned foreign affiliate. This discussion leads to our second hypothesis as follows:

Hypothesis II: The effect of the related party transactions of an investing firm with its foreign affiliate on the value of the investing firm is most significant for a wholly-owned foreign affiliate.

The effects of transferring profits through the related party transactions with a foreign affiliate can vary depending on the purpose of the FDI, which is in turn closely related to the location of the foreign affiliate. In case of investing in emerging countries for the cost saving purpose, the investing firm is likely to adopt the strategy of withdrawing operating profits through related party transactions, instead of expanding the operation locally. In this situation, the related party transactions may boost the value of the investing firm. However, if the investing firm entered the foreign country for the purpose of securing a local market, it may command a strategy of expanding

business operations in the foreign country, instead of securing short-term profits through transferring of profits. Hence, if the investing firm follows this strategy and engages in propping the foreign affiliate through related party transactions, then the related party transactions may lower the value of the investing firm.

On the one hand, FDIs by Korean firms in emerging countries are mainly for cost savings by taking advantage of cheaper labor or raw materials. On the other hand, their FDIs into developed countries are primarily for securing markets and acquisition of technology. From this perspective, the valuation effect of the related party transactions can vary by the target country of FDIs. The establishment of a hypothesis on this variation can be understood in line with the discussion on the site factors of investment target countries in FDIs (Dunning, 1979). The difference in the relationship between related party transactions and firm value based on the location of the foreign affiliate can be stated in the hypothesis as follows:

Hypothesis III: The effect of the related party transactions of an investing firm with its foreign affiliate on the value of the investing firm varies by the economic nature of the host country where the foreign affiliate is located.

The investment firm's decision on whether to use the foreign affiliate as a base to expand business operations locally or to enhance the investing firm's business performance and maximize near-term profits by transferring profits would be related to the investing firm's size. A small firm is likely to use FDI as a way to enhance the operating performance of the head office. On the contrary, a large firm is likely to use the FDI for the long-term profit maximization. In this case, the investing firm would transfer its resources to the foreign affiliate through related party transactions. In addition, when the operating performance of the foreign affiliate is poor, a large firm may be motivated to prop the foreign affiliate through related party transactions to improve its global reputation, which may in turn affect the investing firm's value negatively. In this regard, we can posit that the valuation effect of the related party transactions would vary by the size of the investing firm. This hypothesized relationship is indeed in line with the evidence that the performance of FDI is related to the size of the investing firm (Wolf, 1977). This relationship can be summarized in the hypothesis as follows:

Hypothesis IV: The effect of the related party transactions of the investing firm with its foreign affiliate on the value of the investing firm varies by the size of the investing firm.

The valuation effect of related party transactions of the investing firm with its foreign affiliate may also be related to the level of technology in the industry where the investing firm belongs. It is reasonably expected that the related party transactions of an investing firm producing high-tech goods have greater effects on firm value than those of an investing firm producing low-tech goods because of a greater value addition of high-tech goods. The relationship between the level of technology and the performance of the FDI firm is consistent with the proposition on the ability of product differentiation as an underlying motive of a firm's FDI (Caves, 1974). Based on this discussion, we develop our last hypothesis:

Hypothesis V: The effect of the related party transactions of an investing firm with its foreign affiliate on the value of the investing firm varies by the technology level of the investing firm.

However, it is worth noting that if the investing firm aims to secure the financial health of its foreign affiliate or expand the market instead of maximizing its short-term profits by withdrawing operating profits from the foreign affiliate, then the valuation effect of related party transactions may not be clearly observable. This result is likely to appear when the investing firm approaches the FDI from the perspective of maximizing long-term, rather than short-term, profits. Furthermore, when there are no operating profits to transfer through related party transactions due to the poor performance of the foreign affiliate, it is equally possible that the relationship between related party transactions and firm value may be shown insignificant, regardless of the ownership structure of the foreign affiliate, the economic nature of the local country, the size of the investing firm, and the technology level of the investing firm.

3. Empirical Design

3.1. Regression models

We test the five hypotheses by examining the determinants of the related party transactions of FDI firms with their foreign affiliates and the effects of related party transactions on the values of investing firms using regression models.

First, we analyze the determinants of investing firms' related party transactions with foreign affiliates.

Considering that the primary motive of Korean firms' FDIs is closely related to their exporting activities, it is expected that as their exporting activities (*EXPT*) increase, investing firms engage in more related party transactions. If the investing firm makes FDI in order to import raw or intermediary materials or finished goods from the foreign affiliate, it is expected that as the proportion of imported materials in produced goods (*IMPT*) increases, firms engage in more related party transactions. If the investing firm has accumulated greater technology in produced goods, the investing firm may also engage in more related party transactions in order to make use of such technology. This suggests that an FDI firm's R&D activity (*RND*) may also increase its related party transactions. The size (*FSIZE*) of the investing firm is also expected to be related to the firm's related party transactions as a large firm is likely to engage in more related party transactions with its foreign affiliates.

In order to examine the relationships of these variables to the investing firm's related party transactions, we estimated regression equation (1) as given below.

$$RPT_{i,t} = \alpha_0 + \alpha_1 FSIZE_{i,t} + \alpha_2 DEBT_{i,t} + \alpha_3 RND_{i,t} + \alpha_4 EXPT_{i,t} + \alpha_5 IMPT_{i,t} + \alpha_6 CFTA_{i,t} + \alpha_7 OWN_{i,t} + \sum_{j=1}^J \alpha_{7+j} INDDY_{i,t} + \sum_{v=1}^3 \alpha_{7+J+v} YEARDY_{i,t} + \pi_{i,t} \quad (1)$$

In regression model (1), the dependent variable of *RPT* is the related party transaction index of an investing firm with its foreign affiliates. *RPT* is measured by the total transaction amounts of sales, purchases, profits and costs involved in the related party transactions divided by the investing firm's sales. Because the value of *RPT* is bounded between 0 and 1, we estimate regression equation (1) using Tobit model. *FSIZE* is firm size, measured by total assets, and enters the regression model as the natural logarithm form. *DEBT* is debt to total assets. *RND* is R&D expenses, relative to sales. *EXPT* is export ratio, measured by exporting amount divided by sales. *CFTA* is operating cash flow, relative to total assets. *OWN* is the major shareholder's ownership percentage. We also add industry dummies (*INDDY*) and year dummies (*YEARDY*) to control for the industry characteristics and yearly differences, respectively.

Unlike other variables in regression equation (1), a firm's import ratio, *IMPT*, cannot be directly observable nor measurable. Because data on a firm's import ratio are regarded as the firm's trade secrets and thus are not publicly available, a firm's import ratio is proxied by relating the firm's sales composition to the

imported input shares of sales in the sector where the firm's produced goods belong (see Bae et al., 2012). The imported input shares of sector sales are collected from the input-output tables reported by the Bank of Korea.⁹

Second, we examine the valuation effect of an investing firm's related party transactions with its foreign affiliate firm using regression equation (2).

$$\begin{aligned}
 FV_{i,t} = & \beta_0 + \beta_1 RPT_{i,t} + \beta_2 FSIZE_{i,t} + \beta_3 DEBT_{i,t} + \beta_4 RND_{i,t} + \beta_5 EXPT_{i,t} + \beta_6 IMPT_{i,t} + \beta_7 CFTA_{i,t} \\
 & + \beta_8 DIV_{i,t} + \beta_9 OWN_{i,t} + \sum_{j=1}^J \beta_{9+j} INDDY_{i,t} + \sum_{v=1}^3 \beta_{9+J+v} YEARDY_{i,t} + \mu_{i,t} \quad (2)
 \end{aligned}$$

In regression model (2), the dependent variable of *FV* is the value of the investing firm, measured by Tobin's *q*, and the key test variable is *RPT*, the investing firm's related party transaction index. Following the exiting literature, we employ several control variables that may affect the value of the investing firm (Lang and Stulz, 1995, Bhagat and Ivo, 1995, Chauvin and Hirschey, 1993, Bae, Kwon and Lee, 2011). *FSIZE* is firm size used to control for the possible size effect on firm value. *DEBT* is debt ratio and used to control for the possible effect of a firm's financial leverage on firm value. *RND* is R&D ratio, and *EXPT* is export ratio. *IMPT* is import ratio employed to control for the effect of price changes in imported materials on firm value. *CFTA* is operating cash flow to total assets used to control for a firm's profitability. *DIV* is dividend payout ratio to control for a firm's financing policy. *OWN* is the major shareholder's ownership percentage, a measure to control for corporate governance. Industry dummies (*INDDY*) and year dummies (*YEARDY*) are also used to control for differences in industry and year, respectively.

On the one hand, if the investing firm is withdrawing the foreign affiliate's operating profits through related party transactions, then the estimated coefficient of *RPT*, β_1 , should be positive and statistically significant. On the other hand, if the investing firm transfers its resources to the foreign affiliate through related party transactions

⁹ The input-output tables are widely used by economists as a basis to determine whether goods are capital- or labor-intensive. For example, if a firm produces goods belonging to the manufacturer of pulp, paper, and paperboard (KSIC 17), we use the corresponding sector's imported input share of 24.28% (2008 year basis) as a proxy for the firm's import ratio. If a firm produces multiple goods, the weighted average of the imported input shares of sector sales for the multiple goods is used as the firm's import ratio. For instance, a firm's sales consist of \$60 million in sector A and \$40 million in sector B. Then the percentages of sectors A and B of total sales are 60% and 40%, respectively. If the imported input shares of sector sales in sectors A and B are 0.1 and 0.2, respectively, as reported in the Input-Output Table, then the firm's imported ratio is measured as 14% (= 60% * 0.1 + 40% * 0.2).

primarily to prop the foreign affiliate due to its poor operating performance, then *RPT* will carry a negative and significant regression coefficient. If the related party transactions of the investing firm with its foreign affiliate has nothing to do with the transferring of operating outcome, the estimated coefficient of *RPT* would not be different from zero.

