The Real Effects of IFRS 9 Hedge Accounting Standards

Evidence from Canadian Firms

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Abstract

Compared with the rigid, rule-based hedge accounting requirements under IAS 39, IFRS 9 introduced a more principles-based framework intended to reduce compliance burdens and better align firms' accounting decisions with underlying hedging activities. This study examines the real effects of IFRS 9's hedge accounting reforms on firms' risk management behaviors and financial outcomes. Using descriptive statistics and difference-in-differences regressions based on hand-collected data for Canadian non-financial listed firms from 2011 to 2024, we find that IFRS 9 leads to increased use of hedge-accounted derivatives and greater hedging effectiveness, as reflected in reductions in risk exposure and cash flow volatility. We also observe the absence of significant incremental effects on debt financing and investment, which is contrary to our hypothesis. In addition, we compare our IFRS findings with prior evidence on ASU 2017-12 under U.S. GAAP (Ali et al., 2025) to provide contextual benchmarking of the real effects of hedge accounting reforms across accounting regimes. Overall, this study provides new empirical evidence on the real effects of IFRS 9 hedge accounting standards and offers insights into how accounting reforms shape corporate risk management strategies.

Keywords:

Hedge accounting, hedging activity, risk management, IFRS 9

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1. Introduction

The International Accounting Standards Board (IASB) issued IFRS 9, *Financial Instruments*, which replaced IAS 39 and became mandatory in 2018. The standard expands the range of transactions eligible for hedge accounting, simplifies hedge effectiveness testing, and better aligns accounting treatments with entities' actual risk management operations. These changes were intended to reduce the implementation complexity faced by preparers, thereby ensuring that reported financial information more faithfully reflects underlying hedging activities.

Examining the extent to which the adoption of IFRS 9 altered firms' risk management practices and whether it has led to more effective hedging is important from practitioner, regulatory, and academic perspectives. As the majority of large firms rely on derivatives to hedge risk exposures threatening revenues, expenses, and fair values of assets and liabilities, effective hedging not only mitigates financial distress costs but also influences firms' capital structure and investment. IFRS 9 thus has the potential to materially affect how firms execute and report their risk management activities.

From practitioners' perspective, IFRS 9's more principle-based hedge accounting standards relieve the burden of hedge accounting users and provide better disclosures for financial statement users to understand firms' risk management strategies (PwC 2017, EY 2014). However, whether the amendments introduced by IFRS 9 are sufficient to alter firms' hedging strategies and generate economically significant impacts on financial performance and disclosures remains an open empirical question. Empirical research has already examined the effects of ASU 2017-12, the more lenient hedge accounting standard under U.S. GAAP (Ali et al., 2025), but no corresponding studies on IFRS standards have been identified. Therefore, we propose the following research question: ***How do IFRS 9 hedge accounting standards affect firms' risk management activities (the level and effectiveness of hedging and hedge accounting) and financial performance (risk exposure, operating volatility, and capital structure)?*** Our study aims to provide new empirical evidence on IFRS 9 adoption, thereby partially addressing this research gap. We also review the differences between hedge accounting standards under IFRS and U.S. GAAP, discussing their theoretical implications and comparing the economic magnitude of their real effects on firms through descriptive contextual benchmarking.

With methodology largely consistent with Ali et al. (2025), which investigates the real effects of ASU 2017-12, we apply our analysis to a sample of Canadian listed non-financial firms headquartered in Canada and reporting under IFRS. For the observation window, we examine 2011 to 2024 to capture a longer post-adoption period, including the COVID years for which we conduct additional robustness tests. We first present descriptive statistics to intuitively illustrate the pre- and post-IFRS 9 differences, thereby preparing the ground for subsequent empirical tests. The empirical model used is a

difference-in-difference model applied to the full sample to estimate the marginal effect of IFRS 9 hedge accounting reforms. Based on our developed hypotheses and established academic practice, we construct proxies for risk exposure and capital structure as key dependent variables and include control variables and fixed effects in the model to absorb firm-level heterogeneity as well as industry and time shocks. In addition to the baseline model, we apply entropy balancing to mitigate endogeneity issues arising from systematic differences between treatment and control groups, and we further conduct robustness tests to assess the validity of our causal interpretation.

