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解鎖投資敏感性的調解因素：IFRS 實施前後被銷除關係人銷貨角色之檢測[#]

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摘要

集團企業間若有大量的關係人銷貨交易(RPTs)常被認為是公司從事掏空行為，然而，RPTs 亦可能是聯屬個體間正常營運活動與資源配置。在我國財務報表編製準則規範下，上市櫃公司應同時提供合併財務報表與報導個體(母公司)財務報表兩種財務報告。此特殊規範讓本研究可以將 RPTs 區分為因合併報表編製而被銷除之關係人銷貨交易(ERPTs)及未被銷除之關係人銷貨交易(NERPTs)。ERPTs 在編製合併報表時會被銷除，原則上對報導合併損益不會產生影響，較可能是集團內部長期效率契約的安排。本研究探討 ERPTs 在 Tobin's Q 及內部現金流量對投資敏感性影響之角色。實證結果顯示：ERPTs 顯著提高 Tobin's Q 之投資敏感度，並降低內部現金流量之投資敏感性；然此效果在 IFRS 實施前較為明顯。本研究推測 IFRS 實施後提高財報透明度，因而降低 ERPTs 在 Tobin's Q 及內部現金流量對投資敏感性之調解角色；也意味 IFRS 實施後，投資者轉而較看重合併財務報表所報導之資訊。

關鍵詞：關係人銷貨交易、契約假說、投資敏感性、合併財務報表、報導個體財務報表。

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Unlocking Investment Sensitivity Patterns: The Role of Eliminated Related Party Transactions Before and After IFRS Adoption in Taiwan[#]

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Abstract

A substantial volume of related party sales (RPTs) within affiliated groups may be linked to tunneling practices. Yet, many such transactions are a natural part of operating activities and resource allocation among related parties. To comply with the Regulations Governing the Preparation of Financial Reports by Securities Issuers, Taiwanese listed firms are required to prepare both consolidated and parent company-only financial statements. This reporting framework facilitates the breakdown of RPTs into eliminated RPTs (ERPTs) and non-eliminated RPTs (NERPTs). ERPTs, which have no income effect in consolidated financial statements, may signify long-term contracting relationships among related parties. This study investigates whether ERPTs correlate with investment sensitivity to Tobin's Q and internally generated cash flows. The findings demonstrate that ERPTs significantly increase investment sensitivity to Tobin's Q and reduce sensitivity to internal cash flows. This effect is more pronounced before the IFRS adoption. This result suggests that increased transparency and reporting quality under IFRS lead to investors' reduced reliance on ERPT in investment sensitivity to Tobin's Q and internally generated cash flows. It also implies that market participants place greater emphasis on consolidated financial statements over parent company-only financial statements after the IFRS adoption.

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Keywords: Related party sales; Contracting hypothesis; Investment sensitivity; Consolidated financial statements; Parent company-only financial statements.

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1. Introduction

Investment decisions play a critical role in firm growth and risk, making investment sensitivity an essential subject in corporate finance research (Abdallah et al. 2020; Bhabra et al. 2018; Biddle et al. 2009; Chowdhury et al. 2016). Prior research highlights that agency problems and information asymmetry influence investment efficiency (Bhabra et al. 2018; Chowdhury et al. 2016; Cao et al. 2019). Firms in markets with strong investor protections tend to exhibit greater investment sensitivity to Tobin's Q (Bhandari et al. 2022; McLean et al. 2012). This aligns with Tobin (1969) theory, which suggests that, in a frictionless market, marginal Q predicts real investment. However, in markets with weaker investor protections, business groups and related party transactions often emerge as alternative mechanisms to address capital constraints (Khanna and Palepu 2000; Rawat and Chaudhry 2025). While business groups may improve capital allocation through internal monitoring, they can also facilitate earnings tunneling, which reduces investment efficiency (Rawat and Chaudhry 2025). Due to limited research on related party transactions and investment efficiency, their relationship remains inconclusive. Some studies argue that related party transactions support efficient contracting, enhancing investment sensitivity. Others suggest that related party transactions facilitate opportunistic behavior, leading to misallocation of resources.

Studies on related party transactions have begun to distinguish between "exploitation-driven" and "contracting efficiency" types of related party transactions, yet relevant evidence is still entirely mixed concerning related party trades (Aharony et al. 2010; Jian and Wong 2010; Kohlbeck and Mayhew 2017). Contracting theory proposes that related party transactions can be an integral aspect of efficient contracting among affiliated parties and serve the stakeholders' mutual benefit to allocate resources and/or mitigate risk (Coase 1937; Williamson 1964). This school holds that related party transactions in related firms are driven by economic reasons rather than opportunist considerations, such as strategic investments in joint ventures to gain access to supplies or markets (Balsam et al. 2017; Chen et al. 2020; Del Prete and Rungi 2017; Gordon et al. 2007; Kukharskyy 2016; Ryngaert and Thomas 2012; Wang et al. 2019). The contracting and/or economic grounds for related party transactions in related firms may increase the value of the affiliated firms' long-term contractual partnership. However, related party transactions increase the risk that managers would overindulge in incentives and/or engage in improper wealth transfers (Berkman et al. 2009; Bertrand et al. 2002; Cheung et al. 2006; Djankov et al. 2008; Jian and Wong 2010; Kohlbeck and Mayhew 2010, 2017; Lo et al. 2010). Related party transactions also alter the reliability of financial statements inside the

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agency framework, hence reducing the efficacy of agreements intended to eliminate agency conflicts. Therefore, related party transaction motives have two competing explanations: a shareholder benefit contracting scheme and a means for insiders to exploit outside shareholders through self-dealing (Chen et al. 2020).

Following TSFAS 7 (Taiwan SFAS No.7) in 2005, the Taiwanese listed firms are required to prepare consolidated financial reports following the Regulations and IAS 27; and parent company-only financial reports under the Regulations.[1] Based on consolidated and parent company-only financial statements, the related party sales (hereafter RPTs) between a parent company and its affiliated firms could be decomposed into two components, i.e., RPTs will be eliminated in consolidated financial statements (hereafter ERPTs) and RPTs will not be eliminated in consolidated financial statements (Weng et al. 2023). From the earnings reporting perspective, ERPTs are unlikely to be associated with manipulated current earnings, as they are excluded from the profit presentation in consolidated financial statements. ERPTs in affiliated firms may instead signal long-term agreements among related entities. From a regulatory perspective, the institutional characteristic of Taiwanese listed firms—which are required to prepare both parent company-only and consolidated financial statements—provides this study with an opportunity to examine whether contracting-related ERPTs are associated with investment sensitivity to both Tobin's Q and internally generated cash flows.

Information disclosure conveys valuable information to the market that can reduce information asymmetry between shareholders and managers (Ho et al. 2023; Lambert et al. 2007). Parent company-only financial statements in Taiwan contribute to information disclosure as an incremental constituent of financial statements under the IFRS framework. Investors can separate the ERPTs from all RPTs through parent company-only financial statements. Note that relational contracts govern a substantial portion of RPTs---informal agreements and unwritten codes of conduct (Argyres et al. 2019; Baker et al. 2003). Relational contracting suggests that cooperative and efficient behaviors can be sustained through reciprocal interactions in a long-term relationship, even though formal agreements are not fully enforceable through third parties (Bernheim and Whinston 1998; Levin 2003). The information environment can thus improve financial reporting through relational contracting. Accordingly, ERPTs could be attributed to an efficient method of

[1] Alternatively, an issuer that does not have a subsidiary shall prepare individual financial reports following the Regulations and prepare statements of major accounting items per Article No.23 of the Regulations when preparing its annual individual financial reports.

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contracting (Balsam et al. 2017; Coase 1937; Xu et al. 2016) because they don't affect the reported earnings at the group level. Inspired by Balsam et al. (2017) and Hope and Lu (2020), they found evidence consistent with the efficient contracting hypothesis around the SEC related party transaction disclosure changes in 2006. Hope and Lu (2020) conclude that strengthened governance and transparency regarding related party transactions can mitigate potential conflicts of interest, leading to more efficient contracting among related parties and improved investor perceptions of firm value (Tobin's Q). Other study also hypothesizes relational contracting related party transactions effectively reduce information asymmetry and improve firms' information environments thus lead to investment sensitivity (Biddle et al. 2009; Chen et al. 2016; Fauver et al. 2017; Gao and Zhong 2023; Lee and Masulis 2009; Ng 2011).

Information disclosure is crucial for the effective operation of capital (Healy and Palepu 2001). Previous studies have documented that financial reporting quality is positively associated with investment efficiency (Biddle and Hilary 2006; Biddle et al. 2009; Bushman and Smith 2001; Lambert et al. 2007). Focusing on disclosing regulation, Schleicher et al. (2010) found that IFRS adoption in EU countries has improved the functioning of capital markets and reduced insider economies' investment-cash flow sensitivity. Chowdhury et al. (2016) also found that the implementation of the Sarbanes-Oxley Act of 2002 (SOX), which mandates increased disclosures, decreases the investment-cash flow sensitivity for firms with positive cash flows and increases it for firms with negative cash flows. The effect is more pronounced in subsamples of firms experiencing significant reductions in information asymmetry. Additionally, Bhandari et al. (2022) highlight that related party disclosure significantly influences the sensitivity of capital allocations at the firm level. They found that firms engaging in opportunistic related party transactions exhibit a lower investment sensitivity to Tobin's Q compared to firms that do not engage in such practices. The relational contracting ERPTs, compared with the opportunistic related party transactions in Bhandari et al. (2022) setting, are expected to reduce the information asymmetry and are associated with a higher level of information quality. This study alternatively examines whether ERPTs enhance (weaken) investment sensitivity to Tobin's Q (internally generated cash flows) in companies with ERPTs versus those without ERPTs.

This study proposes that ERPTs can be a key element of efficient contracting among affiliated parties, benefiting stakeholders by better allocating resources and reducing risk (Balsam et al. 2017; Chen et al. 2020; Coase 1937; Gordon et al. 2007;

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Ryngaert and Thomas 2012; Williamson 1964). The empirical results document that ERPTs enhance investment sensitivity to Tobin's Q and weaken investment sensitivity to internally generated cash flows, particularly before adopting IFRS in Taiwan. It indicates that firms with higher ERPTs are more (less) inclined to invest in growth opportunities (using internal cash flows). However, after IFRS adoption, investors appear to shift their focus towards consolidated financial statements, reducing the informational relevance of ERPTs embedded in the parent company-only financial statements for investment decisions. As a result, the effect of ERPTs on investment sensitivity diminishes, suggesting that ERPTs reported in parent company-only financial statements may offer incremental information in the post-IFRS environment. These results, to some extent, support the contracting hypothesis, demonstrating that ERPTs are connected to increased (decreased) investment sensitivity to Tobin's Q (internally generated cash flows), reflecting their role in long-term contractual arrangements and investment decisions. These results are consistent across several robustness tests, highlighting the shift in investment dynamics post-IFRS.