We divide our sample firms into several subgroups classified by four firm characteristics to directly test Hypotheses II through V. First, we examine the valuation effects of related party transactions for investing firms classified based on the ownership structure of their foreign affiliates. The four classifications of ownership structure include wholly-owned foreign affiliate, majority-owned foreign affiliate ($50\% \leq \text{ownership} < 100\%$); minority-owned foreign affiliate ($0\% < \text{ownership} < 50\%$); and zero-owned foreign affiliate, which is a related firm but where the investing firm does not have a direct ownership. In cases where an investing firm has a different ownership structure for multiple foreign affiliates, then the related party transactions with each affiliate are included in the corresponding category of ownership structure. For the classification based on the size of the investing firm (large vs. small), a firm whose size is larger (smaller) than the median size of the whole sample firms is classified as a large (small) firm. For the classification based on the technology level (high-tech vs. low-tech), an investing firm whose primary business (based on sales) is in a high-tech (low-tech) industry is classified as a high-tech (low-tech) firm. We use the technology classifications developed by OECD based on aggregate industry R&D expenses as a proxy for each firm's technology level. Lastly, for the classification based on the host country of the foreign affiliate (developed vs. emerging country), a country with a higher (lower) per capita GDP than Korea is classified as developed (emerging) country. In cases where an investing firm engages in related party transactions with affiliates located in both developed and emerging countries, then the transactions with each affiliate in one of the host country are included into a corresponding category of the host country.

Considering notable differences in the characteristics of firms listed on the two exchanges of KOSPI and KOSDAQ, we examine our sample firms separately by the listing stock market. Industry dummies are constructed based on sales of each firm's main business classified up to two-digit KSIC.¹⁰ Year dummies use 2005 year as basis

¹⁰ The Korea Standard Industrial Classification (KSIC) codes and industries are provided in Appendix B.

year and represent the remaining 2006, 2007, 2008, 2009, and 2010 years.

3.2. *Data and construction of related party transaction index*

The preliminary sample of our paper consists of all non-financial firms traded on the Stock Market Division (previously, Korea Stock Exchange: KSE) and the KOSDAQ market of the Korea Exchange (KRX) during the period of 2005-2010.¹¹ All common stocks traded on the KSE represent the Korea Composite Stock Price Index or KOSPI.

Because there is no machine-readable database on overseas related party transactions of Korean firms, we construct our data by combining several data sources together. We collect detailed information on related party transactions of all listed firms from the business statements and audit reports of firms reported in the TS2000 database of the Korea Listed Companies Association. This is done by first searching ‘assets and liabilities transactions with affiliated and/or related firms’¹² from the TS2000 database and then narrowing down to each firm’s operational data on sales, purchases, profits and costs. In order to determine whether the related firm is a domestic or overseas affiliate, we review each firm’s operating statements and the Trends of Overseas Affiliates Report from Korea EXIM Bank. Finally, we measure the related party transaction index of each investing firm by adding all transaction items of sales, purchases, profits, and costs with foreign affiliates and standardizing the sum by total sales of the investing firm (= (sales + purchases + profits + costs)/total sales).

One of key variables of related party transaction is the ownership percentage of foreign affiliates. We collect this information from the ‘Status of Investments in Other Corporations’ section of the TS2000 database.¹³ Because 2005 year is the first year when the ownership information on the foreign affiliates is

¹¹ KOSDAQ is a trading board of KRX established in 1996 and now operated as SME Market Division of KRX.

¹² According to Korean business laws, affiliated firms are firms formed through share ownership of more than 20%, and related firms are firms formed through special interests other than share ownership (e.g., a firm owned by a person’s son but no share ownership in the firm by the person). The related firms are also often called special affiliated firms.

¹³ When the ownership information cannot be identified, the transaction is classified as zero-owned foreign affiliate. Most of these local affiliates are those where the major shareholders of the investing firm invest or an affiliate of the investing firm invests.

available from the TS2000 database, our sample period starts with 2005 year. Furthermore, since 2011 year when Korea adopted International Financial Reporting Standards (IFRS), a good number of Korean firms have reported their related party transactions only on the total amount basis, rather than for each related party, which makes it impossible to identify the transaction amount for each foreign affiliate. Due to this data availability issue, our sample period ends in 2010 year. Data on other variables including R&D expenses and exporting amount of investing firms are collected from TS2000, and data for the names of foreign affiliates, investing firms, and FDI amounts are from Korea EXIM Bank.

4. Empirical Results

4.1. Measures of related party transaction index

Table 1 shows the related party transaction (RPT) index and number of sample firms for the whole sample period and two sub-periods surrounding the global financial crisis. The RPT index represents the annual average of related party transactions over the corresponding period, for which the annual RPT index is measured by summing up all related party transaction amounts of sales, purchases, profits, and costs for each FDI investing firm with its foreign affiliates each year and dividing it by the firm's total annual sales. Panels A and B report results of KOSPI and KOSDAQ firms, respectively. In each panel, the RPT index is presented for firms classified by several criteria such as ownership structure of foreign affiliate, host country of foreign affiliate, size of investing firm, and the technology level of products of the investing firm.

Looking first at KOSPI firms in Panel A, 51.1% (=304/589) of sample firms engage in overseas related party transactions during our sample period. The average RPT index for these firms is 17.2%, indicating that 17.2% of total sales of investing firms belong to related party transactions with their foreign affiliates. Period-wise, more firms engage in overseas related party transactions with more transaction amounts during the post-crisis period than during the pre-crisis period. The percentage of RPT firms relative to total sample firms increases from 50.9% during the pre-crisis period to 52.6% during the post-crisis period. The RPT index shows a similar trend of increasing from 15.8% during the pre-crisis period

to 18.6% during the post-crisis period.

When RPT firms are classified by the ownership structure of their foreign affiliates, wholly-owned foreign affiliates are the most common type of foreign affiliates, representing about 69% (=210/304) of total RPT firms and also carry the largest related party transaction amounts, evidenced by the highest RPT index of 13.2%. Period-wise, FDI firms engage in more transactions in terms of dollar amount with wholly-owned foreign affiliates after the crisis than before the crisis.

According to firm size, more large-sized firms engage in overseas related party transactions than small-sized firms, but the transaction amounts (relative to total sales) of the former are noticeably smaller than those of the latter for the whole period. However, the RPT index of large firms increases substantially from the pre- to the post-crisis period and is on average greater than that of small firms. This evidence indicates that large firms engage in greater amounts of overseas transactions with their foreign affiliates following the crisis. Based on the technology level, more low-tech firms engage in related party transactions than high-tech firms do. This finding is consistent with the observation that FDIs of Korean firms tend to focus on products in low technology. In contrast, the transaction amounts of high-tech firms are noticeably larger than those of low-tech firms. Period-wise, there is a substantial increase in the RPT index for low-tech firms during the post-crisis period, compared to the pre-crisis period. Based on the host country of foreign affiliates, a substantially larger number of Korean FDI firms engage in related party transactions with foreign affiliates located in emerging countries than in developed countries. This finding reflects the notion that more Korean firms make their FDIs to emerging countries than to developed countries. However, the transaction amounts with affiliates in the developed countries are shown to be higher during our sample period.

Panel B reports results for KOSDAQ firms. Approximately 36% (=307/843) of KOSDAQ firms engage in overseas related party transactions, which is substantially lower than that of KOSPI firms as reported in Panel A. However, for the whole period, the RPT index of 0.185 for the KOSDAQ firms is greater than that for the KOSPI firms. Period-wise, KOSDAQ firms engage more heavily in overseas related party transactions both in terms of the number of firms and the transaction amount during the post-crisis period, compared to the pre-crisis period.

Looking at the results based on several classifications, similarly to KOSPI firms, wholly-owned foreign affiliates of KOSDAQ firms are the most common type, representing about 63% of all KOSDAQ RPT firms with the largest transaction amounts. Based on firm size, more large-sized firms engage in related party transactions than small-sized firms, but there is no clear dominance in the transaction amounts between large and small firms. This latter evidence is different from that for KOSPI firms. By the technology level, a substantially larger number of high-tech firms engage in related party transactions than low-tech firms, whose finding is in sharp contrast to that for KOSPI firms. It is also shown that the RPT index is substantially higher for high-tech firms than for low-tech firms throughout our sample period. When classified by the host country of foreign affiliates, both the number of KOSDAQ firms engaging in transactions with foreign affiliates located in emerging countries and their transaction amounts measured by the RPT index are far larger than those with foreign affiliates located in developed countries.

The main results reported in Table 1 can be summarized as follows. First, a substantially larger proportion of KOSPI firms (51.1%) engage in overseas related party transactions than KOSDAQ firms (36%). Second, the number of firms engaging in overseas transactions among both KOSPI and KOSDAQ firms follow a similar trend over the sample period, increasing from the pre-crisis period to the post-crisis period. Third, larger firms listed on the KOSPI and KOSDAQ tend to engage in more overseas related party transactions than smaller-sized firms, but the transaction amounts of small KOSPI firms are greater than those of large KOSPI firms. Fourth, more low-tech KOSPI firms but more high-tech KOSDAQ firms engage in more related party transactions than their counterparts on each exchange, whereas high-tech firms in both exchanges deal with more transaction amounts. Fifth, more Korean FDI firms listed on the KOSPI or KOSDAQ engage in overseas related party transactions with foreign affiliates located in emerging countries than with those located in developed countries. However, the transaction amounts are higher for KOSPI (KOSDAQ) firms whose foreign affiliates are located in developed (emerging) countries.

The results on the RPT index reported in Table 1 show that KOSPI and KOSDAQ firms exhibit different characteristics with respect to the related party transactions, which also vary by period. These differences may lead to different determinants and valuation effects of overseas related party transactions between KOSPI and KOSDAQ firms.

4.2. *Comparison of firms with and without related party transactions with foreign affiliates*

Before we review regression results on the determinants and valuation effects of overseas related party transactions, we examine whether there exist differences in firm characteristics between firms with such transactions and firms without such transactions. Table 2 reports the results of t-tests and non-parametric Wilcoxon signed rank tests for the comparisons of key variables between firms with related party transactions (test sample) and firms without such transactions (control sample) for KOSPI firms in Panel A and KOSDAQ firms in Panel B. In order to reduce the effect of possibly spurious outliers, we control for extreme values by measuring all variables through a 98% winsorization process. Firm value is measured by Tobin's q ratio, and all other variables are as defined and measured in the earlier section.

Regarding the number of firms that engage in overseas transactions, we observe contrasting evidence between KOSPI and KOSDAQ firms. While 1,825 out of 3,531 firm-year observations are in the test sample of KOSPI firms, only 1,838 out of 5,050 firm-year observations are in the same test sample of KOSDAQ firms. This finding confirms our earlier evidence in Table 1 that a substantially lower proportion of KOSDAQ firms engage in overseas related party transactions than KOSPI firms.