Our findings show that IFRS 9 adoption has led to a greater level of hedging activities and hedge accounting use. Examining the impacts in detail, we find that the predominant hedging accounting types are cash flow hedges and net investment hedges, which recognize gains and losses in OCI and reclassify them to net income when the underlying hedging activities are realized, consistent with IFRS 9's objective of better aligning economic hedging with accounting outcomes. Hedging instruments designated also exhibit an increasingly diversified trend. We observe statistically significant reductions in risk exposures, particularly firm risk and cash flow volatility, indicating more effective hedging; however, we do not observe significant changes in adopters' debt financing, probably because the reductions in risk exposures are modest and insufficient to materially expand firms' debt capacity or alter their financing behavior. Further comparing our results with marginal effects documented under U.S. GAAP, we propose that hedge accounting reforms under IFRS exhibit less significant real effects, potentially due to IFRS 9's more conservative simplification of eligibility criteria as well as the more complex implementation process associated with applying a global standard within regional regulatory contexts.

The study provides empirical evidence on real effects of IFRS 9 hedge accounting on firms' hedging activities, hedge accounting use, and associated changes in risk exposure and capital structure. These insights provide an approach to better interpret and understand the dynamics between accounting policies and corporate risk management strategies. Moreover, as our analysis focuses on a single-country setting, the results offer an intuitive starting point for broader investigations into the full scope of IFRS 9's impacts across multiple jurisdictions or within an expanded policy scope that extends beyond hedge accounting to the wider financial instrument treatment under IFRS 9.

The structure of the study is as follows. The next section provides a summary of theoretical and empirical studies on relevant topics, discusses the regulatory changes, and develops our main hypotheses. Section 3 outlines our sample construction and empirical model used to examine the research question. Section 4 presents descriptive statistics and regression results, followed by detailed explanatory discussions. Section 5 discusses endogeneity issues and robustness tests while acknowledging limitations, and Section 6 concludes.

2. Literature Review

2.1. Derivatives and Derivatives Accounting

A derivative is a contractual agreement between two or more parties whose value is derived from an underlying variable. Depending on the nature of the underlying variable, derivatives are classified as financial or non-financial. Financial derivatives are derived from traded market variables such as interest rates, foreign exchange rates, and stock prices, whereas non-financial derivatives are linked to non-traded economic variables such as commodity prices or energy outputs (Campbell, 2019). Regardless of the underlying variable's nature, derivatives are generally treated as financial instruments due to their contractual and valuation characteristics. Financial derivatives are commonly categorized into four major types: forward contracts, futures, options, and swaps.

Derivatives are widely employed across both financial and non-financial sectors for two principal purposes: hedging, which reduces firms' risk exposure to rate or price movements, and speculation, which increases risk exposure. While speculation is predominantly undertaken by financial institutions or certain sectors seeking to profit from market fluctuations, non-financial firms primarily employ derivatives as part of the risk management strategies to stabilize operational costs and cash flows, and to protect firm value against market volatility (Hairston & Brooks, 2019; Hughen, 2010).

Beyond pure speculation or hedging, firms often engage in mixed strategies that combine both motives. Empirical evidence suggests that these practices often contain speculative components even when firms do not engage in outright speculation. This behavior, referred to as "selective hedging", occurs when firms hedge only those exposures expected to generate losses while intentionally maintaining partial exposure which is anticipated to yield gains unhedged, in order to gain from favorable rate or price changes (Bodnar and Gebhardt, 1999; Géczy et al., 2007; Glaum and Klöcker, 2011.). Consistent with this view, survey evidence indicates that some firms explicitly use derivatives to "take a view", speculating on expected movements in exchange rates, commodity prices, or interest rates (Bodnar et al., 1995; Bodnar et al., 1998). Unlike pure speculation aimed solely at profit, these strategies are often justified by firms' perceived informational or cost advantages, enabling them to exploit temporary market inefficiencies or industry-specific insights (Géczy, Minton, & Schrand, 2007). Collectively, these studies demonstrate that even among non-financial firms, derivative usage exists on a continuum between pure hedging and speculation, reflecting both risk management and profit-seeking motives.

Accounting for derivatives can be difficult due to the ambiguity of managerial intent (hedging versus speculation), the difficulty of identifying whether the hedged risk is already recognized in the accounting system, and the imperfect or unobservable nature of

hedge effectiveness. Fundamental accounting debates include the choice between historical cost versus fair value as well as recognition versus disclosure.