This study enriches the related party transactions literature from several angles. First, based on the consolidated financial statements and the unique required parent company-only financial statements in Taiwan, this study extends extant literature on the financial reporting effect of related party transactions, for examples: Bhandari et al. (2022); Kohlbeck and Mayhew (2010); Nekhili and Cherif (2011); Ryngaert and Thomas (2012). The present study focuses on examining ERPTs activities on investment sensitivities, providing new insights into how efficient contracting related-party transactions influence investment decisions. The analysis contributes to corporate finance and investment behavior literature by offering novel insights into the role of ERPTs in Taiwan and their influence on investment sensitivity to Tobin's Q and internally generated cash flows. Our findings support the efficient contracting hypothesis of ERPTs activities under the stricter regulation of related party transactions disclosure which reduces information asymmetry and enhances internal resource optimization. The findings contribute to a broader understanding and may attract interest from academics, practitioners, and regulatory agencies.

Second, unlike prior studies conducted in regions with stronger investor protections (e.g., the US) or emerging markets with less transparent regulations (e.g., the MENA region), this study highlights Taiwan's unique context where business groups dominate (Yeh et al. 2012; Rawat and Chaudhry 2025; Chiu et al. 2022), reflecting both cultural and regulatory differences. Furthermore, Chiu et al. (2022)

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indicates that financial market frictions are more common in Taiwan compared to the U.S. The findings indicate that ERPTs is more sensitive to Tobin's Q in Taiwan, contrasting with Abdallah et al. (2020) in the MENA region, where investment tends to be more sensitive to cash flow than to Tobin's Q. These findings support the notion that greater disclosure transparency reduces reliance on internal financing in investment decisions (Chen and Chen 2012; Chowdhury et al. 2016; Hope and Lu 2020). Comparing these results with studies from other regions, such as the US (Bhandari et al. 2022) and the MENA (Abdallah et al. 2020), this paper highlights contextual differences in investment behavior and the role of capital markets. This comparison enriches the global understanding of how related party transactions and financial regulations influence corporate investment decisions across diverse economic environments.

Third, this study adopts a different perspective from Bhandari et al. (2022), who investigated opportunistic related party transactions based on agency theory. In our work, ERPTs in affiliated firms likely indicate a long-term contracting relationship between related parties. This efficient contracting hypothesis is tested in Taiwan, where a significant volume of sales RPTs is observed (Yeh et al. 2012), and the regulatory environment emphasizes transparency through mandatory parent company-only financial statements. Thus, this study provides novel insights into how efficient RPTs are utilized and perceived in a unique economic and regulatory setting. The findings indicate that ERPTs are positively associated with investment sensitivity to Tobin's Q and negatively associated with investment sensitivity to internally generated cash flows before IFRS adoptions. It suggests that efficient ERPTs in Taiwan contribute to increased external equity financing. These findings provide additional support for the efficient contracting hypothesis of ERPTs in Taiwan's business group setting. Furthermore, this study strengthen prior findings (e.g., Rawat and Chaudhry 2025) and has broader implications for similar business structures, such as Korean Chaebols, Japanese Keiretsu, and Indian business groups.

Finally, related party transactions are widely utilized by Taiwanese companies, and this study provides regulatory insights into the mandatory disclosure of parent company-only financial statements. Although our findings indicate that ERPTs lose relevance in investment decisions post-IFRS, reflecting their incremental role in financial transparency, these disclosures remain crucial for regulatory oversight and corporate governance. By enhancing transparency and accountability in related party transactions, they help mitigate opportunistic practices and support investor protection. This study reinforces the importance of dual-reporting systems to ensure

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regulatory compliance and corporate transparency, especially in emerging economies, where such frameworks can strengthen governance structures and promote market integrity.

The rest of this paper is structured as follows: Section 2 provides a review of the literature and formulates testable hypotheses. Section 3 describes the data and outlines the empirical model for examining whether ERPTs are associated with investment sensitivity to Tobin's Q and internally generated cash flows. Section 4 presents the main regression results and Section 5 discusses the robustness tests. Section 6 concludes the study.

2. Institutional setting, literature review, and hypotheses formulation

2.1 Institutional setting

The Financial Supervisory Commission in Taiwan issued Order VI No.0930155913/ No.0940001317 in 2004/2005 and required the listed firms to prepare consolidated financial reports after 2005. Nevertheless, the rule in Taiwan government (i.e., *Regulations Governing the Preparation of Financial Reports by Securities Issuers*) requires public companies to prepare consolidated financial reports in accordance with both Chapter II of the *Regulations* and TSFAS 7 (Taiwan SFAS No.7 in 2005) and prepare annual parent company-only financial reports following Chapter IV of the *Regulations* after January 1, 2012. Under TSFAS 7, the Taiwanese listed firms are required to prepare consolidated financial statements for voting entities when the parent company has decision-making power over both financial benefits and operating decisions. An issuer that does not have a subsidiary shall prepare individual financial reports following Chapter II of the *Regulations* and prepare statements of major accounting items when preparing its annual individual financial reports. The *Regulations* were further revised in 2014 with an implementation date of January 1, 2015. It requires that an issuer prepare consolidated financial reports under Chapter II of the *Regulations* and IFRS 10. In addition, they prepare parent company-only financial reports in accordance with Chapter IV of the *Regulations*.

Based on TSFAS 7 (or IAS 27, IFRS 10), the profits or losses are unrealized until the asset (e.g., inventory) is sold to a third party that is outside the consolidated entity and is eliminated "in full" under the consolidated financial statements. However, parent company-only financial statements are based on legal forms and summarize the investments of its subsidiaries and/or associates' net assets in single

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lines in the balance sheet (i.e., long-term investments), not the underlying assets, liabilities, and activities. Parent company-only financial statements are also required to use the equity method. Thus, the unrealized profits for affiliated transactions between a parent company and its subsidiaries and/or associates are "fractionally" eliminated and report a higher level of current earnings (Hoyle et al. 2011). According to consolidated and parent company-only financial statements in Taiwanese listed firms, the RPTs between parent company and its affiliated firms could be decomposed into two components, i.e., RPTs will be eliminated in consolidated financial statements (ERPTs), and RPTs will not be eliminated in consolidated financial statements.[2] It is important to note that intercompany transactions must be excluded when the subsidiaries are part of the consolidated entity. ERPTs are unlikely to be associated with a firm's aggressive earnings reporting because this type of RPTs do not influence the aggregate financial outcomes reported by the group. Therefore, the requirements of preparing both the consolidated financial statements and the unique parent company-only financial statements in Taiwan allow this study to examine the investment sensitivity to Tobin's Q and internally generated cash flows for firms with higher levels of ERPTs.

The government of Taiwan imposes disclosure restrictions on the related party transactions of listed firms. The disclosed items of related party transactions encompass the sales value, the quantity and proportion of goods sold, the balance and proportion of receivables and payables, and the amount and proportion of property transactions. Note that many firms listed on the Taiwanese stock exchange are members of a specific business group. It is commonly believed that a business group affiliation helped companies access the resources necessary for operations (Khanna and Palepu 2000), acting as a network for integrating and exchanging resources among affiliated firms. Some related party deals, thus are merely a normal part of operating actions (Chen et al. 2020; Gordon et al. 2007; Wang et al. 2019; Weng et al. 2023). In addition, related party activities must be approved by the board of directors and filed to the Market Observation Post System (MOPS) of Taiwan Stock Exchange, according to the rules in Taiwan. Under relatively strict regulations and disclosure requirements of related party transactions, this study aims to gather evidence to clarify whether the efficient contracting view of ERPTs can explain

[2] Practical examples of eliminated and non-eliminated RPTs are provided in the Appendix for further illustration.

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firms' engagement in these transactions in Taiwan, an economy that plays an important role in global supply chains.

2.2 Investment sensitivity to Tobin's Q and cash flows

Investment sensitivity refers to the extent to which a firm's investment decisions respond to changes in financial conditions, particularly Tobin's Q and internally generated cash flows (Abdallah et al. 2020; Verona 2020; Bhandari et al. 2022; McLean et al. 2012; Chowdhury et al. 2016). Tobin's Q, which measures market valuation relative to asset replacement costs, serves as a key determinant of investment, with higher Q values theoretically leading firms to invest more as they identify profitable growth opportunities (Tobin 1969). However, financial constraints can weaken this relationship, making firms more reliant on internal cash flows to finance investments (Fazzari et al. 1988; Khurana et al. 2006; Schleicher et al. 2010; McLean et al. 2012; Chowdhury et al. 2016; Bhabra et al. 2018). Empirical studies confirm that investment is generally sensitive to Tobin's Q, as firms with higher Q values tend to invest more (Fazzari et al. 1988; Tobin 1969). Furthermore, McLean et al. (2012) and Bhandari et al. (2022) provide evidence that stock prices, as reflected in Tobin's Q, predict both investment and external financing, as higher Q firms attract more investor confidence and funding. At the same time, investment sensitivity to cash flows plays a crucial role in capital allocation, particularly in firms with limited access to external financing (Abdallah et al. 2020). Chiu et al. (2022) point out that the free-cash flows problem influences investment decisions in non-finance Taiwanese firms. While business groups may mitigate financial constraints by leveraging reputational capital to secure external funding at lower costs (Khanna and Palepu 2000; Rawat and Chaudhry 2025), some studies suggest that investment-cash flow sensitivity primarily reflects financing constraints (Bhabra et al. 2018; Cao et al. 2019). Affiliated firms within corporate groups have better access to external financing through bank ties, reducing their reliance on internal cash flows (Chiu et al. 2022). Firms with opportunistic related party transactions (RPTs) exhibit a stronger reliance on internally generated cash flow, as demonstrated by Bhandari et al. (2022).

2.3 Literature review

Many studies have linked related party transactions to reporting quality and/or reporting environments. Two competing views explain the motives of related party

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transactions: the opportunistic (or tunneling) versus the efficient contracting views. The opportunistic (or tunneling) view argues that related party transactions in affiliated firms are used to prop up underperforming firms (Bertrand et al. 2002; Friedman et al. 2003; Jian and Wong 2010). Thus, it has been argued that related party transactions violate the arm's-length assumption of regular transactions and consequently lead to a decline in earnings quality (Wang and Yuan 2012) and lower informativeness of earnings (Rahmat et al. 2020). However, affiliation within a business group allows firms to access necessary operational resources (Khanna and Palepu 2000; Gordon et al. 2007), functioning as a network for resource integration among affiliated entities. The strong interactions within the "internal market" created by group members suggest multiple ways for shareholders to monitor and control management effectively. Some related party transactions among affiliated firms are likely inherent to their operating activities and not necessarily indicative of managerial opportunism (Gordon et al. 2007). Recently, Chen et al. (2020) suggested that sales-based related party transactions in affiliated firms might be driven by economic motivations, such as gaining access to supplies or markets in Taiwan. The contractual and/or economic motivations behind sales-based related party transactions in affiliated firms enhance the predictive power of current earnings regarding long-term contracting relationships among related parties, thereby improving earnings informativeness. Bansal and Singh (2023) show that market competition fosters related party transactions in India, and such transactions are positively related to firm value. Their findings, to some extent support the efficient contracting viewpoint. Accordingly, extant studies use different related party transactions metric in exploring earnings quality and valuation implication of related party transactions and show inconclusive findings.