Among KOSPI firms, as shown in Panel A, firms engaging in related party transactions exhibit significantly different firm characteristics than firms not engaging in such transactions. Firms with RPTs have on average a larger firm size, a higher R&D ratio, a higher export ratio, and a higher import ratio than their counterparts. However, there is little difference in firm value, debt ratio, cash flow ratio, dividend payout ratio or major shareholder's stock ownership between these two sample firms. For KOSDAQ firms reported in Panel B, the results are qualitatively identical to those for KOSPI firms, except that firms engaging in related party transactions have on average a lower firm value and a higher debt ratio than their counterparts. Combined together, a typical RPT firm is larger in firm size, invests more in R&D, is engaged more heavily in both export and import than a typical non-RPT firm.

4.3. *Pearson correlation coefficients*

Table 3 shows Pearson correlation coefficients of variables in the regression models for KOSPI firms in Panel A and for KOSDAQ firms in Panel B. As preliminary evidence of the determinants and valuation effects of the related party transactions of FDI firms, we are particularly interested in the correlations of each of the related party transaction index (*RPT*) and firm value (*FV*) with other key variables.

For KOSPI firms, *RPT* is positively and significantly (at the 1% level) correlated with *FSIZE* (firm size), *RND* (R&D ratio), *EXPT* (export ratio) and *IMPT* (import ratio), but negatively and significantly to *DEBT* (debt ratio) and *OWN* (major shareholder ownership). For KOSDAQ firms, similar correlations are observed for several variables, but *DIV* (dividend payout) is negatively and *DEBT* is positively correlated with *RPT*.

On the other hand, *FV* is positively correlated with *FSIZE* and *RND*, but negatively with *DEBT*, *EXPT*, *IMPT*, *CFTA*, *DIV*, and *OWN* for both KOSPI and KOSDAQ firms. Most importantly, *FV* is significantly and negatively correlated with *RPT* for KOSDAQ firms, but not for KOSPI firms.

Although preliminary, the results in Table 3 indicate that the related party transactions of KOSDAQ firms are negatively associated with their firm values. As expected, FDI firms' related party transactions are highly positively correlated with their export and import ratios, indicating that firms with more export and import activities are likely to engage in overseas transactions with their related foreign affiliates.

4.4. *Regression results on determinants of related party transactions with foreign affiliates*

Table 4 reports results of regression equation (1) estimated from Tobit model by listed market (KOSPI vs. KOSDAQ) to examine the determinants of FDI firms' related party transactions with their foreign affiliates for both the whole sample and several subsamples classified by four criteria of affiliate ownership, firm size, technology level and host country of affiliates. The whole sample firms consist of both test sample firms that engage in overseas related party transactions and control sample firms that do not engage in such transactions. The dependent variable of *RPT* is measured as the sum of all transaction amounts of sales, purchases, profits, and costs for related party transactions with foreign affiliates.

Looking first at the regression results for KOSPI firms in Panel A, *RPT* is positively and significantly (at least at the 1% level) related to *FSIZE*, *RND*, *EXPT* and *OWN*, but negatively and significantly (at the 1% level) to *DEBT*, *IMPT* and *CFTA* of the investing firm. When KOSPI firms are classified by ownership structure of foreign affiliates, *FSIZE* and *EXPT* remains positive and significant for all four types of foreign affiliates, whereas *RND* and *CFTA* are significant only for wholly-owned affiliates, and *OWN* stays significant only for zero-owned affiliates. Firm size also matters for the degree of related party transactions. While the *RPT index* for both large and small firms is positively related to *RND* and *EXPT*, *DEBT* and *CFTA* affect negatively the *RPT* index of differently sized firms. A firm's technology level also affects its *RPT*. The *RPT* index for high-tech firms is significantly related to *FSIZE*, *RND* and *EXPT*, but the *RPT* index for low-tech firms is significantly related to all firm variables except for *FSIZE*. Lastly, depending on the host country of FDI firms' foreign affiliates, the determinants of the *RPT* index also vary. The *RPT* index for affiliates located in the developed countries is positively related to *FSIZE*, *RND* and *EXPT* and negatively to *IMPT*, whereas the *RPT* index for affiliates in the emerging countries is positively related to *RND* and *EXPT* and negatively to *DEBT*, *IMPT* and *CFTA*.

For the whole sample of KOSDAQ firms, *FSIZE*, *EXPT*, *IMPT* and *OWN* carry similar estimated regression coefficients as those for KOSPI firms in terms of signs and significance. Unlike KOSPI firms, however, *DEBT* has a positive and significant regression coefficient, and neither *RND* nor *CFTA* is significantly related to *RPT*. When classified by affiliate's ownership percentage, *FSIZE* and *EXPT* carry positive and significant regression coefficients across all four types of affiliates, whose results are identical to those for KOSPI firms. On the contrary, there are notable differences including the positive and significant regression coefficients of *DEBT* for all types except for minority-owned affiliates, the insignificant regression coefficients of *IMPT*, and the positive and significant regression estimate of *OWN* for wholly-owned affiliates. Other classifications of firm size, technology level and the economic status of the host country also affect the determinants of related party transactions differently for KOSDAQ firms, compared to KOSPI firms. While *FSIZE* and *EXPT* have positive and significant regression coefficients consistently throughout all classifications, other variables such as *DEBT*, *RND*, *IMPT*, *CFTA* and *OWN* are related to firms' overseas related party transactions differently based on different classifications.

The overall regression results shown in Table 4 confirm our earlier findings that the exchange where the

investing firm is listed plays a role in the determinants of FDI firms' related party transactions. While an FDI investing firm with a larger size, a higher export ratio, a lower import ratio and/or a higher major shareholder's stock ownership is likely to engage in more overseas related party transactions for both KOSPI and KOSDAQ firms, the relationships of other firm attributes with such transactions differ based on the listed exchange. A firm's debt ratio affects its related party transactions negatively for KOSPI firms but positively for KOSDAQ firms. A firm's R&D ratio and operating cash flow to total assets ratio are significant for KOSPI firms, but do little impact for KOSDAQ firms. The results also show that firm attributes affecting FDI firms' overseas related party transactions vary depending on the ownership structure and host country of foreign affiliates and the size and technology level of FDI firms.

4.5. *Regression results on the valuation effect of related party transactions*

We now turn to the regression results on the effect of the investing firm's related party transactions on its firm value. The key issue we explore here is whether the related party transactions of investing firms with their foreign affiliates have positive or negative effects on the values of the investing firms, whose results would offer important implications on the valuation role of related party transactions. Table 5 reports the results from regression equation (2) for the whole sample and four subgroups classified by the ownership percentage of foreign affiliates.

All regression models explain at least 40% of the variations in the dependent variable of firm value measured by Tobin's q , as evidenced by their adjusted R-squared values. Among control variables in the whole sample regression, firm size ($FSIZE$) is significantly positively related to firm value, and debt ratio ($DEBT$), operating cash flow to total assets ($CFTA$), dividend payout (DIV) and major shareholder's stock ownership (OWN) are *significantly* negatively related to firm value for both KOSPI and KOSDAQ firms. In contrast, RND and $EXPT$ carry significant regression coefficients only for KOSDAQ firms.

More importantly, the results offer contrasting evidence on the valuation effect of overseas related party transactions between KOSPI firms and KOSDAQ firms. The key test variable of RPT for the whole sample carries a negative regression coefficient for both KOSPI and KOSDAQ firms but is significant (at least at the 10%) only

for KOSDAQ firms. It is further shown in Table 5 that while *RPT* has insignificant regression coefficients for all four types of affiliates for KOSPI firms, the negative and significant association of *RPT* with firm value for the whole sample of KOSDAQ firms is also present for wholly- and majority-owned affiliates of KOSDAQ firms. The regression results for KOSDAQ firms as reported in Table 5 are supportive of Hypothesis I of the negative association of related party transactions and firm value and Hypothesis II of the role of the ownership percentage in affiliates.

Because changes in economic conditions could influence firms' FDIs and thus the nature of their overseas related party transactions, the valuation effects of related party transactions may also vary depending on the period examined. The global financial crisis in the late 2000s is one of such events that significantly changed the global economic conditions. In this regard, we also examine the relationship between related party transactions and firm value for two sub-periods surrounding the global financial crisis: the pre-crisis period of 2005-2007 and the post-crisis period of 2008-2010.

Table 6 presents the regression results by period and classifications for KOSPI firms. For brevity's sake, we report select results by classifications where the key test variable of *RPT* carries a significant regression coefficient. Although *RPT* is not significantly related to firm value for the whole period (as presented in Table 5), it has a negative and significant (at the 10% level) regression coefficient during the post-crisis period. Hence, the overseas related party transactions of KOSPI firms during the post-crisis period contributed to the lower values of these firms. Similarly, it is further shown that the post-crisis *RPT* is negatively and significantly (at least at the 5% level) related to firm value for FDI firms both in the high-tech industry and whose foreign affiliates are located in emerging countries.

Table 7 shows the select regression results for KOSDAQ firms. *RPT* carries a negative and significant (at the 5% level) regression coefficient for both the pre- and post-crisis periods, indicating the persistent negative effect of KOSDAQ firms' overseas related party transactions on firm value. When sample firms are classified by several criteria, the negative valuation effect of *RPT* is pervasive across different classifications and periods. More specifically, the negative effect is present for small firms and firms with affiliates in emerging countries regardless of the period, high-tech firms during the post-crisis period, and low-tech firms during the pre-crisis period. For

KOSDAQ firms, the regression results are in supportive of Hypotheses I through V that the ownership percentage and host country of foreign affiliates and the size and technology level of investing firms all play a role in the relationships of related party transactions with firm values.

The results in Tables 6 and 7 reveal that the negative association of related party transactions and firm value varies by different classifications of firm attributes such as the size and technology level of investing firms and the host country of affiliates. In order to further investigate this association, we estimate regression equation (2) for sample firms classified by two combined criteria of firm attributes and report the estimated regression coefficients of the key test variable, *RPT*, in Table 8.¹⁴ The regression results in general offer evidence consistent with our earlier findings with notable differences between KOSPI and KOSDAQ firms. On the one hand, for KOSPI firms, the negative valuation effect is mainly associated with related party transactions of large-sized FDI firms in the high-tech industry with their foreign affiliates in the developed countries. On the other hand, for KOSDAQ firms, such a negative valuation effect is pervasive for both large- and small-sized FDI firms in the high-tech industry with their foreign affiliates in the emerging countries.