Given these complexities, both FASB and IASB have issued several stringent accounting and disclosure standards for derivatives, requiring firms to specify the purpose of their derivative use and to classify their accounting treatment according to business intent. The core principles mandate that: (1) all derivatives must be recognized as assets or liabilities on the balance sheet at fair value, with changes in value recognized immediately in profit and loss (FVTPL); and (2) hedge accounting may be applied to qualifying nonspeculative derivatives used for risk management purposes (Ali et al., 2025).

In the following sections, we focus primarily on nonspeculative derivatives used for economic hedging and discuss the factors influencing firms' decisions to apply hedge accounting. The determinants of hedging activities are elaborated in Section 2.2.1, whereas specific accounting treatments under IFRS are analyzed in Section 2.3.

2.2. Hedging Activity and Hedge Accounting

2.2.1. Hedging Activity

Hedging refers to the process of mitigating risk exposures by establishing offsetting positions, typically by holding derivative instruments whose values move inversely to firms' underlying risk exposures (Bartram et al. 2009). The most important financial risks faced by non-financial corporations are foreign exchange, interest rate, and commodity price risks (Servaes et al. 2009).

As a risk management strategy, firms may employ either operational (natural) or financial hedges. Operational hedging involves adjusting business operations without the use of derivatives, such as matching revenues and costs denominated in the same currency to reduce exposure to foreign exchange volatility. By contrast, financial hedging entails using derivative contracts to offset fluctuations in interest rates, commodity prices, or equity prices. Although operational hedging is more straightforward and incurs lower transaction costs, financial hedging is generally considered more effective due to its greater flexibility and lower capital investment requirements. (Kim et al., 2006).

Financial hedging becomes relevant only in imperfect capital markets, where firms cannot fully diversify their exposures to specific rates or prices due to information asymmetry and mispricing (Modigliani and Miller, 1958). When volatility in the underlying variables is costly, a firm's financing costs and market value are primarily affected by financial distress costs, costly external financing, asymmetric taxation, and managerial risk aversion (Guay and Kothari, 2003). To mitigate these costs, firms establish derivative positions to smooth cash flows and earnings, lower financing costs, and ultimately enhance firm value.

The use of derivatives reduces the probability of large negative shocks to firms' cash flows, thereby stabilizing earnings and lowering both default risk and the cost of capital

(Smith and Stulz, 1985; Trueman and Titman, 1988). Furthermore, derivatives facilitate better alignment between cash inflows and outflows, thus reducing dependence on costly external financing (Scharfstein and Stein, 1993). Empirical evidence supports this view, showing that effective hedging is positively associated with firm value, particularly for firms with greater growth opportunities or higher information asymmetry (Choi, Mao, and Upadhyay, 2013). Beatty, Petacchi, and Zhang (2012) further document that derivative usage reduces borrowing costs by smoothing cash flow and earnings volatility.

Other critical aspects of imperfect markets include corporate taxation and managerial incentives. Under convex and asymmetric tax schedules, where taxes are paid on positive earnings but negative earnings rarely generate equivalent subsidies, reducing earnings volatility through derivatives can lower expected tax rates and smooth tax payments (Smith and Stulz, 1985; Graham and Smith, 1999). In principal–agent settings, where executive compensation is tied to performance metrics such as earnings, risk-averse managers tend to apply hedging strategies to reduce volatility and uncertainty in compensation (Smith and Stulz, 1985). However, managerial risk aversion may also cause deviations from optimal hedging strategies, as 78% of surveyed executives admitted to sacrificing long-term firm value to smooth earnings (Spanò, 2007; Harvey and Rajgopal, 2005). Managers holding stock or options are also found to influence hedging decisions (Knopf, Nam, and Thornton, 2002; Barton, 2001).

2.2.2. Hedge Accounting

Once hedging activities exist and a firm decides to apply hedge accounting, the key task is to designate the hedged item and the hedging instrument, which must exhibit an economic relationship with each other. With effective hedging, fluctuations in the fair value or cash flows of the hedged item are offset by reciprocal changes in the hedging instrument.