Hwang et al. (2013) observed that implementing regulations mandating the disclosure of related party transactions in 2000 reduced the discretionary accruals by Taiwanese listed firms that engage in related party transactions with Chinese enterprises. Hwang et al. (2013) therefore argue that the regulation in Taiwan regarding the disclosure of related party transactions serves as a contractual justification rather than an opportunistic explanation for companies engaged in such arrangements. According to Doong et al. (2011), related party transactions in Taiwan can indicate a company's social capital and resource advantage, ultimately contributing to its operating performance. Ge et al. (2010) document that the new related party transactions regulation in China is perceived to be effective at reducing the potential misuse of related party transactions for earnings management purposes.

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The information of related party transactions is likely used by investors to assess the reliability of reported accounting numbers for valuation purposes after the new related party transactions regulation.

If higher-quality financial reporting increases shareholders' ability to monitor managerial investment activities, it can be associated with investment efficiency by reducing moral hazard (Biddle et al. 2009). In Taiwan, Hsu et al. (2015) argue that IAS 27 discourages firms' ability to manage earnings through unconsolidated entities and reduces information asymmetry between managers and shareholders. They find that firms subject to overinvestment (underinvestment) are more likely to reduce (increase) investment toward a more optimal level after IAS 27 adoption. Research on the factors involved in investment sensitivity is particularly fruitful. For example, Fazzari et al. (1988) find that investment tends to increase with higher levels of Q. Further, McLean et al. (2012) demonstrate that stronger investor protection correlates with greater investment sensitivity to Tobin's and lower investment sensitivity to cash flow. Focusing on corporate governance, Bhabra et al. (2018) show that firms with strong corporate governance have higher cash-flow sensitivity of investments and Yi (2023) documents that firms with improved corporate governance significantly reduce investment-cash flow sensitivity in the case of underinvestment. Previous studies show evidence that managerial overconfidence is associated with a firm's sensitivity to investment cash flows. Choi et al. (2018) examine whether overconfidence coupled with a self-attribution bias affects the investment decisions of CEOs. Choi et al. (2018) find overconfident CEOs appear to lead to the downward rigidity of investment-cash flow sensitivity. Chiu et al. (2022) investigate the combined impact of financial constraints and managerial overconfidence on the investment cash flow sensitivity in Taiwanese listed firms. Their findings reveal that firms with overconfident managers tend to overinvest when they have ample internal cash flow, which is more pronounced in firms facing financial constraints.

Few studies have investigated the role of information disclosure on the sensitivity of cash flow on investment spending. Schleicher et al. (2010) document that introducing IFRS reduces investment-cash flow sensitivity more significantly in insider economies compared to outsider economies. Recently, Yi (2023) finds that firms improving their level of disclosure significantly mitigate investment-cash flow sensitivity in the case of overinvestment. Bhandari et al. (2022) examine whether opportunistic related party transactions are linked to the sensitivities of investment and external financing to Tobin's Q and internally generated cash flows. Their

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findings indicate that firms with opportunistic related party transactions exhibit lower investment sensitivity to Tobin's Q compared to firms without such transactions. However, Bhandari et al. (2022) focus on opportunistic related party transactions involving directors, executive officers, and major shareholders (DOS). These transactions encompass loans, borrowings, guarantees, consulting services, legal services, investment services, unrelated business activities, overhead reimbursements, and stock transactions. This study focuses on the prevalently used related-party sales, particularly ERPTs, in Taiwanese firms to examine whether the possible efficient contracting hypothesis of related party transactions can explain the incremental sensitivity of investment to Tobin's Q and internally generated cash flows. Although Bhandari et al. (2022) include related business activities as controlling variables, they make no prediction as to the sign of such related party transactions' main effect or the incremental sensitivities. The test of this study adds to understanding the interplay between related parties and investment sensitivity and how this type of related party transaction (i.e., ERPTs) affects the investment sensitivity to Tobin's Q and internally generated cash flows.

2.4 Hypotheses formulation

The contracting perspective suggests that related party transactions can be part of efficient contracting with affiliated parties and be in the stakeholders' interests to allocate resources and/or manage risk (Coase 1937; Williamson 1964). Affiliated parties use related party transactions to both achieve effective asset utilization and to reduce transaction costs when they integrate for strategic purposes (Gordon et al. 2007; Khanna and Palepu 2000). Substantial empirical studies have documented that related party transactions in affiliated firms are motivated by contracting and/or economic reasons (Balsam et al. 2017; Chen et al. 2020; Gordon et al. 2007; Ryngaert and Thomas 2012). Taiwan is a quasi-developed economic unity with high vertical-integrated products and services in the global supply chain. Wang et al. (2019) showed that Taiwanese listed firms with a higher degree of vertical integration within business groups lead to higher performance via related party trades, which to some extent supports the contracting arrangement of related party transactions. Consequently, certain transactions between affiliated organizations involving related parties are an inherent part of normal business operations and may not necessarily indicate managerial opportunism (Gordon et al. 2007).

In the case of subsidiaries within a consolidated entity (i.e., ERPTs), all inter-company transactions must be eliminated when preparing the consolidated

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financial statements. Therefore, ERPTs in affiliated firms are unlikely to be associated with manipulative earnings reporting. If ERPTs in the affiliated groups can be linked to long-term vertical-integrated contracting characteristics (Chen et al. 2020; Del Prete and Rungi 2017; Kukharskyy 2016; Wang et al. 2019; Weng et al. 2023), the current earnings will reflect the long-term contracting relation of the underlying ERPTs in affiliated firms and play a better signal of future earnings, which in turn, are positively associated with earnings persistence. Note that earnings persistence is the continuity of earnings from one period to the next (Dechow et al. 2010). In the meanwhile, relatively more studies examine the sensitivity of corporate investment to both Tobin's Q and internal cash flows (e.g., Abdallah et al. (2020); (Bhandari et al. 2022; Bhabra et al. 2018; McLean et al. 2012; Chiu et al. 2022).

2.4.1 ERPTs and investment sensitivity to Tobin's Q

Tobin (1969) demonstrates in a frictionless setting that marginal Tobin's Q predicts investment activities. In his framework, firms with higher marginal Tobin's Q are able to raise more capital and tend to invest more aggressively in growth opportunities. This association is referred to as the investment sensitivity to Tobin's Q. Empirical studies have documented evidence to support this view that investment is sensitive to Tobin's Q as higher levels of Tobin's Q are associated with higher levels of investment (e.g., (Fazzari et al. 1988); Cao et al. (2019); (Verona 2020).

Note that Bhandari et al. (2022) document the opportunistic nature of the related party transactions dampens Tobin's Q sensitivity. Nevertheless, the efficient contracting theory suggests that related parties have private information about the firm that can be shared to reduce information asymmetry between the contracting parties and, thus, mitigate uncertainty and improve internal resource optimization (Bhandari et al. 2022; Khanna and Palepu 2000). ERPTs are close to core business operations and are perceived as part of an efficient economic exchange within the normal course of business. This contracting viewpoint proposes that ERPTs could be an integral aspect of efficient contracting among affiliated parties and serve the stakeholders' mutual benefit to allocate resources and/or mitigate risk (Balsam et al. 2017; Coase 1937; Chen et al. 2020; Gordon et al. 2007; Ryngaert and Thomas 2012; Williamson 1964; Weng et al. 2023). Namely, sharing private information among parties in ERPTs would allow internal resource optimization, thereby decreasing risk to investors and is expected to be associated with enhanced sensitivity of investment to Tobin's Q. Moreover, ERPTs have been shown to be associated with a higher level of financial reporting quality (Weng et al. 2023). Higher financial reporting quality increases the likelihood of efficient investment as it is easy for external

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stakeholders to monitor the firm (Biddle and Hilary 2006; McLean et al. 2012). This study uses the same theoretical and argues that contracting ERPTs are potentially associated with investment activities that are more sensitive to Tobin's Q. This is because ERPTs enhance the efficient allocations within the firm and decrease information asymmetry so that external stakeholders can monitor the firm. Therefore, this study proposes the first hypotheses as follows:

H1. Ceteris paribus, ERPTs are associated with greater investment sensitivity to Tobin's Q.

2.4.2 ERPTs and investment sensitivity to internally generated cash flows

Tobin's Q model of investments predicts that in perfect capital markets, a firm's investment decision depend solely on its investment opportunities and are unaffected by its cash flows (Chowdhury et al. 2016). However, Fazzari et al. (1988) argue that a financially constrained firm has limitation to obtain external financing to invest in profitable projects, so its investment has to rely on internally generated cash flows. This view has led to several studies examining the sensitivity of investments to internally generated cash flows in imperfect markets (e.g., Schleicher et al. (2010); (Yi 2023).

In this context, ERPTs, perceived as a form of efficient contracting, are expected to reduce investment sensitivity to internally generated cash flows by facilitating access to external financing and enhancing the credibility of financial reports. In contrast, firms engaged in opportunistic RPTs tend to exhibit higher investment-cash flow sensitivity due to greater perceived risk and information asymmetry (McLean et al. 2012; Bhandari et al. 2022). Biddle et al. (2009) and Bushman and Smith (2001) provide evidence that higher financial reporting quality is associated with lower investment-cash flow sensitivity, suggesting that ERPTs can enhance investment efficiency by serving as a signal of credible and transparent financial reporting. Biddle and Hilary (2006) further find that firms with higher financial reporting quality exhibit higher investment efficiency that is proxied by lower investment-cashflows sensitivity. In addition, long-term relations contracting ERPTs arrangement and its economic consequences could be considered an important means by which management can communicate firm performance and governance to outsiders. By improving financial reporting quality and reducing information asymmetry, ERPTs can mitigate the financing constraints that typically cause firms to depend heavily on internal cash flows for investment. Accordingly, the hypothesis for the ERPTs and investment efficiency to internally generated cash flows is established as follows:

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H2. Ceteris paribus, ERPTs are associated with lower investment sensitivity to internally generated cash flows.

3. Research design

3.1. Sample and data

We start with non-financial firms listed on the Taiwan Stock Exchange (TWSE) and over-the-counter (OTC). The years 2005-2023 were chosen as the observation periods. The year of 2005 was selected as the starting year because it marks the implementation of International Accounting Standards No.27 (IAS 27) in Taiwan. The empirical data was retrieved from the Taiwan Economic Journal Database (TEJ). Initially, we collected 32,867 data from 2.573 companies. We excluded 6,940 observations without related party transactions in each current year. Additionally, we removed 589 firm-year observations due to missing variables. Ultimately, our final sample comprises 25,338 firm-year observations. The sample selection and distributions are presented in Table 1.