Combined with the results in Tables 5 through 7, the regression results in Table 8 show that the related party transactions of FDI firms with their foreign affiliates affect firm value negatively only during the post-crisis period for KOSPI firms, but that this negative valuation effect is more persistent across the whole sample period for KOSDAQ firms. While there are notable differences in the valuation effects based on classifications of several firm attributes between KOSPI and KOSDAQ firms, the negative effects of their overseas related party transactions on firm value are significant for both KOSPI and KOSDAQ firms which are in the high tech industry and whose foreign affiliates are in emerging countries during the post-crisis period. These results suggest that Korean FDI firms use the related party transactions primarily as a means of transferring their resources and supporting their financially-distressed or poor-performing foreign affiliates with a focus on the long-term profit maximization of their FDIs. The consistent evidence of the

¹⁴ Full regression results are available from the authors upon request.

negative valuation effects of related party transactions during the post-crisis period supports this implication.

4.6. Robustness test

Our results so far offer strong evidence on the negative valuation effect of FDI firms' related party transactions. A few methodological issues may cast doubt on our empirical results such as an endogeneity issue and a sample selection issue. In order to ensure the robustness of our empirical results, we perform one robustness test. Because the main research issue of our paper is the valuation effect of the related party transactions of FDI firms, we conduct the robustness test that focuses on the valuation effect.

If both an FDI firm's decision on overseas related party transactions and its firm value are determined jointly by some unobservable omitted variables, the OLS regression estimates we have reported above may be unreliable, suffering from the potential endogeneity of the RPT index measure. In addition, another concern is the possible simultaneity or feedback effect between the related party transactions and firm value. A high RPT index may cause a low firm value, but it is also conceivable that a poorly-performing FDI firm (thus with low value) may engage in more related party transactions with its foreign affiliates as a way to raise its firm value. Because a simultaneity issue yields biased and inconsistent estimates when an OLS model is applied, we employ two-stage least square (2SLS) regressions to obtain a consistent estimator of the regression coefficients. For the instrument variable, we use one-year lagged RPT , $RPT(-1)$, which is expected to be related to RPT but unrelated to the value of the FDI firm. The dependent variables in the first- and second-stage regressions are RPT and FV , respectively. The results are reported in Table 9.

For KOSPI firms, the first-stage regression of using RPT as dependent variable has a significant F-value and explains about 38.4% of the variation in RPT . The instrument of $RPT(-1)$ is significantly related to RPT , as postulated. The second-stage regression of using FV as dependent variable also has a significant chi-square value and explains slightly more than 40% of the variation in FV . The Durbin-Wu-Hausman test of endogeneity shows that the null hypothesis that variables are exogenous in the second-stage regression cannot be rejected, indicating that the estimators are consistent and free from endogeneity issue.

Among other estimates, the regression estimate of *FV* is negative but insignificant at the 10% level, whose evidence is consistent with our earlier findings. For KOSDAQ firms, the first- and second-stage regressions exhibit significant F- and chi-square values and explain a good proportion of the variation in each dependent variable. The instrument variable of *RPT(-1)* is also significant at the 1% level in the first-stage regression. The key test variable of *RPT* carries a negative but insignificant regression coefficient, indicating no significantly negative impact of related party transactions on values of KOSDAQ firms.

As the 2SLS regressions show consistent evidence for KOSPI firms but somewhat different evidence for KOSDAQ firms, we wonder whether the negative valuation effects found in the subsamples classified by several firm attributes (as reported in Tables 7 and 8) remain robust if 2SLS regressions are also applied to these subsamples. We present the regression estimates from the second-stage regressions of using *FV* as dependent variable for several subsamples.

For KOSPI firms whose results are reported in Panel A, *RPT* is insignificant in both pre- and post-crisis periods for the whole sample, but carries negative and significant regression estimates for high-tech firms during the post-crisis period and for high-tech firms whose affiliates are in developed countries during the post-crisis period. These results are qualitatively the same as those reported earlier in Tables 7 and 8. This evidence is a strong indication that high-tech KOSPI firms use related party transactions as a means to support their foreign affiliates located in developed countries that were set up via their FDIs but have gone through financial difficulties during the global financial crisis.

For KOSDAQ firms as reported in Panel B, we obtain similar results to those reported in Tables 7 and 8. *RPT* has a negative and significant (at the 10% level) regression estimate during the post-crisis period. In addition, the regression coefficient of *RPT* is negative and significant (at least at the 5% level) for high-tech firms during the post-crisis period and for large-sized high-tech firms with their foreign affiliates in the emerging country during the whole period. These results strongly indicate that large-sized high-tech KOSDAQ firms invest mainly in emerging countries and that these firms move their resources through related party transactions to help their foreign affiliates in the emerging countries following the global financial crisis.

5. Summary and Conclusion

In this paper, we have examined two major issues pertinent to the related party transactions of FDI firms with their foreign affiliates—the determinants and the valuation effect of such transactions.

Employing uniquely-constructed firm-level data of Korean FDI firms over the 2005-2010 period, we find that an FDI firm of a larger size with a higher export ratio, a lower import ratio and/or a higher major shareholder's stock ownership is likely to engage in more overseas related party transactions regardless of their listed exchange. On the other hand, other firm attributes such as debt ratio, R&D ratio, and cash flow to assets ratio affect a firm's related party transactions differently between KOSPI and KOSDAQ firms.

We also find non-positive effects of related party transactions on firm value for the whole sample period of our paper but negative valuation effects of such transactions during the post-global financial crisis period for both KOSPI and KOSDAQ firms. Our further analyses reveal that the negative valuation effect is mainly associated with the related party transactions of high-tech KOSPI (KOSDAQ) firms whose foreign affiliates are in the developed (emerging) countries during the post-crisis period. These results suggest that Korean FDI firms use the related party transactions as a means of transferring their resources and supporting their financially-distressed foreign affiliates, especially surrounding the global financial crisis. This evidence is a strong indication that Korean firms make their FDIs with a focus on the long-term profit maximization of their FDIs, rather than to withdraw short-term investment returns of foreign affiliates back to the home country.

As documented in the current literature, the conventional approach to the understanding of domestic related party transactions is wealth transfer between majority and minority shareholders through tunneling or propping activities. Different from this conventional perspective, our paper offers a new perspective to the understanding of overseas related party transactions that such transactions must be understood in the context of FDIs as related party transactions abroad play as an important mechanism to

transfer resources and investment outcomes between the investing firm and foreign affiliates that are set up through FDIs.

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Table 1. Related party transaction index by several classifications and by period

The sample consists of Korean firms listed on KOSPI and KOSDAQ during 2005-2010. RPT index is measured by the sum of all transaction amounts of sales, purchases, profits and costs with foreign affiliates divided by total sales of the investing firm.

Classifications	Whole period		2005-2007		2008-2010	
	No. of firms	RPT index	No. of firms	RPT index	No. of firms	RPT index
Panel A. KOSPI firms						
Total sample firms	589	0.089	586	0.080	591	0.098
RPT(test sample) firms	304	0.172	298	0.158	311	0.186
By ownership %						
Wholly-owned	210	0.132	210	0.129	210	0.136
Majority-owned	108	0.109	112	0.076	104	0.142
Minority-owned	91	0.059	87	0.061	95	0.058
Zero-owned	103	0.073	84	0.073	122	0.072
By firm size						
Large firms	162	0.165	161	0.132	165	0.198
Small firms	142	0.180	137	0.188	146	0.171
By technology level						
High-tech firms	133	0.182	129	0.177	138	0.186
Low-tech firms	171	0.165	168	0.143	173	0.187
By host country						
Developed country	171	0.131	167	0.109	175	0.154
Emerging country	248	0.113	236	0.111	260	0.115
Panel B. KOSDAQ firms						
Total sample firms	843	0.068	852	0.050	833	0.086
RPT(test sample) firms	307	0.185	290	0.147	323	0.223
By ownership %						
Wholly-owned	192	0.201	203	0.158	181	0.244
Majority-owned	67	0.078	61	0.072	73	0.084
Minority-owned	52	0.065	47	0.057	57	0.073
Zero-owned	84	0.096	39	0.092	129	0.100
By firm size						
Large firms	180	0.187	168	0.145	193	0.229
Small firms	127	0.185	123	0.151	130	0.218
By technology level						
High-tech firms	221	0.196	212	0.150	230	0.243
Low-tech firms	86	0.159	79	0.142	94	0.177
By host country						
Developed country	134	0.116	125	0.103	144	0.129
Emerging country	225	0.181	203	0.143	248	0.218

Table 2. Comparison of firms with and without related party transactions

The sample consists of Korean firms listed on KOSPI and KOSDAQ during 2005-2010. RPT index is measured by the sum of all transaction amounts of sales, purchases, profits and costs with foreign affiliates divided by total sales of the investing firm. Firm value is measured by Tobin's q. Firm size is measured by total assets. All variables are measured through a 98% winsorization process. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Variables	Whole sample		Firms with RPTs (test sample)		Firms without RPTs (control sample)		Difference tests	
	Mean	Median	Mean	Median	Mean	Median	t-statistic	z-statistic
Panel A. KOSPI firms								
RPT index	0.089	0.001	0.171	0.063	0.000	0.000	10.79***	8.21***
Firm value	1.066	0.923	1.076	0.933	1.055	0.912	1.18	1.62
Firm size (\$billion)	1.457	0.201	1.994	0.222	0.883	0.178	8.47***	7.50***
Debt to total assets	0.463	0.466	0.460	0.461	0.467	0.471	-0.93	-0.97
R&D to sales	0.014	0.005	0.015	0.007	0.012	0.003	3.57***	8.78***
Export to sales	0.281	0.135	0.411	0.404	0.142	0.016	28.48***	27.91***
Import to sales	0.158	0.121	0.163	0.127	0.152	0.109	2.32**	5.67***
Cash flow to total assets	0.043	0.046	0.045	0.046	0.041	0.047	-0.37	0.48
Dividends to earnings	0.178	0.124	0.183	0.122	0.174	0.127	-1.24	0.26
Major stock ownership	0.417	0.421	0.414	0.413	0.419	0.411	0.33	0.47
No. of obs.	3531		1825		1706			
Panel B. KOSDAQ firms								
RPT index	0.069	0.000	0.190	0.067	0.000	0.000	24.43***	68.72***
Firm value	1.368	1.135	1.305	1.100	1.404	1.164	-4.32***	2.69***
Firm size (\$billion)	0.107	0.063	0.125	0.079	0.097	0.057	7.33***	12.54***
Debt to total assets	0.350	0.323	0.373	0.357	0.336	0.308	5.93***	6.22***
R&D to sales	0.039	0.016	0.044	0.022	0.036	0.012	4.24***	10.24***
Export to sales	0.266	0.110	0.421	0.375	0.177	0.026	28.43***	28.11***
Import to sales	0.161	0.104	0.189	0.147	0.145	0.102	12.22***	12.45***
Cash flow to total assets	0.028	0.031	0.034	0.036	0.024	0.027	-1.12	-3.30
Dividends to earnings	0.011	0.000	0.103	0.000	0.119	0.000	1.02	0.91
Major Stock ownership	0.374	0.364	0.375	0.364	0.374	0.364	-0.16	-0.56
No. of obs.	5050		1838		3212			