Under hedge accounting, the volatility of a hedged item's fair value or cash flows is mitigated by matching it with the designated derivative's fair value changes. Three types of hedge accounting are recognized: fair value hedges (FVH), cash flow hedges (CFH), and net investment hedges (NIH). Under the fair value hedge, the fair value of a recognized asset or liability is hedged, and both the derivative and the hedged item's fair value changes are recognized in profit or loss simultaneously, offsetting each other to the extent that the hedge is effective. Under the cash flow hedge, which is the most common type, future cash flows related to recognized asset, liability, or forecasted transaction are protected. Changes in the derivative's fair value are initially recorded in other comprehensive income (OCI) and subsequently reclassified to profit or loss when the forecasted transaction affects earnings. The OCI reserve enables derivatives to be measured at fair value on the balance sheet without immediately influencing net income, thereby better aligning accounting treatment with underlying economic activities. Similarly, a net investment hedge is used to mitigate foreign currency exposure arising

from a net investment in a foreign operation, with the effective portions of the derivative's gains or losses recognized in OCI until the foreign operation is disposed of.

The complexity of hedge accounting and the associated compliance costs are key determinants of firms' adoption decisions. Firms with extensive derivative use and prior IFRS experience are more likely to adopt hedge accounting, while SMEs and first-time adopters often face higher implementation burdens (Glaum and Klöcker, 2011). These findings support the IASB's initiative to simplify hedge accounting standards and facilitate the transition from IAS 39 to IFRS 9. A similar pattern under U.S. GAAP suggests that high compliance costs may deter adoption following the issuance of SFAS 161 (Pierce, 2020). Risk exposure patterns also influence hedge accounting choices, as firms tend to apply hedge accounting when exposure volatility and compensation risk are high but forgo it when exposures remain stable (Pirchegger, 2006).

2.2.3. Interaction Between Hedging Activity and Hedge Accounting

After reviewing the concepts and determinants of both hedging and hedge accounting, this section further explores the interaction between economic hedging and accounting applications. Prior research has primarily examined a unidirectional relationship, focusing on whether hedge accounting affects firms' risk management decisions.

Within the context of information asymmetry and the principal–agent theory, where managerial compensation depends on accounting-based income, hedge accounting may distort firms' optimal economic hedging strategies (Melumad et al., 1999). Moreover, detailed disclosure requirements may discourage hedging activities, as managers tend to reduce hedging to avoid increased earnings volatility, which is closely linked to managerial performance (DeMarzo and Duffie, 1995). According to Hughen (2010), firms that focus on real economic outcomes may continue hedging even when they fail to qualify for hedge accounting, despite the resulting increase in earnings volatility. In contrast, firms that prioritize accounting earnings to meet managerial targets are more likely to discontinue hedging when hedge accounting is inapplicable. Empirical evidence has shown low willingness to disclose among managers if given the scope for discretion, with disclosure rates of approximately 40% among surveyed firms in the U.S. and U.K. Another survey of French corporate treasurers revealed that the complexity of hedge accounting applications directly influences firms' patterns of derivative usage (Gumb et al., 2018).

2.2.4. Impacts of Hedging Activity and Hedge Accounting

For corporations, hedging activities and the application of hedge accounting using derivatives exert significant influence on earnings management, accounting quality, debt financing, and investment decisions. The use of derivatives can substantially affect earnings management behavior, as firms commonly employ derivatives to smooth earnings. A substitutive relationship between derivative-based hedging and accrual-based earnings management has been identified (Barton, 2001; Nan, 2008). When hedge

accounting is applied, earnings volatility tends to decline and reported figures are better aligned with underlying economic activities, thereby enhancing the usefulness and predictability of financial reports. Stabilized reported earnings improve forecast accuracy and provide higher-quality information for decision-making users (Dichev and Tang, 2009; Panaretou et al., 2013). According to Bessembinder (1991), effective hedging increases firms' debt capacity and mitigates underinvestment, as reduced risk exposure encourages firms to deploy excess cash in operations and expand bank credit lines. Consistent with this theory, an empirical study under IFRS 9 finds that hedge accounting users tend to undertake more capital investment than non-users (Allini et al. ,2024). Conversely, evidence from the oil and gas sector shows a decline in debt financing when an exogenous shock impedes firms' ability to hedge, further confirming hedging's role in supporting financing capacity (Gilje and Taillard, 2017).