Table 1 Sample selection and distribution

Panel A. Sample Selection Process

	Number of observations
Non-financial companies listed on the TWSE and OTC markets between 2005 and 2023	32.867
Less:	
Observations that don't have RPT in each current year	6,940
Lack of data on explained and control variables	589
The final number of observations	25,338

Panel B. Sample distribution

Year	Number of Samples	%	Industry Code	Industry Name	Number of Samples	%
2005	1,069	4.22%	11	Cement	200	0.79%
2006	1,037	4.09%	12	Food	516	2.04%
2007	1,072	4.23%	13	Plastic	632	2.49%
2008	1,113	4.39%	14	Textile & Fibber	966	3.81%
2009	1,141	4.50%	15	Electrical Machinery	1,820	7.18%
2010	1,171	4.62%	16	Electrical Cables	153	0.60%
2011	1,223	4.83%	17	Chemical & Medical	2,239	8.84%
2012	1,269	5.01%	18	Glass Ceramics	106	0.42%
2013	1,307	5.16%	19	Paper	107	0.42%
2014	1,343	5.30%	20	Iron	937	3.70%
2015	1,388	5.48%	21	Rubber	198	0.78%
2016	1,413	5.58%	22	Automotive	232	0.92%
2017	1,450	5.72%	23	Electronics	13,332	52.62%
2018	1,482	5.85%	25	Building & Construction	1,621	6.40%
2019	1,511	5.96%	26	Shipping	287	1.13%
2020	1,544	6.09%	27	Tourism	423	1.67%
2021	1,573	6.21%	29	Trade & Store	340	1.34%
2022	1,607	6.34%	99	Other	1,229	4.85%
2023	1,625	6.41%				
Total	25,338	100.00%		Total	25,338	100.00%

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3.2. Variables

3.2.1 Dependent variable: investment activities measure (INV)

To regress a firm's investment sensitivity, this study follows McLean et al. (2012) and Bhandari et al. (2022) to measure investment activities (*INV*). It calculates the total annual growth in property, plant, and equipment (PPE), inventory, and R&D expenses, divided by the previous year total assets, as a proxy for a firm's investment activities. This metric captures firms' capital expenditures and resource allocation decisions. This study investigates investment sensitivity by examining how investment responds to Tobin's Q (growth opportunities) and internally generated cash flows, providing insight into firms' reliance on external market signals versus internal financing.

3.2.2 Pivotal explanatory variable:

a) ERPTs: RPTs that will be eliminated in consolidated financial statements under TSFAS 7 (or IAS 27; IFRS 10)

ERPTs represent sales-related party transactions eliminated in consolidated financial statements under TSFAS 7 (or IAS 27; IFRS 10). Related-party sales (RPTs) are calculated as a firm's ratio of intercompany sales within affiliated firms. ERPTs are measured as the RPTs in the parent company's standalone financial statements minus the RPTs in the consolidated financial statements, scaled by the previous year's total revenue. In this study, ERPTs serve as a potential indicator of efficient contracting, as they do not affect net income in consolidated financial statements, reducing opportunities for earnings manipulation. This approach ensures that ERPTs capture intra-group sales excluded from consolidated earnings, supporting their role as an indicator of efficient contracting rather than opportunistic behavior (Rawat and Chaudhry 2025; Wang et al. 2019; Chen et al. 2020; Balsam et al. 2017). Empirical evidence suggests that related party transactions disclosure regulations enhance economic efficiency, particularly in business groups. Hope and Lu (2020) show that strengthened related party transactions governance improves investor confidence and firm value. Hwang et al. (2013) further view Taiwan's related party transactions laws as contractual arrangements rather than a means of opportunism.

To differentiate companies with higher versus lower level of ERPTs, we construct a dummy variable based on the median value. This dummy variable takes

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a value of "1" if the *ERPT* is above the median and "0" otherwise, accounting for variations across firms and ensuring a balanced distribution. This binary measurement is widely adopted in prior related party transactions studies (Bhandari et al. 2022; Hwang et al. 2013; Ge et al. 2010; Kohlbeck and Mayhew 2010, 2017; Cheung et al. 2006; Maigoshi et al. 2018).

b) Control variables

This study follows McLean et al. (2012) and Bhandari et al. (2022) and uses the following variables as controlling variables in the investment sensitivity regression. Tobin's Q (*Q*) is calculated as the book value of total assets plus the market value of equity minus the book value of equity, divided by the book value of total assets. The internally generated cash flows variable (*CF*) is measured as income before extraordinary items plus depreciation, amortization, and R&D expenses, divided by the previous period's book value of total assets. The estimated coefficient for Q indicates the investment sensitivity to Tobin's Q, while the estimated coefficient for CF indicates the investment sensitivity to internally generated cash flows (Bhandari et al. 2022). This study also includes the industry-adjusted market-to-book value of equity ratio (*AdMV*) to account for overvaluation and the natural logarithm of total assets (*SIZE*) to control for firm size effects on investments McLean et al. (2012); (Bhandari et al. 2022). Additionally, the study controls for year and firm effects in the regression analysis.

3.3 Empirical model

To test the hypothesis, the empirical regression is formulated and presented as Reg. (1). Following Bhandari et al. (2022), the independent variables are measured on a one-year lag basis to control the possible endogeneity concern.

$$\begin{aligned} INV_{i,t} = {} & \alpha_0 + \alpha_1 ERPT_{i,t-1} + \alpha_2 Q_{i,t-1} + \alpha_3 CF_{i,t-1} + \alpha_4 Q_{i,t-1} \times ERPT_{i,t-1} \\ & + \alpha_5 CF_{i,t-1} \times ERPT_{i,t-1} + \alpha_6 AdMV_{i,t-1} + \alpha_7 SIZE_{i,t-1} + Year\ Effect \\ & + Firm\ Effect + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where:

$INV_{i,t}$: A firm's investment activities measure: *INV* is calculated as a total of the annual growth in property, plant, and equipment (PPE), inventory, and R&D expenses, divided by the previous year of total assets, as a proxy for a firm's investment activities.

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$ERPT_{i,t\text{-}1}$: RPTs that will be eliminated in consolidated financial statements under TSFAS 7 (or IAS 27; IFRS 10) of firm *i* at the end of fiscal year *t*-1. A dummy variable based on the median value of ERPTs: 1 if ERPTs is above the median, 0 otherwise.

$Q_{i,t\text{-}1}$: Tobin's Q of firm *i* at the end of fiscal year *t*-1, which is calculated as the book value of total assets plus the market value of equity minus the book value of equity, divided by the book value of total assets at the end of fiscal year *t*-1.

$CF_{i,t\text{-}1}$: Internally generated cash flows of firm *i* at the end of fiscal year *t*-1, *CF* is calculated by income before extraordinary items plus depreciation and amortization and R&D expenses, divided by the previous period's book value of total assets of firm *i* at the end of fiscal year *t*-1.

$AdMV_{i,t\text{-}1}$: Industry-adjusted ratio of market value of equity to book value of equity of firm *i* at the end of fiscal year *t*-1.

$SIZE_{i,t\text{-}1}$: the natural log of market capitalization of common equity of firm *i* at the end of fiscal year *t*-1.

Based on the hypothesis, the coefficient of $Q \times ERPT$ ($\alpha 4$) in the regression is expected to be positive to reflect the investment sensitivity to Tobin's Q is enhanced for firms with a higher level of ERPTs. While, the coefficient of $CF \times ERPT$ ($\alpha 5$) in Reg. (1) is expected to be negative to reflect the investment sensitivity to *CF* is decreased for firms with a higher level of ERPTs.

Note that Taiwan government has implemented IFRS in 2012. Schleicher et al. (2010) have documented that the IFRS implementation impacts the investment-cash flow sensitivity. And, the regulations also require the Taiwanese listed firms to prepare both the parent company-only financial statements and the consolidated financial statements after 2012. With the coverage of IFRS accompanied by the regulations, the role of parent company-only financial statements to investors thus is likely replaced by the required consolidated financial statements after 2012. Note that ERPTs are eliminated when preparing consolidated financial statements, it is worth examining whether the adoption of IFRS changes the impact of ERPTs on the investment sensitivity to Tobin's Q and internally generated cash flows. This study thus further examines the results of the hypothesis tests by showing the entire sample (Full model), Pre-IFRS and Post-IFRS subsamples.

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4. Regression results

4.1. Descriptive statistics

We provide descriptive statistics in Table 2. Panel A shows the statistics for the entire sample, Panel B groups the data into Pre-IFRS and Post-IFRS sub-periods, and Panel C displays the differences in descriptive statistics grouped by ERPTs.

In the full sample, the mean of investment activities (*INV*) is 0.042 with a median of 0.019 and a standard deviation of 0.097, indicating moderate variability in investment levels. The mean ERPT is 0.077, with a median of 0.005 and a higher standard deviation of 0.196, reflecting greater variability and a skewed distribution in *ERPT* values across the sample. Tobin's Q has a mean of 1.340, a median of 1.050, and a standard deviation of 0.930, indicating variability in market valuation relative to assets. Internally generated cash flows (*CF*) show a mean of 0.104, a median of 0.090, and a standard deviation of 0.114, suggesting relatively consistent cash flow levels across the sample.

Panel B of Table 2 observes the differences before and after the implementation of IFRS in Taiwan. Investment activities (*INV*) show a slight decrease Post-IFRS, with the mean dropping from 0.043 to 0.041. The *ERPT* and *CF* significantly increase Post-IFRS, while Tobin's Q decreases significantly after implementing IFRS. These results highlight significant changes in ERPTs, Tobin's Q, and *CF* following the implementation of IFRS, suggesting that IFRS adoption has had a notable impact on these financial metrics. Panel C of Table 2 displays differences between the two groups defined by their *ERPT* values relative to the median. The average investment (*INV*) of Group 1 is slightly higher than Group 2, with a difference of 0.003. Other variables such as *ERPT*, *Q*, *CF*, and *AdMV* are fairly consistent across both groups, while *SIZE* increases significantly in the Post-IFRS period.

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Table 2 Descriptive statistics

Panel A. Descriptive statistics for full sample

	Mean	Q1	Median	Q3	Std. Dev.
INV	0.042	-0.005	0.019	0.070	0.097
ERPT	0.077	0.000	0.005	0.093	0.196
Q	1.340	0.790	1.050	1.530	0.930
CF	0.104	0.037	0.090	0.158	0.114
AdMV	1.856	0.960	1.430	2.190	1.471
SIZE	15.102	14.154	14.920	15.864	1.356

Panel B. Descriptive statistics grouping by IFRS implementation

	Group 1: Pre-IFRS			Group 2: Post-IFRS			Mean Dif.	t-Stat
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.		
INV	0.043	0.023	0.106	0.041	0.018	0.093	-0.002	-1.425
ERPT	0.072	0.004	0.174	0.079	0.005	0.205	0.007***	2.738
Q	1.266	1.020	0.849	1.373	1.068	0.962	0.107***	8.470
CF	0.115	0.101	0.121	0.099	0.086	0.110	-0.015***	-9.782
AdMV	1.730	1.382	1.310	1.912	1.445	1.534	0.182***	9.092
SIZE	14.968	14.785	1.315	15.163	14.984	1.369	0.195***	10.596

Panel C. Descriptive statistics grouping by *ERPT*

	Group 1: ERPT > Median			Group 2: ERPT < Median			Mean Dif.	t-Stat
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.		
INV	0.043	0.020	0.098	0.040	0.019	0.096	0.002**	1.903
ERPT	0.176	0.094	0.210	0.008	0.000	0.103	0.168***	80.833
Q	1.334	1.050	0.927	1.346	1.060	0.933	-0.012	-0.996
CF	0.104	0.091	0.114	0.105	0.090	0.114	-0.001	-0.761
AdMV	1.846	1.420	1.464	1.866	1.440	1.477	-0.020	-1.097
SIZE	15.083	14.905	1.350	15.121	14.938	1.361	-0.038**	-2.219

Note: ***, **, * indicate significance at 1% level, 5% level, and 10% level, respectively.

We also present the correlation matrix between the variables in Table 3. The results of the Pearson correlation analysis indicate that there are no issues with multicollinearity among the independent variables. Specifically, the correlation coefficients are generally low to moderate, suggesting that the independent variables do not exhibit very strong correlations with each other, thereby ensuring the reliability and validity of the regression analysis.