Table 3. Pearson correlation coefficients

The sample consists of Korean firms listed on KOSPI and KOSDAQ during 2005-2010. FV = firm value; RPT = related party transaction index; FSIZE = firm size; DEBT = Debt ratio; RND = R&D ratio; EXPT = Export ratio; IMPT = Import ratio; CFTA = operating cash flow to total assets; DIV = dividend payout ratio; OWN = major shareholder stock ownership. All variables are measured through a 98% winsorization process. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Variables	<i>FV</i>	<i>RPT</i>	<i>FSIZE</i>	<i>DEBT</i>	<i>RND</i>	<i>EXPT</i>	<i>IMPT</i>	<i>CFTA</i>	<i>DIV</i>
Panel A. KOSPI firms									
<i>RPT</i>	0.01	1							
<i>FSIZE</i>	0.31***	0.05***	1						
<i>DEBT</i>	-0.45***	-0.07***	-0.03*	1					
<i>RND</i>	0.19***	0.11***	0.09***	-0.19***	1				
<i>EXPT</i>	-0.03*	0.48***	0.13***	0.06***	0.02	1			
<i>IMPT</i>	-0.04**	0.08***	0.04**	0.05***	-0.02	0.25***	1		
<i>CFTA</i>	-0.11***	-0.02	0.06***	-0.16***	-0.03	0.02	0.04**	1	
<i>DIV</i>	-0.06***	0.02	0.04**	-0.11***	-0.01	-0.04**	0.00	0.15***	1
<i>OWN</i>	-0.18***	-0.05***	-0.12***	-0.00	-0.11***	-0.11***	-0.03*	0.13***	0.07***
Panel B. KOSDAQ firms									
<i>RPT</i>	-0.05***	1							
<i>FSIZE</i>	0.32***	0.07***	1						
<i>DEBT</i>	-0.49***	0.04***	-0.02	1					
<i>RND</i>	0.18***	0.02*	-0.04***	-0.25***	1				
<i>EXPT</i>	-0.04***	0.42***	0.12***	0.03**	0.09***	1			
<i>IMPT</i>	-0.06***	0.17***	-0.04***	0.02	0.13***	0.41***	1		
<i>CFTA</i>	-0.18***	-0.01	0.07***	-0.01	-0.03**	0.04***	0.01	1	
<i>DIV</i>	-0.15***	-0.04***	0.01	-0.02	-0.09***	-0.05***	-0.05***	0.21***	1
<i>OWN</i>	-0.24***	-0.01	0.06***	0.15***	-0.16***	-0.04***	0.06***	0.26***	0.27***

Table 4. Regression results on the determinants of related party transactions with foreign affiliates

The sample consists of Korean firms listed on KOSPI and KOSDAQ during 2005-2010. Dependent variable is R PT index, measured by the sum of all transaction amounts of sales, purchases, profits and costs with foreign affiliates divided by total sales of the investing firm. Because *RPT* is low bounded at zero, Tobit regressions are estimated. *FSIZE* = Firm size (total assets); *DEBT* = debt to total assets; *RND* = R&D to sales; *EXPT* = Export to sales; *IMPT* = Import to sales; *CFTA* = operating cash flow to total assets; *OWN* = major shareholder stock ownership; *INDDY* = industry dummies; *YEARDY* = year dummies. All variables are measured through a 98% winsorization process. t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

variables	Depend Variable = <i>RPT</i>										
	By ownership percentage					By firm size		By technology level		By host country	
	Whole Sample	Wholly-owned	Majority-owned	Minority-owned	Zero-owned	Large Firms	Small firms	High-Tech	Low-tech	Developed countries	Emerging countries
Panel A. KOSPI firms											
<i>FSIZE</i>	0.013*** (4.629)	0.021*** (7.555)	0.011*** (4.892)	0.005*** (2.591)	0.017*** (8.089)	0.032*** (7.374)	0.001 (0.108)	0.023*** (4.712)	0.005 (1.533)	0.032*** (12.206)	-0.003 (-1.366)
<i>DEBT</i>	-0.057*** (-2.710)	-0.035* (-1.696)	-0.032* (-1.903)	0.034** (2.473)	-0.015 (-0.951)	-0.031 (-1.153)	-0.074** (-2.265)	0.035 (0.933)	-0.104*** (-4.321)	-0.015 (-0.749)	-0.056*** (-2.944)
<i>RND</i>	1.343*** (6.048)	1.465*** (6.717)	0.111 (0.635)	0.134 (0.914)	0.273 (1.579)	1.036*** (3.703)	1.223*** (3.553)	1.577*** (5.026)	1.073*** (3.160)	0.726*** (3.508)	1.138*** (5.687)
<i>EXPT</i>	0.422*** (26.237)	0.330*** (20.993)	0.173*** (13.380)	0.122*** (11.161)	0.075*** (6.167)	0.307*** (14.239)	0.496*** (21.166)	0.404*** (14.881)	0.422*** (21.995)	0.312*** (19.196)	0.339*** (23.708)
<i>IMPT</i>	-0.219*** (-3.476)	-0.082 (-1.301)	-0.140*** (-2.810)	-0.132*** (-3.317)	-0.019 (-0.392)	-0.073 (-0.972)	-0.153 (-1.420)	-0.153 (-1.140)	-0.253*** (-3.841)	-0.118** (-2.030)	-0.166*** (-2.883)
<i>CFTA</i>	-0.132*** (-2.726)	-0.152*** (-3.140)	0.017 (0.420)	-0.011 (-0.352)	-0.008 (-0.217)	-0.182** (-2.535)	-0.034 (-0.513)	0.083 (0.958)	-0.247*** (-4.506)	-0.003 (-0.056)	-0.148*** (-3.460)
<i>OWN</i>	0.058** (2.193)	-0.009 (-0.349)	-0.036 (-1.643)	0.004 (0.249)	0.128*** (6.173)	0.082** (2.355)	0.098** (2.390)	0.067 (1.393)	0.052* (1.756)	0.090*** (3.348)	0.031 (1.314)
<i>INDDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Constant</i>	-0.343*** (-5.565)	-0.541*** (-8.854)	-0.310*** (-6.289)	-0.206*** (-5.086)	-0.523*** (-10.588)	-0.737*** (-7.617)	-0.153 (-0.703)	-0.644*** (-6.108)	-0.149** (-2.110)	-0.777*** (-13.013)	-0.009 (-0.157)
Obs.	3,531	3,531	3,531	3,531	3,531	1,768	1,763	1,344	2,187	2,758	3,218
Chi-square	1690	1314	675.9	474.9	502.0	994.4	953.8	595.4	1092	1332	1404
Panel B. KOSDAQ firms											
<i>FSIZE</i>	0.045*** (7.607)	0.050*** (6.421)	0.020*** (4.295)	0.017*** (5.298)	0.028*** (5.377)	0.024** (2.275)	0.086*** (4.488)	0.063*** (8.099)	0.026*** (3.042)	0.061*** (9.502)	0.035*** (5.480)
<i>DEBT</i>	0.081*** (3.240)	0.085*** (2.610)	0.085*** (4.469)	0.009 (0.709)	0.041* (1.783)	0.101*** (3.022)	0.060 (1.534)	0.134*** (4.272)	0.010 (0.266)	0.083*** (3.078)	0.118*** (4.402)
<i>RND</i>	0.116 (1.429)	-0.061 (-0.555)	0.150** (2.500)	0.025 (0.578)	0.068 (0.850)	0.384*** (3.373)	-0.203* (-1.668)	0.083 (0.840)	0.148 (1.072)	0.379*** (4.982)	-0.094 (-0.967)

<i>EXPT</i>	0.413*** (24.456)	0.397*** (18.235)	0.124*** (9.279)	0.059*** (6.471)	0.131*** (8.421)	0.358*** (15.867)	0.475*** (18.295)	0.370*** (18.216)	0.488*** (16.506)	0.286*** (15.290)	0.405*** (22.392)
<i>IMPT</i>	-0.144** (-1.984)	-0.135 (-1.453)	-0.081 (-1.402)	-0.040 (-0.992)	-0.061 (-0.888)	-0.138 (-1.410)	-0.159 (-1.447)	-0.153* (-1.796)	-0.161 (-1.165)	0.140* (1.768)	-0.288*** (-3.586)
<i>CFTA</i>	-0.073 (-1.526)	-0.083 (-1.322)	0.062* (1.720)	0.033 (1.274)	-0.056 (-1.236)	-0.150** (-2.019)	-0.011 (-0.165)	-0.090 (-1.512)	-0.033 (-0.433)	-0.029 (-0.563)	-0.046 (-0.906)
<i>OWN</i>	0.084*** (2.707)	0.088** (2.157)	0.036 (1.529)	-0.008 (-0.484)	0.073** (2.573)	0.131*** (3.069)	0.022 (0.461)	0.190*** (4.824)	-0.067 (-1.385)	0.095*** (2.741)	0.053 (1.612)
<i>INDDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Constant</i>	-1.140*** (-10.068)	-1.403*** (-9.154)	-0.668*** (-7.151)	-0.424*** (-6.961)	-0.897*** (-8.470)	-0.848*** (-4.172)	-1.745*** (-5.281)	-1.579*** (-10.548)	-0.693*** (-4.337)	-1.544*** (-11.975)	-0.973*** (-8.045)
Obs.	5,050	5,050	5,050	5,050	5,050	2,529	2,521	3,080	1,970	4,043	4,588
Chi-square	1467	1150	337.1	303.7	687.9	850.8	665.3	904.6	466.6	843.4	1346