For investors and analysts, hedging and hedge accounting practices may complicate the assessment of firms' economic conditions, owing to the complexity of standards and disclosures that are often difficult to interpret. The negative relationship between OCI unrealized gains and losses and long-term performance is not always fully recognized, even by experienced users such as equity investors and sell-side analysts (Campbell 2015; Makar, Wang, and Alam 2013). Information asymmetry and mispricing resulting from incomplete or non-standardized derivative disclosures emphasize the necessity for transparent and reliable hedge accounting standards and disclosures. Empirical evidence following the introduction of FAS 161 supports this argument, as the previously observed relation between analysts' forecast errors and unrealized cash flow hedge results becomes less evident after enhanced disclosure requirements (Campbell et al., 2015, 2018). The IFRS adoption effects were also examined by Panaretou et al (2013), who found that analysts' forecast errors are lower for firms applying hedge accounting under IFRS but higher for those holding derivative positions that do not quality for hedge accounting.

2.3. IFRS Hedge Accounting Standards

2.3.1. IAS 39

IAS 39 *Financial Instruments: Recognition and Measurement* introduced the first comprehensive framework for hedge accounting under IFRS. Its purpose was to reduce the accounting mismatch that arose when gains or losses on hedging derivatives and their related exposures were recognized in different periods or presented in different sections of the financial statements. The standard established a formal structure that linked hedging instruments, hedged items, and risk management objectives through three hedge accounting types: fair value hedges (FVH), cash flow hedges (CFH), and net investment hedges (NIH).

While this framework addressed certain accounting mismatches and provided technical guidance, its implementation often failed to reflect the economic substance of entities' risk management practices. Both PwC (2017) and EY (2014) criticized the hedge

accounting model under IAS 39 as highly rule-based and excessively complex, relying on detailed prescriptions rather than principles. First, IAS 39 requires that a hedge be highly effective on a quantitative basis, with the movement in the values of the hedged item and hedging instrument having to be within the of 80-125 percent range. Second, IAS 39 imposes restrictive eligibility criteria for hedge accounting, disqualifying many economically sound hedging strategies. Financial statement users also argue that hedge accounting disclosures do not enable them to fully understand entities' risk management activities (PwC 2017).

2.3.2. IFRS 9

The hedge accounting section of IFRS 9 *Financial Instruments* was issued on 19 November 2013 and became mandatory for fiscal periods beginning after 1 January 2018, with an option to early adoption. The new model aims to provide a better link between an entity's risk management strategy, the rationale for hedging and the resulting impact of hedging on financial statements. While hedge accounting under IFRS 9 continues to follow the fundamental framework of IAS 39, essentially retaining the three hedge accounting models consisting of fair value hedges (FVH), cash flow hedges (CFH), and net investment hedges (NH), the standard introduces several key reliefs: IFRS 9 expands the range of derivative transactions eligible for hedge accounting and relaxes the hedge effectiveness requirements by removing the rigid 80-125 percent threshold.

IFRS 9 notably broadens the scope of eligible hedged items. First, IFRS 9 allows aggregated exposures (a combination of an exposure that could qualify as a hedged item and a related derivative) to be designated as the hedged item, enabling entities to hedge layered or composite risk positions without discontinuing prior hedge designations. Second, entities can designate a specific risk component of a non-financial item, provided that this component is separately identifiable and reliably measurable. Under IAS 39, only foreign currency risk or all risks in their entirety could be hedge accounted for non-financial items, leading to inconsistency between financial and non-financial exposures. Third, IFRS 9 permits groups of items, including net positions, as well as specific layers of a group or nominal amounts, to be designated as the hedged item.

IFRS 9 also extends the scope of hedging instruments. Entities may now designate non-derivative financial assets or liabilities at fair value through profit or loss as hedging instruments, whereas IAS 39 permitted only non-derivative financial instruments to be designated as hedging instruments for foreign currency risk.

Another key difference between IAS 39 and IFRS 9 lies in the assessment of hedge effectiveness. IAS 39 required a quantitative test within the 80-125% range, which often disqualified economically effective hedges that failed to meet this strict hard line. In contrast, IFRS 9 replaces this rule-based test with a principles-based and forward-looking assessment, focusing on whether an economic relationship exists between the hedged

item and the hedging instrument, whether credit risk dominates value changes, and whether the hedge ratio is consistent with the entity's risk management strategy.