Table 3 Pearson correlation metrics

	INV	*ERPT*	*Q*	*CF*	*AdMV*	*SIZE*
INV	1.000	0.020***	0.276***	0.318***	0.259***	-0.108***
ERPT		1.000	0.005	0.053***	-0.001	0.075***
Q			1.000	0.455***	0.913***	-0.113***
CF				1.000	0.409***	0.069***
AdMV					1.000	-0.090***
SIZE						1.000

Note: ***, **, * indicate significance at 1% level, 5% level, and 10% level, respectively. *ERPT* refers to eliminated related party transactions. *Q* (Tobin's Q) measures growth opportunities, and *CF* represents internally generated cash flows. *AdMV* indicates market-to-book value, and *SIZE* is firm size (log total assets).

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4.2. Main results

Based on unbalanced-panel data analysis, with standard errors adjusted for heteroscedasticity and clustering, the empirical results are presented in Table 4. Column 1 displays the results for the full sample period from 2005 to 2023. Column 2 focuses on the Pre-IFRS period (2005-2011), and Column 3 covers the Post-IFRS period (2012-2023). We hypothesize that ERPTs are associated with greater investment sensitivity to Tobin's Q and lower investment sensitivity to internally generated cash flows.

Table 4 Empirical results of ERPTs and investment sensitivity

Table 4 reports main regression results. Column 1 presents empirical results for full sample period from 2005 to 2023. Column 2 covers the Pre-IFRS period (2005-2011), and Column 3 covers the Post-IFRS period (2012-2023).

	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.574***	10.824	1.342***	5.966	0.651***	8.827
ERPT	0.000	0.157	0.003	0.945	-0.002	-1.097
Q	0.008**	2.405	0.013*	1.626	0.012***	2.599
CF	0.142***	8.400	0.144***	3.635	0.093***	7.789
Q × *ERPT*	0.003*	1.781	0.006***	2.885	0.001	1.025
CF × *ERPT*	-0.019	-1.385	-0.072***	-3.472	0.009	0.863
AdMV	0.001	0.409	-0.003	-0.853	-0.001	-0.325
SIZE	-0.037***	-10.495	-0.089***	-6.080	-0.042***	-8.491
Firm Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	25,338		7,826		17,512	
Adj R^2	31.18%		35.17%		34.83%	
F Statistic	7.820***		4.278***		6.630***	

Note: Regressions are conducted by Panel Least Squares Method. This test adopts Cross-Section SUR (PCSE) to adjust standard errors and to mitigate heteroskedasticity and contemporaneous correlation (cross-sectional dependence). ***, **, * indicate significance at 1% level, 5% level, and 10% level, respectively. *ERPT* refers to eliminated related party transactions. *Q* (Tobin's Q) measures growth opportunities, and *CF* represents internally generated cash flows. *AdMV* indicates market-to-book value, and *SIZE* is firm size (log total assets).

The empirical results for the full sample period reveal a positive coefficient for *ERPT*× *Q* with a value of 0.003 and t-statistic of 1.781, significant at the 10% level. This indicates that ERPTs have a significant positive effect on investment sensitivity to Tobin's Q. This suggests that firms with higher levels of ERPTs are more likely to invest in growth opportunities. These findings are in line with Abdallah et al. (2020); Bhandari et al. (2022); McLean et al. (2012), who argue that firms with higher Tobin's Q have greater investment opportunities. Additionally, an efficient market will encourage greater confidence that companies can take advantage on these investment opportunities. Conversely, the coefficient for *ERPT*× *CF* is -0.019 but not statistically significant. Although the full sample analysis shows that investment

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sensitivity to internally generated cash flows is not significant, the negative direction of the relationship aligns with our expectations.

For the Pre-IFRS period, the $ERPT \times Q$ coefficient is 0.006 with t-statistic of 2.885, statistically significant at the 1% level. This indicates a strong positive relationship between ERPTs and investment sensitivity to Tobin's Q before IFRS adoption. The $ERPT \times CF$ coefficient for this period is -0.072 with t-statistic of -3.472, also statistically significant at the 1% level. This result shows that ERPTs in the Pre-IFRS adoption weaken investment sensitivity to internally generated cash flows. Our hypothesis is supported in the Pre-IFRS period.

In the Post-IFRS period, the coefficient of $ERPT \times Q$ is 0.001 and t-statistic 1.025, which is not statistically significant. This suggests that ERPTs have no influence on investment sensitivity to Tobin's Q after implementation of IFRS. While $ERPT \times CF$ coefficient for this period is 0.009 with t-statistic 0.863, also statistically insignificant. This result shows that the association between ERPTs and investment sensitivity to internally generated cash flows does not persist in the Post-IFRS period.

The regression results for the control variables indicate that Tobin's Q (*Q*) and internally generated cash flows (*CF*) consistently have significant positive impacts on investment sensitivity across all periods. Specifically, Tobin's Q shows coefficients of 0.008 (t-statistic = 2.405) for the full sample, 0.013 (t-statistic = 1.626) for the Pre-IFRS period, and 0.012 (t-statistic = 2.599) for the Post-IFRS period. Similarly, cash flows have coefficients of 0.142 (t-statistic = 8.400) for the full sample, 0.144 (t-statistic = 3.635) for the Pre-IFRS period, and 0.093 (t-statistic = 7.789) for the Post-IFRS period. In contrast, firm size (*SIZE*) consistently shows a significant negative impact, with coefficients of -0.037 (t-statistic = -10.495) for the full sample, -0.089 (t-statistic = -6.080) for the Pre-IFRS period, and -0.042 (t-statistic = -8.491) for the Post-IFRS period. The industry-adjusted market value (*AdMV*) does not significantly affect investment sensitivity in any period, with coefficients close to zero and low t-statistic. These findings underscore the importance of Tobin's Q and internally generated cash flows in driving investment sensitivity, while larger firm size tends to reduce it.

Our findings align with the efficient contracting hypothesis, showing that ERPTs are associated with higher investment sensitivity to Tobin's Q. This result is similar to Bhandari et al. (2022) but in the context of a different related party transactions setting. The findings also support previous research by Abdallah et al. (2020) from 14 different MENA countries, which also found that corporate

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investments are positively associated with Tobin's Q. They noted a positive correlation between Tobin's Q and investments in countries with strong investor protection. In long-term relational contracting, ERPTs are associated with higher economic benefits and reduced information asymmetry, thereby improving investment efficiency.

The impact of contracting ERPTs on investment sensitivity to Tobin's Q and internally generated cash flows is significant only in the pre-IFRS period. The significant positive (negative) relationship between ERPTs and investment sensitivity to Tobin's Q (internally generated cash flows) in the Pre-IFRS period suggests that these firms relied more (less) on growth opportunities (internal funds) for investment. The impact of ERPTs appears to decrease after implementation of IFRS in Taiwan. This is possibly due to the reporting standards introduced by IFRS, which might have diminished investors' attention to the informational relevance of ERPTs embedded in the parent company-only financial statements when making investment decisions. It is anticipated that market participants will put greater emphasis on consolidated financial statements than parent company-only financial statements after the implementation of IFRS. This change underscores the significance of a comprehensive perspective on the financial position and performance of the group of companies instead of solely the parent firm.

5. Robustness analysis

5.1 Industry effect checks

Weng et al. (2023) find that electronic-related industries have dominated what have been called traditional industries and suggest strongly industry effect in the empirical analysis in Taiwan. Approximately 52.62% of observations come from the electronics industry. To control for industry effects on investment sensitivity, one would remove all cross-sectional variation by including industry dummies in the analysis. We thus use the pooling data approach with both the industry and year effects and re-examine whether ERPTs play a significant role in enhancing (mitigating) investment sensitivity to Tobin's Q (internally generated cash flows). The results are presented in Table 5. The results indicate that ERPTs have a significant positive effect on investment sensitivity to Tobin's Q in both the full sample and the Pre-IFRS period. These findings are consistent with the main conclusions of this research. Additionally, ERPTs exhibit a significant negative effect on investment sensitivity to internally generated cash flows only during the Pre-IFRS period.

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Table 5 Empirical results of ERPTs and investment sensitivity—industry effect checks

Table 5 reports regression results control by industry. Column 1 presents empirical results for full sample period from 2005 to 2023. Column 2 covers the Pre-IFRS period (2005-2011), and Column 3 covers the Post-IFRS period (2012-2023).

	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.093***	6.859	0.105***	3.510	0.086**	6.787
ERPT	-0.001	-0.401	0.002	0.549	-0.003	-1.467
Q	0.007***	2.877	0.002	0.351	0.009***	2.962
CF	0.235***	13.667	0.291***	8.271	0.211***	8.994
Q × *ERPT*	0.003*	1.754	0.009**	2.292	0.002	0.904
CF × *ERPT*	-0.010	-0.810	-0.089***	-3.786	0.024	1.569
AdMV	0.003***	2.491	0.006	1.308	0.003	1.694
SIZE	-0.008***	-8.717	-0.009***	-4.472	-0.007***	-8.666
Industry Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	25,338		7,826		17,512	
Adj R^2	17.62%		17.92%		17.72%	
F Statistic	160.416***		78.651***		140.716***	

Note: Regressions are conducted by Panel Least Squares Method. This test adopts Cross-Section SUR (PCSE) to adjust standard errors and to mitigate heteroskedasticity and contemporaneous correlation (cross-sectional dependence). ***, **, * indicate significance at 1% level, 5% level, and 10% level, respectively. All variables are explained in Section 3.3. *ERPT* refers to eliminated related party transactions. *Q* (Tobin's Q) measures growth opportunities, and *CF* represents internally generated cash flows. *AdMV* indicates market-to-book value, and *SIZE* is firm size (log total assets).

5.2 Alternative ERPTs measures test

In our study, ERPTs are considered a potential indicator of efficient contracting, as they are excluded from the financial reports of the group. However, using a median-based dummy variable to measure ERPTs may be simplistic, as it assumes a uniform threshold across all firms without accounting for variations across industries and time periods. Although our regression model includes firm and year fixed effects, it is essential to consider industry- and year-specific thresholds in defining ERPTs, as related party transactions practice can differ due to industry-specific regulations, market structures, and operational needs (Jian and Wong 2010; Lo et al. 2010).

To address this, we re-run our regression using an alternative ERPTs measure that accounts for industry- and year-specific thresholds. This approach ensures that classification aligns with economic conditions and industry-specific related party transactions behaviors, reducing potential misclassification bias. The results, presented in Panel A of Table 6, remain consistent with our main findings, reinforcing the robustness of our conclusions.

Second, as used in most prior studies, we applied indicator variable to represent the levels of ERPTs in the main analysis. To further check the robustness of our results, we also use a continuous measure of ERPTs and rerun the regression. Following Kohlbeck

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and Mayhew (2010), we replace the dummy variable with the amount of ERPTs scaled by the natural logarithm of total assets to reflect differences in the level of eliminated RPTs across firms. The results, presented in Panel B of Table 6, generally remain consistent with those obtained using the binary specification.