Table 5. Regression results on the valuation effects of related party transactions

The sample consists of Korean firms listed on KOSPI and KOSDAQ during 2005-2010. Dependent variable is firm value measured by Tobin's q. RPT index is measured by the sum of all transaction amounts of sales, purchases, profits and costs with foreign affiliates divided by total sales of the investing firm. *FSIZE* = Firm size (total assets); *DEBT* = debt to total assets; *RND* = R&D to sales; *EXPT* = Export to sales; *IMPT* = Import to sales; *CFTA* = operating cash flow to total assets; *DIV* = dividends to earnings; *OWN* = major shareholder stock ownership; *INDDY* = industry dummies; *YEARDY* = year dummies. All variables are measured through a 98% winsorization process. t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Variables	KOSPI firms					KOSDAQ firms				
	Whole sample	By ownership percentage				Whole sample	By ownership percentage			
		Wholly-owned	Majority-owned	Minority-owned	Zero-owned		Wholly-owned	Majority-owned	Minority-owned	Zero-owned
<i>RPT</i>	-0.074 (-0.806)	-0.192 (-1.355)	-0.213 (-1.010)	0.413 (1.420)	0.183 (0.544)	-0.177** (-2.446)	-0.175** (-2.084)	-0.646*** (-2.734)	0.514 (0.706)	-0.197 (-0.801)
<i>FSIZE</i>	0.102*** (9.827)	0.103*** (9.869)	0.102*** (9.766)	0.103*** (9.847)	0.102*** (9.761)	0.333*** (15.150)	0.333*** (15.098)	0.333*** (15.074)	0.332*** (15.082)	0.333*** (15.066)
<i>DEBT</i>	-1.002*** (-12.580)	-1.003*** (-12.572)	-1.001*** (-12.475)	-1.002*** (-12.518)	-0.997*** (-12.481)	-1.608*** (-21.912)	-1.609*** (-21.913)	-1.608*** (-21.906)	-1.610*** (-21.911)	-1.610*** (-21.901)
<i>RND</i>	0.684 (0.743)	0.742 (0.809)	0.651 (0.706)	0.623 (0.679)	0.617 (0.669)	0.663** (2.437)	0.655** (2.405)	0.676** (2.491)	0.669** (2.474)	0.672** (2.475)
<i>EXPT</i>	-0.052 (-0.825)	-0.042 (-0.659)	-0.062 (-1.028)	-0.081 (-1.367)	-0.076 (-1.300)	-0.103** (-2.225)	-0.115** (-2.533)	-0.130*** (-2.962)	-0.142*** (-3.263)	-0.136*** (-3.119)
<i>IMPT</i>	0.181 (0.934)	0.184 (0.946)	0.182 (0.938)	0.206 (1.079)	0.192 (0.995)	-0.191 (-0.997)	-0.183 (-0.958)	-0.182 (-0.947)	-0.174 (-0.907)	-0.180 (-0.938)
<i>CFTA</i>	-0.977*** (-9.125)	-0.983*** (-9.214)	-0.972*** (-8.993)	-0.973*** (-8.981)	-0.970*** (-8.992)	-1.083*** (-10.643)	-1.081*** (-10.613)	-1.073*** (-10.577)	-1.074*** (-10.586)	-1.075*** (-10.586)
<i>DIV</i>	-0.209*** (-4.635)	-0.209*** (-4.647)	-0.208*** (-4.675)	-0.211*** (-4.730)	-0.211*** (-4.724)	-0.417*** (-7.581)	-0.415*** (-7.560)	-0.415*** (-7.551)	-0.416*** (-7.570)	-0.417*** (-7.588)
<i>OWN</i>	-0.306*** (-3.581)	-0.309*** (-3.614)	-0.310*** (-3.630)	-0.309*** (-3.611)	-0.313*** (-3.704)	-0.557*** (-6.537)	-0.559*** (-6.563)	-0.562*** (-6.597)	-0.563*** (-6.615)	-0.561*** (-6.582)
<i>INDDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Constant</i>	-0.329 (-1.524)	-0.338 (-1.560)	-0.324 (-1.495)	-0.348 (-1.609)	-0.325 (-1.501)	-3.729*** (-9.509)	-3.718*** (-9.470)	-3.719*** (-9.445)	-3.708*** (-9.438)	-3.718*** (-9.436)
<i>Obs.</i>	3,531	3,531	3,531	3,531	3,531	5,050	5,050	5,050	5,050	5,050
<i>Adj. R²</i>	0.415	0.415	0.414	0.415	0.414	0.441	0.441	0.440	0.440	0.440

Table 6. Regression results on the valuation effects of related party transactions by select classifications and period for KOSPI firms

The sample consists of Korean firms listed on the KOSPI during 2005-2010. Dependent variable is firm value measured by Tobin's q. RPT index is measured by the sum of all transaction amounts of sales, purchases, profits and costs with foreign affiliates divided by total sales of the investing firm. *FSIZE* = Firm size (total assets); *DEBT* = debt to total assets; *RND* = R&D to sales; *EXPT* = Export to sales; *IMPT* = Import to sales; *CFTA* = operating cash flow to total assets; *DIV* = dividends to earnings; *OWN* = major shareholder stock ownership; *INDDY* = industry dummies; *YEARDY* = year dummies. All variables are measured through a 98% winsorization process. t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	By technology level								
				High-tech firms			By host country		
	Whole period	Pre-crisis	Post-Crisis	Whole period	Pre-crisis	Post-crisis	Whole period	Pre-crisis	Post-crisis
<i>RPT</i>	-0.074 (-0.806)	0.039 (0.334)	-0.168* (-1.853)	-0.210** (-2.002)	-0.076 (-0.565)	-0.310*** (-2.924)	-0.102 (-0.884)	0.024 (0.153)	-0.221** (-2.017)
<i>FSIZE</i>	0.102*** (9.827)	0.092*** (8.313)	0.110*** (9.322)	0.127*** (6.898)	0.106*** (5.566)	0.144*** (6.952)	0.095*** (9.397)	0.087*** (7.726)	0.103*** (9.087)
<i>DEBT</i>	-1.002*** (-12.580)	-0.905*** (-9.797)	-1.054*** (-11.214)	-1.007*** (-8.144)	-0.981*** (-6.951)	-0.997*** (-7.438)	-0.969*** (-11.900)	-0.885*** (-9.196)	-1.015*** (-10.450)
<i>RND</i>	0.684 (0.743)	0.513 (0.474)	0.836 (0.832)	-0.166 (-0.181)	-0.866 (-0.712)	0.532 (0.564)	0.781 (0.879)	0.561 (0.502)	0.910 (0.948)
<i>EXPT</i>	-0.052 (-0.825)	-0.140* (-1.943)	-0.005 (-0.070)	-0.167* (-1.758)	-0.247** (-2.391)	-0.101 (-0.959)	-0.032 (-0.499)	-0.118 (-1.511)	0.011 (0.156)
<i>IMPT</i>	0.181 (0.934)	0.207 (0.940)	0.137 (0.638)	0.463 (1.355)	0.435 (1.173)	0.344 (0.804)	0.211 (1.068)	0.239 (1.017)	0.173 (0.801)
<i>CFTA</i>	-0.977*** (-9.125)	-1.074*** (-8.106)	-0.893*** (-6.520)	-1.165*** (-7.137)	-1.300*** (-6.003)	-1.049*** (-5.063)	-1.006*** (-9.010)	-1.089*** (-7.962)	-0.923*** (-6.374)
<i>DIV</i>	-0.209*** (-4.635)	-0.282*** (-6.013)	-0.123** (-1.970)	-0.177** (-2.325)	-0.271*** (-3.681)	-0.062 (-0.575)	-0.204*** (-4.479)	-0.285*** (-5.969)	-0.100 (-1.557)
<i>OWN</i>	-0.306*** (-3.581)	-0.283*** (-3.083)	-0.311*** (-2.936)	-0.410*** (-3.089)	-0.369** (-2.264)	-0.398*** (-2.698)	-0.302*** (-3.465)	-0.301*** (-3.138)	-0.287*** (-2.700)
<i>INDDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Constant</i>	-0.329 (-1.524)	-0.170 (-0.703)	-0.484** (-1.998)	0.813** (2.004)	-0.092 (-0.226)	-1.166*** (-2.826)	-0.213 (-1.006)	-0.068 (-0.281)	-0.383 (-1.620)
<i>Obs.</i>	3,531	1,757	1,774	1,344	657	687	3,218	1,591	1,627
Adj. R ²	0.415	0.415	0.414	0.443	0.452	0.471	0.420	0.465	0.430

Table 7. Regression results on the valuation effects of related party transactions by select classifications and period for KOSDAQ firms