2.3.3. IFRS 9 versus ASU 2017-12

As IFRS 9 hedge accounting standards became mandatorily effective on January 1, 2018, U.S. GAAP implemented a similar transition through Accounting Standards Update 2017-12 (ASU 2017-12), which became effective for fiscal years beginning after December 15, 2018, with early adoption permitted from August 28, 2017. Both global accounting regimes therefore exhibit a clear trend toward simplifying hedge accounting requirements, making their comparison analytically relevant and worth studying.

From a theoretical perspective, the relaxation of hedge accounting requirements under IFRS 9 is generally regarded as more conservative compared with ASU 2017-12. ASU 2017-12 eliminates the separate measurement and presentation of hedge ineffectiveness of hedges reported in OCI, whereas IFRS 9 continues hedge effectiveness assessment at the inception of the hedge relationship and formal designation and documentation remain necessary. In addition, IFRS 9 enhances disclosure requirements and mandates more detailed descriptions of risk management strategy, which remain largely unchanged from IAS 39 (PwC, 2017), and therefore the administrative burden associated with initiating hedge accounting remains substantial compared with ASU 2017-12. Regarding the discontinuation of hedge accounting, IFRS 9 introduces a prohibition on voluntary de-designation unless the hedging relationship ceases to meet the qualifying criteria, whereas U.S. GAAP permits de-designation at any point, providing greater managerial flexibility.

However, several IFRS-favorable features complicate this comparison. First, while both IFRS 9 and U.S. GAAP permit the hedging of risk components of non-financial items, U.S. GAAP restricts such designation to contractually specified components, while IFRS 9 allows non-contractual components to be hedge, provided they are separately identifiable and reliably measurable. Second, IFRS 9 requires only prospective assessments of hedge effectiveness at inception and each reporting date, whereas U.S. GAAP mandates both prospective and retrospective assessments at least quarterly. Third, IFRS 9 permits rebalancing by adjusting the quantity of the hedged item or hedging instrument when hedge relationship deviates from expectations, enabling hedge accounting to be continued without terminating and redesignating the relationship.

2.4. Hypotheses Development

Given the reliefs summarized above, the wider range of derivatives positions eligible for hedge accounting, together with the loosened hedge effectiveness criteria, enable firms to adopt hedge accounting at lower compliance costs and at greater scale in the post-IFRS 9 period. We therefore expect firms to engage in previously ineligible or foregone economic hedging, reflected in an increased use of risk management derivatives and a broader set of risks hedged, and to increase hedge accounting designation as evidenced by the accounting types and instruments used.

H1: The adoption of IFRS 9 hedge accounting standards increases the level of hedging activities and hedge accounting designation.

As the new hedge accounting standard better aligns with actual risk management activities, it enhances the transparency of information and reduces reported earnings volatility. With a higher level of economic hedging and higher-quality hedge accounting, we expect firms to achieve greater hedging effectiveness when adopting IFRS 9, thereby reducing their risk exposures and operating volatility, which together provide a comprehensive reflection of firm's overall risk management strategy effectiveness.

However, "adverse effect" or "no effect" scenarios may arise. By exploiting the increased latitude in IFRS 9, firms may not only increase hedging but also expand speculative derivative use for profit-seeking or trading purposes, thus increasing volatility and risk. Moreover, the changes introduced by IFRS 9 may not be sufficient to influence firm behavior or may be too modest to be detected in quantitative analyses of financial outcomes. Despite these counter-possibilities, we state our hypothesis as follows:

H2: The adoption of IFRS 9 hedge accounting standards leads to greater effectiveness of hedging activities, reflected in reduced risk exposure and operating volatility.

As discussed in Section 2.2.4, substantial theoretical and empirical studies show that reduction in financial risk exposures and less volatile financial outcomes via more effective hedging could lead to enhanced debt capacity[1] and additional investment, as firms gain lenders' trust and become more confident in undertaking investment opportunities. However, the causal chain from improved hedging to financing and investment outcomes is long and potentially fragile in practice, and firms' funding and capital structure are influenced by multiple determinants, including overall market conditions, macroeconomic environments, and firms' ability to raise external capital. Accordingly, we do not expect strong or uniform effects ex ante. Nonetheless, we state the following hypothesis in positive form for empirical examination:

H3: The adoption of IFRS 9 hedge accounting standards leads to an increase in debt financing and investment.