Table 6 Empirical results of ERPTs and investment sensitivity—alternative ERPTs measure

Table 6 reports regression results using alternative measurement of ERPTs. Column 1 presents empirical results for full sample period from 2005 to 2023. Column 2 covers the Pre-IFRS period (2005-2011), and Column 3 covers the Post-IFRS period (2012-2023).

Panel A. ERPTs measure using a median-based dummy variable by year and industry

	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.562***	7.000	1.292***	3.985	0.653***	4.776
ERPT	0.024***	3.895	0.052***	2.794	0.013***	3.115
Q	0.015***	4.514	0.018***	2.438	0.013***	3.118
CF	0.151***	8.538	0.184***	3.908	0.102***	5.136
Q × *ERPT*	0.005**	1.939	0.016***	2.442	0.000	0.185
CF × *ERPT*	-0.055**	-2.249	-0.145***	-3.129	-0.010	-0.325
AdMV	-0.003	-1.455	-0.009**	-2.168	-0.001	-0.302
SIZE	-0.037***	-6.978	-0.087***	-4.065	-0.042***	-4.699
Firm Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	25,338		7,826		17,512	
Adj R^2	31.83%		37.70%		34.95%	
F Statistic	8.028***		4.657***		6.660***	

Panel B. ERPTs measure using a continuous variable

	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.461***	6.364	1.042***	4.325	0.647***	4.703
ERPT	-0.100	-1.040	0.012	0.048	0.013	0.096
Q	0.013***	5.057	0.020***	2.944	0.013***	3.385
CF	0.120***	9.692	0.095***	2.597	0.098***	6.738
Q × *ERPT*	0.141**	2.318	0.301*	1.630	0.088	1.195
CF × *ERPT*	-0.710	-1.618	-2.620***	-2.760	-0.569	-1.156
AdMV	-0.002	-1.065	-0.007*	-1.785	-0.001	-0.485
SIZE	-0.030***	-6.212	-0.069***	-4.291	-0.042	-4.611***
Firm Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	25,178		7,674		17,504	
Adj R^2	31.75%		35.29%		34.87%	
F Statistic	7.959***		4.239***		6.639***	

Note: Regressions are conducted by Panel Least Squares Method. This test adopts Cross-Section SUR (PCSE) to adjust standard errors and to mitigate heteroskedasticity and contemporaneous correlation (cross-sectional dependence). ***, **, * indicate significance at 1% level, 5% level, and 10% level, respectively. *ERPT* refers to eliminated related party transactions. *Q* (Tobin's Q) measures growth opportunities, and *CF* represents internally generated cash flows. *AdMV* indicates market-to-book value, and *SIZE* is firm size (log total assets).

5.3 Alternative investment activities measure test

A different metric is used in the second robustness test for investment activities

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measure. While the main test incorporates the sum of the yearly growth in property, plant, and equipment (PPE), inventory, and R&D expense, following McLean et al. (2012), an additional test focuses solely on the growth in property, plant, and equipment (PPE).

The results, presented in Table 7, indicate that in the full sample, ERPTs have a significant positive effect on investment sensitivity to Tobin's Q. While the ERPTs coefficient for investment sensitivity to cash flows is negative, aligning with the hypothesis, it is not statistically significant. During the Pre-IFRS period, ERPTs exhibit a significant positive effect on investment sensitivity to Tobin's Q and a significant negative effect on investment sensitivity to internally generated cash flows. Conversely, in the Post-IFRS period, ERPTs demonstrate a marginally positive impact on investment sensitivity to both Tobin's Q and internally generated cash flows.

Table 7 Empirical results of ERPTs and investment sensitivity—alternative investment activities measure test

Table 7 reports regression results using PPE as an alternative measure of investment activities. Column 1 presents empirical results for full sample period from 2005 to 2023. Column 2 covers the Pre-IFRS period (2005-2011), and Column 3 covers the Post-IFRS period (2012-2023).

	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.115***	4.489	0.310***	3.127	0.088*	1.901
ERPT	-0.003***	-2.831	-0.003	-1.479	-0.004***	-3.172
Q	0.006***	3.976	0.004	1.231	0.008***	4.503
CF	0.075***	11.030	0.090***	5.375	0.051***	6.022
Q × *ERPT*	0.003***	3.080	0.005***	2.577	0.002*	1.827
CF × *ERPT*	-0.002	-0.325	-0.025*	-1.704	0.013*	1.681
AdMV	-0.001	-0.650	0.000	0.093	-0.002*	-1.632
SIZE	-0.008***	-4.824	-0.021***	-3.251	-0.006**	-2.051
Firm Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	25,338		7,826		17,512	
Adj R^2	11.59%		22.97%		11.94%	
F Statistic	2.973***		2.802***		2.429***	

Note: Regressions are conducted by Panel Least Squares Method. This test adopts Cross-Section SUR (PCSE) to adjust standard errors and to mitigate heteroskedasticity and contemporaneous correlation (cross-sectional dependence). ***, **, * indicate significance at 1% level, 5% level, and 10% level, respectively. *ERPT* refers to eliminated related party transactions. *Q* (Tobin's Q) measures growth opportunities, and *CF* represents internally generated cash flows. *AdMV* indicates market-to-book value, and *SIZE* is firm size (log total assets).

5.4 Controlling governance factors

Following Bhandari et al. (2022), we incorporate corporate governance factors into the model to assess their impact on investment sensitivity and the robustness of our findings. Chiu et al. (2022) highlight the importance of governance in achieving optimal investment levels, while Abdallah et al. (2020) suggest that strong regulations and law enforcement significantly influence corporate investment decisions. Effective governance can also mitigate opportunistic related party transactions by enhancing fairness and transparency (Bhandari et al. 2022; McLean et al. 2012; Yeh et al. 2012). In

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line with these perspectives, we firstly include three governance variables: board size (*BOARD*) as the percentage of directors on the board, independent directors (*INDEP*) as the percentage of independent directors, and directors' duality (*DUAL*) as the number of directors who also serve as managers.

We also extend the analysis by incorporating institutional investors as an external monitoring variable. Institutional investors possess higher levels of financial expertise to discern earnings management and play a critical role in monitoring corporate disclosures, including related party transactions (Hwang et al. 2013). Consistent with Hwang et al. (2013) and Kohlbeck and Mayhew (2010), we include the institutional investors variable in the regression model as an external monitoring mechanism. Institutional ownership is measured based on the proportion of shares held by financial institution shareholders, including both local and foreign pension funds, securities firms, insurance companies, commercial banks, and investment trust companies.

Table 8 Empirical results of ERPTs and investment sensitivity—governance factors control

Table 8 reports the effect of ERPTs on investment sensitivity after including corporate governance variables in the model. Column 1 presents empirical results for full sample period from 2005 to 2023. Column 2 covers the Pre-IFRS period (2005-2011), and Column 3 covers the Post-IFRS period (2012-2023).

	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.541***	10.253	1.274***	6.234	0.644***	8.407
ERPT	0.023***	3.342	0.054	1.844	0.012***	3.212
Q	0.018***	5.619	0.030***	3.826	0.012**	2.795
CF	0.131***	8.438	0.130***	3.695	0.093***	7.950
Q × *ERPT*	0.002*	1.884	0.008***	4.219	0.000	0.280
CF × *ERPT*	-0.018	-1.311	-0.065***	-3.468	0.006	0.557
BOARD	0.030***	4.018	0.036*	2.035	0.007	0.788
INDEP	0.086	1.411	0.077	0.454	0.063	0.847
DUAL	0.018**	2.119	0.020*	1.993	0.021*	1.915
INST	0.077***	3.307	0.154***	4.005	0.047	1.610
AdMV	-0.004**	-2.137	-0.013**	-3.265	-0.001	-0.356
SIZE	-0.037***	-10.356	-0.088***	-6.349	-0.042***	-8.538
Firm Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	25,291		7,816		17,475	
Adj R^2	31.95%		37.81%		35.01%	
F Statistic	8.029***		4.663***		6.645***	

Note: Regressions are conducted by Panel Least Squares Method. This test adopts Cross-Section SUR (PCSE) to adjust standard errors and to mitigate heteroskedasticity and contemporaneous correlation (cross-sectional dependence). ***, **, * indicate significance at 1% level, 5% level, and 10% level, respectively. *ERPT* refers to eliminated related party transactions. *Q* (Tobin's Q) measures growth opportunities, and *CF r*epresents internally generated cash flows. *BOARD* is the percentage of directors on the board, *INDEP* represents the percentage of independent directors, *DUAL* is the number of directors who also serve as managers, and *INST* represents institutional ownership. *AdMV* indicates market-to-book value and *SIZE* is firm size (log total assets).

The results, presented in Table 8, indicate that board size and institutional investors enhance investment sensitivity in the full and Pre-IFRS model, while director duality

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increases investment sensitivity across all models. These findings suggest that larger boards, dual roles and institutional investors may improve oversight and decision-making, aligning with Bhabra et al. (2018), who finds that strong governance is associated with higher investment-cash flow sensitivity. Importantly, the influence of ERPTs on investment sensitivity to Tobin's Q and internally generated cash flows remains consistent with the main findings, suggesting that the informational value of ERPTs is robust even after controlling governance factors. This reinforces the view that ERPTs reflect efficient contracting mechanisms rather than opportunism, particularly in contexts with strong governance frameworks.

5.5 The NERPTs consideration

Non-eliminated related party transactions (NERPTs) will remain in consolidated financial statements, thereby affecting earnings reporting (Weng et al. 2023), which will impact investment sensitivity to both Tobin's Q and internally generated cash flows. The present study thus runs three diagnostic tests to unravel the possible impacts of NERPTs on investment sensitivity to Tobin's Q and internally generated cash flows. First, we incorporate the dummy variable of NERPTs (a dummy variable based on the median value of NERPTs: 1 if NERPTs is above the median, 0 otherwise) into empirical model and rerun the regression. We perform the result in Panel A of Table 9. The findings indicate that ERPTs significantly positively affect investment sensitivity to Tobin's Q and negatively affect sensitivity to internally generated cash flow. Notably, the significant negative effect on cash flow sensitivity is observed only during the Pre-IFRS period in Taiwan, consistent with the main findings.

We also incorporate the dummy variable of NERPTs and two interactive variables (*NERPTs* × *Q* and *NERPTs* × *CF)* into the model and re-examine the regressions. Panel B of Table 9 presents robustness results after controlling for NERPTs and the interactive variables. The results confirm the primary findings: ERPT has a positive effect on investment sensitivity to Tobin's Q and a negative effect on investment sensitivity to internally generated cash flows. This influence is more pronounced in the Pre-IFRS period and is not significant in the Post-IFRS period.

Third, this study performs a robustness analysis that involves removing negative NERPTs. In this test, the observations are reduced to 15,244 for the "full sample," 4,816 for the "Pre-IFRS," and 10,428 for the "Post-IFRS" regressions. Panel C of Table 9 presents the results of this analysis. The findings remain consistent with the primary results and the other robustness tests. ERPTs positively impacts investment sensitivity to Tobin's Q and negatively impacts investment sensitivity to internally generated cash flows. This effect is more pronounced during the Pre-IFRS period and loses significance in the Post-IFRS period.

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Table 9 Empirical results of ERPTs and investment sensitivity—NERPTs consideration

Table 9 reports regression results after controlling *NERPT*. Column 1 presents empirical results for full sample period from 2005 to 2023. Column 2 covers the Pre-IFRS period (2005-2011), and Column 3 covers the Post-IFRS period (2012-2023).