The sample consists of Korean firms listed on the KOSDAQ during 2005-2010. Dependent variable is firm value measured by Tobin's q. RPT index is measured by the sum of all transaction amounts of sales, purchases, profits and costs with foreign affiliates divided by total sales of the investing firm. *FSIZE* = Firm size (total assets); *DEBT* = debt to total assets; *RND* = R&D to sales; *EXPT* = Export to sales; *IMPT* = Import to sales; *CFTA* = operating cash flow to total assets; *DIV* = dividends to earnings; *OWN* = major shareholder stock ownership; *INDDY* = industry dummies; *YEARDY* = year dummies. All variables are measured through a 98% winsorization process. t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Variables	Whole sample			By firm size			By technology level		
	Whole period	Pre-crisis	Post-Crisis	Small firms			High-tech firms		
				Whole period	Pre-crisis	Post-Crisis	Whole period	Pre-Crisis	Post-crisis
<i>RPT</i>	-0.177** (-2.446)	-0.256** (-2.311)	-0.171** (-2.141)	-0.219** (-2.479)	-0.312** (-2.281)	-0.195* (-1.828)	-0.208** (-2.517)	-0.183 (-1.407)	-0.254*** (-2.840)
<i>FSIZE</i>	0.333*** (15.150)	0.311*** (11.410)	0.353*** (14.492)	0.280*** (8.159)	0.272*** (4.523)	0.270*** (7.376)	0.346*** (12.025)	0.315*** (9.326)	0.373*** (11.247)
<i>DEBT</i>	-1.608*** (-21.912)	-1.701*** (-17.662)	-1.543*** (-18.406)	-1.026*** (-13.215)	-1.073*** (-9.739)	-0.983*** (-10.307)	-1.572*** (-18.396)	-1.654*** (-16.069)	-1.502*** (-13.779)
<i>RND</i>	0.663** (2.437)	1.149*** (3.105)	0.082 (0.278)	0.592** (2.217)	1.052** (2.406)	0.186 (0.698)	0.658** (2.087)	1.095*** (2.649)	0.126 (0.375)
<i>EXPT</i>	-0.103** (-2.225)	-0.139** (-2.352)	-0.054 (-0.976)	-0.012 (-0.259)	-0.123* (-1.677)	0.099* (1.728)	-0.100* (-1.834)	-0.168** (-2.562)	-0.026 (-0.389)
<i>IMPT</i>	-0.191 (-0.997)	-0.097 (-0.401)	-0.240 (-1.011)	-0.362* (-1.666)	-0.153 (-0.429)	-0.541** (-2.226)	-0.234 (-1.041)	-0.070 (-0.253)	-0.354 (-1.246)
<i>CFTA</i>	-1.083*** (-10.643)	-1.053*** (-7.372)	-1.121*** (-8.809)	-0.975*** (-8.195)	-0.978*** (-5.638)	-0.972*** (-5.831)	-1.305*** (-10.284)	-1.331*** (-7.845)	-1.318*** (-7.403)
<i>DIV</i>	-0.417*** (-7.581)	-0.480*** (-6.773)	-0.342*** (-4.877)	-0.277*** (-5.218)	-0.302*** (-4.322)	-0.240*** (-3.698)	-0.389*** (-5.317)	-0.389*** (-4.378)	-0.371*** (-3.758)
<i>OWN</i>	-0.557*** (-6.537)	-0.487*** (-4.663)	-0.623*** (-6.414)	-0.719*** (-8.204)	-0.808*** (-6.785)	-0.636*** (-6.262)	-0.491*** (-4.860)	-0.402*** (-3.184)	-0.592*** (-4.783)
<i>INDDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Constant</i>	-3.729*** (-9.509)	-3.381*** (-6.813)	-4.264*** (-9.796)	-2.839*** (-4.806)	-2.702*** (-2.602)	-2.892*** (-4.555)	-4.076*** (-8.393)	-3.081*** (-4.431)	-4.389*** (-7.197)
<i>Obs.</i>	5,050	2,556	2,494	2,521	1,278	1,243	3,080	1,567	1,513
Adj. R ²	0.441	0.434	0.456	0.336	0.342	0.310	0.432	0.420	0.441

(Table 7. Continued)

Variables	By technology level			By host country		
	Low-tech firms			Emerging country		
	Whole period	Pre-Crisis	Post-Crisis	Whole period	Pre-crisis	Post-Crisis
<i>RPT</i>	-0.122 (-0.767)	-0.547*** (-2.779)	0.100 (0.554)	-0.270*** (-3.330)	-0.400*** (-2.998)	-0.266*** (-2.993)
<i>FSIZE</i>	0.321*** (9.782)	0.307*** (6.935)	0.334*** (9.680)	0.330*** (14.788)	0.307*** (10.340)	0.346*** (14.279)
<i>DEBT</i>	-1.653*** (-13.166)	-1.768*** (-9.287)	-1.594*** (-12.323)	-1.592*** (-20.718)	-1.689*** (-16.501)	-1.520*** (-17.468)
<i>RND</i>	0.746 (1.501)	1.453** (2.031)	-0.018 (-0.030)	0.778*** (2.791)	1.316*** (3.087)	0.101 (0.351)
<i>EXPT</i>	-0.118 (-1.379)	-0.016 (-0.126)	-0.149 (-1.556)	-0.090* (-1.860)	-0.120* (-1.902)	-0.040 (-0.687)
<i>IMPT</i>	-0.100 (-0.269)	-0.333 (-0.679)	0.066 (0.158)	-0.155 (-0.734)	0.011 (0.040)	-0.282 (-1.068)
<i>CFTA</i>	-0.723*** (-4.370)	-0.562** (-2.291)	-0.824*** (-4.767)	-1.060*** (-10.069)	-1.058*** (-7.045)	-1.058*** (-8.085)
<i>DIV</i>	-0.452*** (-5.651)	-0.594*** (-5.370)	-0.316*** (-3.220)	-0.412*** (-7.403)	-0.487*** (-6.549)	-0.325*** (-4.651)
<i>OWN</i>	-0.639*** (-4.483)	-0.604*** (-3.289)	-0.627*** (-3.999)	-0.581*** (-6.729)	-0.532*** (-4.925)	-0.639*** (-6.450)
<i>INDDY</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Constant</i>	-3.500*** (-6.158)	-3.241*** (-4.143)	-3.900*** (-6.609)	-3.673*** (-9.226)	-3.304*** (-6.123)	-4.142*** (-9.576)
<i>Obs.</i>	1,970	989	981	4,588	2,312	2,276
<i>Adj. R²</i>	0.453	0.453	0.481	0.336	0.342	0.310

Table 8. Regression results on the valuation effects of related party transactions by double classifications

The sample consists of Korean firms listed on KOSPI and KOSDAQ during 2005-2010. Dependent variable is firm value measured by Tobin's q. RPT index is measured by the sum of all transaction amounts of sales, purchases, profits and costs with foreign affiliates divided by total sales of the investing firm. For brevity's sake, estimated regression coefficients of other control variables are not reported here. The control variables used in the regressions are *FSIZE* (Firm size), *DEBT* (debt to total assets), *RND* (R&D to sales), *EXPT* (Export to sales), *IMPT* (Import to sales), *CFTA* (operating cash flow to total assets), *DIV* (dividends to earnings), *OWN* (major shareholder stock ownership), *INDDY* (industry dummies), and *YEARDY* (year dummies). All variables are measured through a 98% winsorization process. t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Var.	Classifications											
	Large firms &				Small firms &				High-tech firms &		Low-tech firms &	
	High-tech	Low-tech	Dev. country	Emerging country	High-tech	Low-tech	Dev. country	Emerging Country	Dev. country	Emerging country	Dev. country	Emerging country
Panel A. KOSPI firms												
<i>RPT</i>	-0.288*	0.020	-0.151	-0.298	-0.131	0.207	0.196	0.034	-0.527***	-0.206	0.157	0.014
	(-1.84)	(0.09)	(-1.04)	(-1.56)	(-1.07)	(1.19)	(0.92)	(0.28)	(-3.21)	(-1.43)	(0.81)	(0.08)
For brevity's sake, estimated regression coefficients of other control variables are not reported here.												
<i>Obs.</i>	585	1,183	1,453	1,588	759	1,004	1,305	1,630	1,024	1,238	1,734	1,980
Adj. R ²	0.514	0.509	0.527	0.490	0.316	0.319	0.346	0.331	0.477	0.422	0.409	0.399
Panel B. KOSDAQ firms												
<i>RPT</i>	-0.212*	-0.088	0.080	-0.312***	-0.199**	-0.260	-0.226	-0.239**	-0.141	-0.319***	0.170	-0.174
	(-1.84)	(-0.49)	(0.41)	(-3.04)	(-2.12)	(-1.39)	(-1.59)	(-2.17)	(-0.88)	(-3.40)	(0.64)	(-0.97)
For brevity's sake, estimated regression coefficients of other control variables are not reported here.												
<i>Obs.</i>	1,512	1,017	1,987	2,231	1,568	953	2,056	2,357	2,358	2,765	1,685	1,823
Adj. R ²	0.465	0.532	0.494	0.484	0.343	0.318	0.324	0.338	0.427	0.429	0.459	0.447

Table 9. Robustness test for the valuation effects using 2SLS regressions

The sample consists of Korean firms listed on the KOSPI and KOSDAQ during 2005-2010. Dependent variable in the first-stage regression is *RPT*, the related party transactions index of each FDI firm with its foreign affiliates. Dependent variable in the second-stage regression is *FV*, firm value measured by Tobin's q. *FSIZE* = Firm size (total assets). *DEBT* = debt to total assets. *RND* = R&D to sales. *EXPT* = Export to sales. *IMPT* = Import to sales. *CFTA* = operating cash flow to total assets. *DIV* = dividends to earnings. *OWN* = major shareholder stock ownership. *RPT(-1)* = one-year lagged variable of *RPT*, used as instrument variable. *INDDY* = industry dummies. *YEARDY* = year dummies. All variables are measured through a 98% winsorization process. t-statistics and z-statistics are in parentheses of first- and second-stage regressions, respectively. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Variables	KOSPI firms		KOSDAQ firms	
	First stage dependent var = <i>RPT</i>	Second stage dependent var = <i>FV</i>	First stage dependent var = <i>RPT</i>	Second stage dependent var = <i>FV</i>
<i>RPT</i>	-	-0.298 (-0.78)	-	-0.199 (-1.633)
<i>FSIZE</i>	-0.001 (-0.32)	0.102*** (9.48)	0.002 (1.08)	0.338*** (14.367)
<i>DEBT</i>	-0.048*** (-3.08)	-1.019*** (-11.91)	-0.017 (1.48)	-1.659*** (-20.204)
<i>RND</i>	0.772** (4.00)	0.521 (0.55)	-0.018 (-0.54)	0.530* (1.739)
<i>EXPT</i>	0.246*** (11.75)	0.011 (0.10)	0.101*** (7.66)	-0.097* (-1.781)
<i>IMPT</i>	-0.135*** (-3.60)	0.136 (0.62)	-0.044 (-1.28)	-0.234 (-1.177)
<i>CFTA</i>	-0.079** (-2.15)	-1.055*** (-8.68)	-0.016 (-0.85)	-1.130*** (-10.406)
<i>DIV</i>	0.036*** (2.62)	-0.190*** (-3.75)	0.002 (0.28)	-0.399*** (-6.876)
<i>OWN</i>	0.024 (1.51)	-0.359*** (-4.10)	0.028** (2.38)	-0.638*** (-7.055)
<i>RPT(-1)</i>	0.066** (2.15)	-	0.530*** (7.03)	-
<i>INDDY</i>	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes
<i>Constant</i>	0.042 (0.77)	-0.262 (-1.17)	-0.058 (-1.42)	-3.791*** (-9.004)
Obs.	2839	2839	4017	4012
F value	28.64***	-	4983.53***	-
Adj. R ²	0.384	0.404	0.524	0.447
Chi-square	-	23587.55***	-	1627.71***