Shifting from a pure examination of IFRS 9 effects, we also compare the magnitude of the real effects of hedge accounting reforms under IFRS and U.S. GAAP. Our benchmark is Ali et al. (2025), which documents the real effects of ASU 2017-12 using a sample of 2013–2019 firm-years for U.S.-domiciled publicly traded non-financial firms. Our comparison relies on a descriptive evaluation of results obtained from two separate standard-specific regressions and is intended to provide preliminary insights for future joint-sample causal analyses[2]. The validity of this descriptive benchmarking rests on two

[1] We focus on overall debt levels and do not examine debt contract structures or credit spreads.

[2] We do not perform empirical tests using an integrated U.S. GAAP–IFRS sample because the hand-collected data and code in Ali et al. (2025) are not publicly available, and reconstructing their U.S. GAAP sample would require substantial additional data collection that is beyond the scope of this primarily IFRS-focused study.

considerations: economically, Canada represents the closest IFRS institutional setting to the United States, as the two markets share similar economic structures and investor bases, with a non-trivial proportion of Canadian firms cross-listed on U.S. exchanges; technically, the methodologies employed in both studies are largely consistent in terms of data processing, variable selection, and model design. Given these two-sided theoretical differences discussed in Section 2.3.3, we propose the following hypothesis to facilitate subsequent empirical analysis in Section 4.3:

H4: The real effects of hedge accounting reforms under IFRS are weaker than those under U.S. GAAP.

3. Methodology

3.1. Data and Sample

Our sample construction begins with public databases and integrates hand-collected data from financial statements and disclosures, with the details of sample structure and data processing documented in Table 1, Panel A. The databases we use to construct sample as the starting point and to collect data required for variable computation include Compustat North America Fundamentals Annual and Quarterly, Compustat North America Security Daily and Quarterly, LSEG-I/B/E/S Summary History. We focus on Canadian listed non-financial firms (headquartered in Canada and applying IFRS standards) with firm-years from 2011 to 2024, covering the full reporting horizon since IFRS became mandatory for Canadian firms and extending through the COVID-19 period, for which we perform additional robustness analyses. The screening procedure proceeds as follows: first, we exclude firms in inactive status; then we retain firm-years that use derivatives, based on any of the derivatives-related Compustat items being nonzero and non-missing [3], indicating the existence of hedging activities and the potential of hedge accounting designation; after that, we drop firms without observations in both the pre- and post-IFRS 9 periods as required for a difference-in-differences design. In total, 2,996 observations are subject to manual verification and detailed hand collection of hedge accounting data.

We manually collect qualitative hedging disclosures from SEDAR+ audited annual financial statements and annual reports. First, we examine each firm-year annual report to determine whether derivatives are only used for speculative/trading purposes. [4] Observations in which derivatives are used exclusively for speculation are excluded from further analysis. For the remaining firm-year observations, where derivatives are employed for risk management purposes, we document the hedging activities and hedge accounting designations. For hedging activities, we label each firm-year according to whether it uses derivative instruments to mitigate commonly hedged financial risks, including commodity, interest rate and foreign currency (Bartram et al. 2009, Servaes et al. 2009) while excluding the equity price risks hedged through equity derivatives or stock plans. For hedge accounting designation, we document whether derivatives are designated for hedge accounting, whether the firm early adopted IFRS 9, and the types of hedges and instruments applied. After completing hand collection, we apply the same screening logic as before: removing firm-years without risk management derivatives,

[3] Derivatives-related Compustat items are derac (derivative assets current), deralt (derivative assets long-term), derlc (derivative liabilities current), derllt (derivative liabilities long- term), cidergl (comprehensive income derivative gains/losses), derhedgl (gains/losses on derivatives and hedging), hedgegl (gain/loss on ineffective hedges), and aocidergl (accumulated other comprehensive income derivatives unrealized gain/loss).