Panel A. NERPTs control						
	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.575***	7.097	1.348***	3.937	0.651***	4.712
ERPT	0.000	0.123	0.003	0.902	-0.002	-0.960
Q	0.008***	2.594	0.013	1.322	0.012***	2.881
CF	0.141***	9.364	0.142***	3.353	0.093***	5.481
Q × *ERPT*	0.003*	1.823	0.006**	2.275	0.001	0.909
CF × *ERPT*	-0.018	-1.580	-0.071***	-3.202	0.009	0.651
NERPT	-0.003	-1.648	-0.007*	-1.902	-0.001	-0.673
AdMV	0.001	0.422	-0.003	-0.610	-0.001	-0.313
SIZE	-0.037***	-6.921	-0.089***	-3.893	-0.042***	-4.591
Firm Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	25,338		7,826		17,512	
Adj R^2	31.18%		35.20%		34.82%	
F Statistic	7.818***		4.280***		6.626***	
Panel B. NERPTs interactive model						
	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.575***	7.092	1.348***	3.936	0.651***	4.704
ERPT	0.000	0.138	0.003	0.894	-0.002	-0.927
Q	0.009***	2.640	0.013	1.252	0.013***	3.066
CF	0.132***	8.309	0.146***	3.772	0.080***	4.267
Q × *ERPT*	0.002*	1.807	0.006**	2.288	0.001	0.894
CF × *ERPT*	-0.018	-1.583	-0.071***	-3.207	0.009	0.638
NERPT	-0.003	-1.290	-0.007	-1.270	-0.001	-0.411
Q × *NERPT*	-0.001	-0.579	0.001	0.238	-0.002	-0.994
CF × *NERPT*	0.019	1.333	-0.007	-0.210	0.027	1.502
AdMV	0.001	0.408	-0.003	-0.619	-0.001	-0.325
SIZE	-0.037***	-6.909	-0.089***	-3.881	-0.042***	-4.590
Firm Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	25,338		7,826		17,512	
Adj R^2	31.19%		35.18%		34.83%	
Panel C. Removed negative NERPTs						
	Full Sample		Pre-IFRS		Post-IFRS	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Coefficient	0.575***	7.084	1.340***	3.915	0.652***	4.723
ERPT	0.000	0.129	0.003	0.936	-0.002	-0.970
Q	0.008***	2.580	0.013	1.323	0.012***	2.872
CF	0.142***	9.366	0.144***	3.366	0.093***	5.493
Q × *ERPT*	0.003*	1.823	0.006**	2.292	0.001	0.910
CF × *ERPT*	-0.018	-1.589	-0.073***	-3.246	0.009	0.658
AdMV	0.001	0.424	-0.003	-0.615	-0.001	-0.313
SIZE	-0.037***	-6.932	-0.089***	-3.892	-0.042***	-4.615
Firm Effect	Yes		Yes		Yes	
Year Effect	Yes		Yes		Yes	
N	15,244		4,816		10,428	

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Adj R^2	31.71%	37.11%	34.72%
F Statistic	5.844***	3.734***	5.118***

Note: Regressions are conducted by Panel Least Squares Method. This test adopts Cross-Section SUR (PCSE) to adjust standard errors and to mitigate heteroskedasticity and contemporaneous correlation (cross-sectional dependence). ***, **, * indicate significance at 1% level, 5% level, and 10% level, respectively. *ERPT* refers to eliminated related party transactions. *Q* (Tobin's Q) measures growth opportunities, and *CF* represents internally generated cash flows. *AdMV* indicates market-to-book value, and *SIZE* is firm size (log total assets).

The results of these robustness tests generally support the main findings.[3] However, the second robustness test, which uses property, plant, and equipment (PPE) only as an alternative measure of investment, shows a difference result in the Post-IFRS period. Specifically, ERPTs significantly enhance investment sensitivity to both Tobin's Q and internally generated cash flows. This suggests that the impact of ERPTs under various financial reporting standards may vary depending on how investments are measured. Except for the alternative investment measure during Post-IFRS, the robustness tests generally support the primary results.

6. Conclusions

This study focuses on related-party sales, particularly eliminated RPTs in Taiwanese to explore whether the efficient contracting hypothesis can explain the incremental sensitivity of investment to Tobin's Q and internally generated cash flows. The findings indicate that ERPTs enhance investment sensitivity to Tobin's Q, particularly before the implementation of IFRS in Taiwan, suggesting that companies with higher level of ERPTs are more inclined to invest in growth opportunities rather than relying on internal cash flows. Post-IFRS, however, the impact of ERPTs on investment decisions diminishes, likely due to enhanced financial transparency and standardized disclosures that shift investor focus on consolidated financial statements. This aligns with Maigoshi et al. (2018), who found that the value relevance of book value for firms with related party transactions decreased following IFRS adoption in Malaysia. This finding consistent with Chowdhury et al. (2016), who found that greater transparency following SOX reduced investment–cash flow sensitivity, as investors placed more emphasis on standardized financial reports rather than individual firm-level signals. Hope and Lu (2020) also support this view, suggesting that enhanced disclosure requirements improve information quality and reduce reliance on specific transaction details. These results imply that the informational value of ERPTs lessens under a stricter

[3] Mclean et al. (2012) find that investment sensitivity to Tobin's Q is associated with the use of external finance to fund investments. In an untabulated table, further test after controlling for leverage (LEV) shows the main results do not qualitatively change.

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financial reporting framework, indicating that parent company-only financial statements can provide incremental information post-IFRS. Thus, the weaker impact of ERPTs post-IFRS reflects a shift in investor behavior, where broader and more standardized disclosures under IFRS reduce the need to rely on ERPTs as a separate indicator in investment decisions.

Furthermore, the findings suggest that ERPTs serve as an effective indicator of efficient contracting, particularly in environments with a higher level of information asymmetry, such as the pre-IFRS period. The significant association between ERPTs and investment sensitivity to Tobin's Q and internally generated cash flows in the full model and pre-IFRS period highlights their role in enhancing investment efficiency. The results are consistent across multiple robustness tests, demonstrating how IFRS adoption has altered investment dynamics by shifting investor attention to comprehensive, consolidated financial statements. Additionally, comparing these results with studies from other regions, such as the MENA region (Abdallah et al. 2020) and the US (Bhandari et al. 2022), highlights how regulatory frameworks and capital market structures influence the role of related party transactions disclosures in shaping investment sensitivity. This study thus contributes to a deeper understanding of how RPTs and financial regulations impact corporate investment decisions across diverse economic and regulatory contexts.

Several issues remain open for further investigation in future research. First, the analysis focuses on sales-related party transactions, as these dominate in Taiwan (Yeh et al. 2012; Chen et al. 2020). However, future studies could expand the RPTs scope by incorporating a broader set of related party transactions categories—such as purchases, loans, guarantees, leases, and service arrangements—to develop a more comprehensive understanding of how various related party transactions types influence investment sensitivity. Second, given that this study is limited to Taiwan's regulatory and institutional environment, future research could perform cross-country comparisons, particularly in markets with similar business group structures—such as Korean Chaebols, Japanese Keiretsu, or Indian business group—to examine whether the effects of RPTs on investment behavior hold across different governance regimes and levels of investor protection. Lastly, although this study controls several firm-level internal and external factors (e.g., governance mechanisms and institutional ownership), future research could incorporate external macroeconomic shocks—such as the COVID-19 pandemic or global financial crisis—to explore whether such events alter the relationship between RPTs and investment sensitivity.

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Appendix 1 The Example of ERPTs

This appendix provides examples of ERPTs (Eliminated Related Party Transactions) using data from three major Taiwanese companies—TSMC, ASUSTEK, and WT—focusing on their related party sales.

Taiwan Semiconductor Manufacturing Company (TSMC), founded in 1987, is a global leader in semiconductor manufacturing with subsidiaries in North America, Europe, Japan, China, and South Korea. TSMC is listed on both the Taiwan Stock Exchange (TWSE) and the New York Stock Exchange (NYSE), highlighting its extensive international operations and related party transactions.

ASUSTEK Computer Inc. (ASUSTEK), established in 1989, is a multinational technology company specializing in computer and peripheral equipment. In 2023, ASUSTEK conducted business with at least 23 associate parties across Taiwan, China, the US, Japan, Korea, Europe, and other regions, demonstrating a significant volume of related party sales.

WT Microelectronics Co., Ltd. (WT), founded in 1993, is a leading distributor of electronic components with a wide-reaching network across Taiwan, China, Korea, Southeast Asia, and India. WT's extensive related party transactions underscore the importance of managing intra-group sales.

TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD. (TSMC)					
Year	Total Operating Revenue	RPT	NERPT	ERPT	% ERPT
2020	1,339,254,811	830,291,109	8,129,764	822,161,345	99.02%
2021	1,587,415,037	1,047,218,854	8,475,908	1,038,742,946	99.19%
2022	2,263,891,292	1,550,659,947	15,351,465	1,535,308,482	99.01%
2023	2,161,735,841	1,469,042,641	13,406,049	1,455,636,592	99.09%
ASUSTEK COMPUTER INC. (ASUSTEK)					
Year	Total Operating Revenue	RPT	NERPT	ERPT	% ERPT
2020	412,780,439	323,589,460	423,711	323,165,749	99.87%
2021	535,238,735	447,663,315	988,961	446,674,354	99.78%
2022	537,191,932	405,152,812	659,815	404,492,997	99.84%
2023	482,314,429	389,701,583	678,439	389,023,144	99.83%

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WT MICROELECTRONICS CO., LTD (WT)					
Year	Total Operating Revenue	RPT	NERPT	ERPT	% ERPT
2020	353,152,195	143,023,176	1,729,326	141,293,850	98.79%
2021	447,896,117	179,441,697	4,415,517	175,026,180	97.54%
2022	571,197,118	218,023,220	4,940,597	213,082,623	97.73%
2023	594,518,813	206,167,775	6,726,399	199,441,376	96.74%

Note: RPT represents sales between related parties within the group. NERPT refers to non-eliminated related party sales that appear in consolidated financial statements. ERPT is related party sales eliminated from parent only financial statements when preparing consolidate financial statements. %ERPT is the percentage of ERPT relative to total RPT. The amounts are expressed in thousands of New Taiwan Dollars.

The data indicates that 96%–99% of related party sales are eliminated during the preparation of consolidated financial statements. This suggests that the eliminated-related party transactions (ERPTs) are likely a result of the company's vertical integration and medium- to long-term sales contract arrangements between affiliated enterprises. This inference supports the view that ERPTs primarily reflect structured and strategic intra-group transactions rather than opportunistic practices.

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References

Abdallah, A. A. N., W. Abdallah, and M. Saad. 2020. Institutional characteristics, investment sensitivity to cash flow and Tobin's q: Evidence from the Middle East and North Africa region. *International Finance* 23 (2): 324-339.

Aharony, J., J. Wang, and H. Yuan. 2010. Tunneling as an incentive for earnings management during the IPO process in China. *Journal of Accounting and Public Policy* 29 (1): 1-26.

Argyres, N., J. Bercovitz, and G. Zanarone. 2019. The role of relationship scope in sustaining relational contracts in interfirm networks. *Strategic Management Journal* 41 (2): 222-245.