Table 10. Robustness tests on the valuation effects using 2SLS regressions for subsamples classified by period and firm attributes

The sample consists of Korean firms listed on the KOSPI and KOSDAQ during 2005-2010. The table reports the regression estimates from the second-stage of 2SLS regressions using FV (firm value) as dependent variable. *FV* is measured by Tobin's q. *RPT* is related party transaction index of each FDI firm with its foreign affiliates. *FSIZE* = Firm size (total assets). *DEBT* = debt to total assets. *RND* = R&D to sales. *EXPT* = Export to sales. *IMPT* = Import to sales. *CFTA* = operating cash flow to total assets. *DIV* = dividends to earnings. *OWN* = major shareholder stock ownership. *INDDY* = industry dummies. *YEARDY* = year dummies. All variables are measured through a 98% winsorization process. z-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Variables	Whole sample &			High-tech firms &			
	Whole period	Pre-crisis	Post-crisis	Whole period	Post-crisis	Dev. country & whole period	Dev. country & post-crisis
<i>RPT</i>	-0.298 (-0.782)	0.178 (1.033)	-0.446 (-0.979)	-0.179 (-1.255)	-0.341*** (-2.717)	-0.295* (-1.718)	-0.473*** (-3.037)
<i>FSIZE</i>	0.102*** (9.477)	0.092*** (7.751)	0.109*** (9.225)	0.131*** (6.642)	0.146*** (6.929)	0.131*** (5.908)	0.155*** (6.443)
<i>DEBT</i>	-1.019*** (-11.913)	-1.023*** (-9.916)	-0.984*** (-10.691)	-1.034*** (-7.778)	-0.976*** (-7.376)	-1.226*** (-8.278)	-1.191*** (-8.018)
<i>RND</i>	0.521 (0.550)	0.028 (0.023)	0.637 (0.662)	-0.275 (-0.283)	0.145 (0.160)	-1.283 (-1.269)	-0.967 (-1.021)
<i>EXPT</i>	0.011 (0.098)	-0.164** (-1.986)	0.061 (0.474)	-0.171* (-1.688)	-0.097 (-0.909)	-0.115 (-1.068)	-0.074 (-0.626)
<i>IMPT</i>	0.136 (0.622)	0.111 (0.430)	0.167 (0.738)	0.425 (1.100)	0.325 (0.760)	0.739* (1.645)	0.613 (1.162)
<i>CFTA</i>	-1.055*** (-8.676)	-1.385*** (-7.666)	-0.858*** (-6.599)	-1.244*** (-6.473)	-1.075*** (-5.321)	-1.193*** (-5.387)	-1.130*** (-5.074)
<i>DIV</i>	-0.190*** (-3.747)	-0.282*** (-5.425)	-0.122* (-1.902)	-0.158* (-1.835)	-0.086 (-0.775)	-0.200*** (-2.688)	-0.153* (-1.701)
<i>OWN</i>	-0.359*** (-4.101)	-0.380*** (-3.744)	-0.334*** (-3.386)	-0.437*** (-3.118)	-0.386*** (-2.669)	-0.461*** (-2.965)	-0.396** (-2.408)
<i>INDDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Constant</i>	-0.262 (-1.166)	-0.020 (-0.077)	-0.476** (-1.970)	-0.765** (-2.129)	-1.103*** (-3.022)	-0.731* (-1.790)	-1.187*** (-2.862)
<i>Obs.</i>	2,839	1,134	1,705	1,095	667	832	499
Adj. R ²	0.404	0.434	0.399	0.416	0.446	0.465	0.511

Table 10 (Continued)

Panel B. KOSDAQ firms								
Variables	Whole sample &			Emerging country &			High-tech firms &	
	Whole period	Pre-crisis	Post-crisis	Whole period	Large firms	High-tech	Whole period	Post-crisis
<i>RPT</i>	-0.199 (-1.633)	-0.142 (-0.812)	-0.262* (-1.897)	-0.373** (-2.340)	-0.390** (-2.203)	-0.350*** (-2.945)	-0.235** (-2.052)	-0.309** (-2.377)
<i>FSIZE</i>	0.338*** (14.367)	0.318*** (10.165)	0.351*** (14.230)	0.334*** rp(14.034)	0.342*** (7.350)	0.347*** (11.371)	0.346*** (11.108)	0.368*** (10.898)
<i>DEBT</i>	-1.659*** (-20.204)	-1.930*** (-15.865)	-1.512*** (-17.803)	-1.636*** (-19.147)	-2.014*** (-16.600)	-1.563*** (-15.232)	-1.578*** (-15.917)	-1.452*** (-12.916)
<i>RND</i>	0.530* (1.739)	1.022** (2.332)	0.081 (0.265)	0.649** (2.067)	0.870 (1.479)	0.803** (2.322)	0.576* (1.658)	0.145 (0.406)
<i>EXPT</i>	-0.097* (-1.781)	-0.157** (-2.129)	-0.050 (-0.815)	-0.079 (-1.340)	-0.133 (-1.431)	-0.081 (-1.271)	-0.105* (-1.707)	-0.032 (-0.461)
<i>IMPT</i>	-0.234 (-1.177)	-0.190 (-0.693)	-0.217 (-0.913)	-0.222 (-1.008)	0.185 (0.513)	-0.304 (-1.180)	-0.274 (-1.159)	-0.310 (-1.084)
<i>CFTA</i>	-1.130*** (-10.406)	-1.195*** (-6.895)	-1.112*** (-8.639)	-1.093*** (-9.858)	-1.205*** (-7.038)	-1.351*** (-9.483)	-1.389*** (-10.000)	-1.309*** (-7.332)
<i>DIV</i>	-0.399*** (-6.876)	-0.492*** (-6.268)	-0.321*** (-4.647)	-0.401*** (-6.798)	-0.516*** (-5.247)	-0.359*** (-4.764)	-0.368*** (-4.800)	-0.349*** (-3.708)
<i>OWN</i>	-0.638*** (-7.055)	-0.600*** (-5.100)	-0.653*** (-6.714)	-0.649*** (-7.066)	-0.451*** (-3.155)	-0.623*** (-5.725)	-0.598*** (-5.645)	-0.627*** (-5.087)
<i>INDDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>YEARDY</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Constant</i>	-3.791*** (-9.004)	-3.352*** (-5.900)	-4.153*** (-9.491)	-3.720*** (-8.743)	-4.051*** (-4.655)	-3.913*** (-7.068)	-3.893*** (-6.879)	-4.469*** (-7.135)
<i>Obs.</i>	4,012	1,639	2,373	3,640	1,789	2,181	2,429	1,439
<i>Adj. R²</i>	0.447	0.428	0.454	0.442	0.481	0.422	0.426	0.432

Appendix A. Examples of Korean firms' related party transactions with foreign affiliates in 2010

A.1. Parent company: Samsung Electronics			
Affiliated company name	Transaction type	Transaction Amount (\$mil)	Transaction Description
SLCD (Samsung LCD Co., Ltd)	Sales and purchases	15,288	LCD panels
SSI (Samsung Semiconductor, Inc.)	Sales and purchases	14,733	LCD panels and semiconductor chips
STA (Samsung Telecommunications America, LLC.)	Sales and purchases	10,653	HHP and network equipment sales
SSEG (Samsung Semiconductor Europe GmbH)	Sales and purchases	8,630	LCD panels and semiconductor chips
SET (Samsung Electronics Taiwan Co., Ltd.)	Sales and purchases	8,292	LDC panels and semiconductor chips
SSS (Shanghai Samsung Semiconductor, Co., Ltd.)	Sales and purchases	7,944	LCD panels and semiconductor chips
SJC (Samsung Japan Co., Ltd.)	Sales and purchases	5,637	LCD panels and semiconductor chips
SESC (Samsung Electronics Suzhou Computer Co., Ltd.)	Sales and purchases	5,329	Computer sales

A.2. Parent company: NongShim			
Affiliated company name	Sales (\$)	Purchases (\$)	Others (\$)
NongShim Holdings USA, Inc.	-	-	117,098
NongShim America, Inc.	24,725,178		2,783,189
NongShim Japan, Inc.	24,825,936	2,704,990	30,709
Shanghai NongShim Foods, Ltd.	1,059,635	5,826,829	692,507
Chungdo NongShim Foods, Ltd.	6,954	1,673,210	692,507
Shimyang NongShim Foods, Ltd.	1,781,989	250,192	647,236

Notes: 'Others' include service charges, usage fees, technology instruction fees, etc.

Appendix B. Korea Standard Industrial Classification (KSIC) Code and Industry

KSIC Code	Definition of Industry
15	Manufacture of Food Products and Beverages
16	Manufacture of Tobacco Products
17	Manufacture of Textiles, Except Sewn Wearing apparel
18	Manufacture of Sewn Wearing Apparel and Fur Articles
19	Tanning and Dressing of Leather, Manufacture of Luggage and Footwear
20	Manufacture of Wood and of Products of Wood and Cork, Except Furniture; Manufacture of Articles of Straw and Plaiting Materials
21	Manufacture of Pulp, Paper and Paper Products
22	Publishing, Printing and Reproduction of Recorded Media
23	Manufacture of Coke, Refined Petroleum Products and Nuclear Fuel
24	Manufacture of Chemicals and Chemical Products
25	Manufacture of Rubber and Plastic Products
26	Manufacture of Other Non-metallic Mineral Products
27	Manufacture of Basic Metals
28	Manufacture of Fabricated Metal Products, Except Machinery and Furniture
29	Manufacture of Other Machinery and Equipment
30	Manufacture of Computers and Office Machinery
31	Manufacture of Electrical Machinery and Apparatuses n.e.c.
32	Manufacture of Electronic Components, Radio, Television and Communication Equipment and Apparatuses
33	Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks
34	Manufacture of Motor Vehicles, Trailers and Semitrailers
35	Manufacture of Other Transport Equipment
36	Manufacture of Furniture; Manufacturing of Articles n.e.c.