Baker, M., J. C. Stein, and J. Wurgler. 2003. When does the market matter? Stock prices and the investment of equity-dependent firms. *The Quarterly Journal of Economics* 118 (3): 969-1005.

Balsam, S., R. H. Gifford, and J. Puthenpurackal. 2017. Related party transactions, corporate governance and CEO compensation. *Journal of Business Finance & Accounting* 44 (5-6): 854-894.

Bansal, S., and H. Singh. 2023. Does market competition foster related party transactions? Evidence from emerging market. *Pacific-Basin Finance Journal* 77: 101909.

Berkman, H., R. A. Cole, and L. J. Fu. 2009. Expropriation through loan guarantees to related parties: Evidence from China. *Journal of Banking & Finance* 33 (1): 141-156.

Bernheim, B. D., and M. D. Whinston. 1998. Incomplete contracts and strategic ambiguity. *The American Economic Review* 88 (4): 902-932.

Bertrand, M., P. Mehta, and S. Mullainathan. 2002. Ferreting out tunneling: An application to Indian business groups. *The Quarterly Journal of Economics* 117 (1): 121-148.

Bhabra, G. S., P. Kaur, and A. Seoungpil. 2018. Corporate governance and the sensitivity of investments to cash flows. *Accounting & Finance* 58 (2): 367-396.

Bhandari, A., M. Kohlbeck, and B. Mayhew. 2022. Association of related party transactions with sensitivity of investments and external financing. *Journal of Corporate Finance* 72: 102146.

Biddle, G. C., and G. Hilary. 2006. Accounting quality and firm-level capital investment. *The Accounting Review* 81 (5): 963-982.

Biddle, G. C., G. Hilary, and R. S. Verdi. 2009. How does financial reporting quality relate to investment efficiency?. *Journal of Accounting and Economics* 48 (2-3):112-131.

Bushman, R. M., and A. J. Smith. 2001. Financial accounting information and corporate governance. *Journal of Accounting and Economics* 32 (1-3): 237-333.

Cao, D., G. Lorenzoni, and K. Walentin. 2019. Financial frictions, investment, and Tobin's q. *Journal of Monetary Economics* 103: 105-122.

Chen, C.-L., C.-Y. Chen, and P.-Y. Weng. 2020. Do related party transactions always deteriorate earnings informativeness?. *The North American Journal of Economics and Finance* 54: 101270.

Chen, H., and S. Chen. 2012. Investment-cash flow sensitivity cannot be a good measure of financial constraints: Evidence from the time series. *Journal of Financial Economics* 103 (2): 393-410.

Chen, J. Z., C. Y. Lim, and G. J. Lobo. 2016. Does the relation between information quality and capital structure vary with cross-country institutional differences?. *Journal of International Accounting Research* 15 (3): 131-156.

臺灣人文學術期刊資料庫

Cheung, Y.-L., P. R. Rau, and A. Stouraitis. 2006. Tunneling, propping, and expropriation: Evidence from connected party transactions in Hong Kong. *Journal of Financial Economics* 82 (2): 343-386.

Chiu, C.-J., A. Y.-F. Ho, and L.-F. Tsai. 2022. Effects of financial constraints and managerial overconfidence on investment-cash flow sensitivity. *International Review of Economics & Finance* 82: 135-155.

Choi, P. M. S., C. Y. Chung, and C. Liu. 2018. Self-attribution of overconfident CEOs and asymmetric investment-cash flow sensitivity. *The North American Journal of Economics and Finance* 46:1-14.

Chowdhury, J., R. Kumar, and D. Shome. 2016. Investment–cash flow sensitivity under changing information asymmetry. *Journal of Banking & Finance* 62: 28-40.

Coase, R. H. 1937. The nature of the firm. *Economica* 4 (16): 386-405.

Dechow, P., W. Ge, and C. Schrand. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics* 50 (2-3): 344-401.

Del Prete, D., and A. Rungi. 2017. Organizing the global value chain: A firm-level test. *Journal of International Economics* 109: 16-30.

Djankov, S., R. L. Porta, F. Lopez-de-Silanes, and A. Shleifer. 2008. The law and economics of self-dealing. *Journal of Financial Economics* 88 (3): 430-465.

Doong, S.-C., H.-G. Fung, and J.-Y. Wu. 2011. Are social, financial, and human capital value enhancing? Evidence from Taiwanese firms. *International Review of Economics & Finance* 20 (3): 395-405.

Fauver, L., G. Loureiro, and A. G. Taboada. 2017. The impact of regulation on information quality and performance around seasoned equity offerings: International evidence. *Journal of Corporate Finance* 44: 73-98.

Fazzari, S. R., R. G. Hubbard, and B. C. Petersen. 1988. Financing constraints and corporate investment. *Brookings Papers on Economic Activity* 1:141-206.

Friedman, E., S. Johnson, and T. Mitton. 2003. Propping and tunneling. *Journal of Comparative Economics* 31 (4): 732-750.

Gao, F., and R. Zhong. 2023. Information environment and interfirm alliance. *Review of Quantitative Finance and Accounting* 60 (2): 643-677.

Ge, W., D. H. Drury, S. Fortin, F. Liu, and D. Tsang. 2010. Value relevance of disclosed related party transactions. *Advances in Accounting* 26 (1): 134-141.

Gordon, E. A., E. Henry, T. J. Louwers, and B. J. Reed. 2007. Auditing related party transactions: A literature overview and research synthesis. *Accounting Horizons* 21 (1): 81–102.

Healy, P. M., and K. G. Palepu. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* 31 (1): 405-440.

Ho, K.-C., R. Sun, L. Yang, and H.-M. Li. 2023. Information disclosure as a means of minimizing asymmetric financial reporting: The role of market reaction. *Economic Analysis and Policy* 78: 1221-1240.

Hope, O.-K., and H. Lu. 2020. Economic consequences of corporate governance disclosure: Evidence from the 2006 SEC regulation on related-party transactions. *The Accounting Review* 95 (4): 263-290.

Hoyle, J. B., T. F. Schaefer, and T. S. Doupnik. 2011. *Advanced Accounting*. Vol. 11th

臺灣大學學術期刊資料庫

edition. New York, NY: McGraw-Hill.
Hsu, A. W.-H., B. Jung, and H. Pourjalali. 2015. Does international accounting standard No. 27 improve investment efficiency?. *Journal of Accounting, Auditing & Finance* 30 (4): 484-508.
Hwang, N.-C. R., J.-R. Chiou, and Y.-C. Wang. 2013. Effect of disclosure regulation on earnings management through related-party transactions: Evidence from Taiwanese firms operating in China. *Journal of Accounting and Public Policy* 32 (4): 292-313.
Jian, M., and T. J. Wong. 2010. Propping through related party transactions. *Review of Accounting Studies* 15 (1): 70-105.
Khanna, T., and K. Palepu. 2000. Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. *The Journal of Finance* 55 (2): 867-891.
Khurana, I. K., X. Martin, and R. Pereira. 2006. Financial development and the cash flow sensitivity of cash. *Journal of Financial and Quantitative Analysis* 41 (4): 787-808.
Kohlbeck, M., and B. W. Mayhew. 2010. Valuation of firms that disclose related party transactions. *Journal of Accounting and Public Policy* 29 (2): 115-137.
Kohlbeck, M., and B. W. Mayhew. 2017. Are related party transactions red flags?. *Contemporary Accounting Research* 34 (2): 900-928.
Kukharskyy, B. 2016. Relational contracts and global sourcing. *Journal of International Economics* 101: 123-147.
Lambert, R., C. Leuz, and R. E. Verrecchia. 2007. Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research* 45 (2): 385-420.
Lee, G., and R. W. Masulis. 2009. Seasoned equity offerings: Quality of accounting information and expected flotation costs. *Journal of Financial Economics* 92 (3): 443-469.
Levin, J. 2003. Relational incentive contracts. *American Economic Review* 93 (3): 835-857.
Lo, A. W. Y., R. M. K. Wong, and M. Firth. 2010. Can corporate governance deter management from manipulating earnings? Evidence from related-party sales transactions in China. *Journal of Corporate Finance* 16 (2): 225-235.
Maigoshi, Z. S., R. A. Latif, and H. Kamardin. 2018. Change in value-relevance of disclosed RPT across accounting regimes: Evidence from Malaysia. *Research in International Business and Finance* 44: 422-433.
McLean, R. D., T. Zhang, and M. Zhao. 2012. Why does the law matter? investor protection and its effects on investment, finance, and growth. *The Journal of Finance* 67 (1): 313-350.
Nekhili, M., and M. Cherif. 2011. Related parties transactions and firm's market value: The French case. *Review of Accounting and Finance* 10 (3): 291-315.
Ng, J. 2011. The effect of information quality on liquidity risk. *Journal of Accounting and Economics* 52 (2-3): 126-143.
Rahmat, M. M., K. Ahmed, and G. J. Lobo. 2020. Related party transactions, value relevance and informativeness of earnings: Evidence from four economies in East Asia. *Review of Pacific Basin Financial Markets and Policies* 23 (1): 2050005.
Rawat, S., and N. Chaudhry. 2025. Earnings quality, business group affiliation, and investment efficiency. *Research in International Business and Finance* 75: 102732.
Ryngaert, M. D., and S. Thomas. 2012. Not All Related Party Transactions (RPTs) are the Same: Ex-Ante versus Ex-Post RPTs. *Journal of Accounting Research* 50 (3): 845-882.
Schleicher, T., A. Tahoun, and M. Walker. 2010. IFRS adoption in Europe and

臺灣大學學術期刊資料庫

investment-cash flow sensitivity: Outsider versus insider economies. *The International Journal of Accounting* 45 (2): 143-168.

Tobin, J. 1969. A general equilibrium approach to monetary theory. *Journal of Money, Credit and Banking* 1 (1): 15-29.

Verona, F. 2020. Investment, tobin's Q, and cash flow across time and frequencies. *Oxford Bulletin of Economics and Statistics* 82 (2): 331-346.

Wang, H.-D., C.-C. Cho, and C.-J. Lin. 2019. Related party transactions, business relatedness, and firm performance. *Journal of Business Research* 101: 411-425.

Wang, J., and H. Yuan. 2012. The impact of related party sales by listed Chinese firms on earnings informativeness and analysts forecasts. *International Journal of Business* 17 (3): 258.

Weng, P.-Y., C.-L. Chen, H.-Y. Chen, and H.-P. Wang. 2023. Impacts of disclosure of related-party sales in parent company only financial statements on the relative value-relevance of accounting numbers. *Journal of Contemporary Accounting* 24 (2): 297-335.

Williamson, O. E. 1964. *The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm* Hoboken, NJ: Prentice-Hall.

Xu, N., Q. Chen, Y. Xu, and K. C. Chan. 2016. Political uncertainty and cash holdings: Evidence from China. *Journal of Corporate Finance* 40: 276-295.

Yeh, Y.-H., P.-G. Shu, and Y.-H. Su. 2012. Related-party transactions and corporate governance: The evidence from the Taiwan stock market. *Pacific-Basin Finance Journal* 20 (5): 755-776.

Yi, E. 2023. Corporate governance, information disclosure and investment - cash flow sensitivity. *Finance Research Letters* 55: 103942.

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