[4] We read all potential disclosures related to hedging activities throughout the annual reports, including items in the MD&A section, accounting policies, derivative notes, financial asset/liability notes, and risk management disclosures. Only when the annual report explicitly states that derivatives are used for risk management purposes do we retain the observation. To identify such statements, we rely on explicit textual cues (e.g., mitigate, hedge, non-speculative, or similar key words that indicates a risk management intent).

excluding firms without observations in both the pre- and post-IFRS 9 windows (adjusting event years for early adopters whose adoption year differs from 1 January 2018), and dropping firms that did not transition from IAS 39 to IFRS 9, as these firms were long-time hedge accounting users and thus unaffected by IFRS 9's reforms.

Control and treatment group are manually classified based on their use of hedge accounting across sample firm years. *HA* firm-years (*Hedge Accounting Use*=1) are those in which derivatives are employed with hedge accounting, whereas *NHA* firm-years (*Hedge Accounting Use*=0) are those in which derivatives are employed without hedge accounting. Using firm-year designation to distinguish treatment status, *NH* firms are defined as firms that never apply hedge accounting at any point during the entire sample period and therefore serve as a reasonable control group, as they remain unaffected by the IFRS 9 hedge accounting policies changes. *H* firms apply hedge accounting in at least one firm-year during the sample period and thus constitute our treatment group. Based on this classification, our final sample comprises 102 *H* firms and 97 *NH* firms, respectively corresponding to 1,183 firm-year observations (1,000 *HA* and 183 *NHA* firm-years) and 920 firm-year observations (all *NHA*).

The Panel B and C in Table 1 illustrate the temporal and industry distribution of our sample. The number of observations is relatively even across years, except for slightly fewer observations in 2011 and 2012 due to missing public disclosures. Regarding adoption timing, most firms transitioned to IFRS 9 upon mandatory effectiveness, while roughly 18% of *H* firms early adopted[5]. We also observe substantial industry variation in hedge accounting usage: manufacturing firms constitute the primary users of hedge accounting, whereas mining firms compose approximately half of the *NH* firms. These patterns motivate the inclusion of industry and year fixed effects throughout our empirical analyses.

Table 1: Sample Construction and Composition.

Panel A: Sample Construction			
			Derivatives Users
Canadian IFRS-reporting firms with derivative usage (2011-2024)			4,070
Less: Firm-years without both pre- and post-IFRS 9 observations			(1,074)
Sample subject to manual verification and hand collection of hedge accounting type			2,996
Less: Firm-years without risk management derivatives and required disclosures			(865)
Less: Firm-years continue to apply IAS 39 hedge accounting			(28)
	Treatment Group (H)	Control Group (NH)	Total Sample
Hand-collected sample (2011-2024)	1,183	920	2,103
Number of unique firms	102	97	199

[5] We retain firms that early adopted IFRS 9 (2013), as hedge accounting standards had already been amended under the pilot implementation.

Panel B: Composition of sample by year						
Year	% of H That (Early) Adopt IFRS 9	Treatment Group (H)	%	Control Group (NH)	%	Total Derivatives Users
2011		45	4%	6	1%	51
2012		53	4%	6	1%	59
2013		79	7%	51	6%	130
2014	5%	85	7%	60	7%	145
2015	7%	92	8%	72	8%	164
2016	2%	93	8%	85	9%	178
2017	4%	95	8%	87	9%	182
2018	80%	96	8%	86	9%	182
2019[6]	2%	91	8%	84	9%	175
2020		90	8%	82	9%	172
2021		91	8%	77	8%	168
2022		91	8%	74	8%	165
2023		92	8%	78	8%	170
2024		90	8%	72	8%	162
Total	100%	1,183	100%	920	100%	2,103
Panel C: Composition of sample by industry						
Industry		Treatment Group (H)	%	Control Group (NH)	%	Total Derivatives Users
Construction		21	2%	9	1%	30
Manufacturing		325	27%	165	18%	490
Mining		240	20%	456	50%	696
Real Estate		198	17%	156	17%	354
Retail Trade		68	6%	22	2%	90
Services		56	5%	27	3%	83
Transportation & Public Utilities		202	17%	64	7%	266
Wholesale Trade		73	6%	21	2%	94
Total		1,183	100%	920	100%	2,103

Notes: Table 1 reports sample formation (panel A), sample split by year (panel B) and industry (panel C). *NH* firms are defined as firms that never apply hedge accounting at any point during the entire sample period and therefore serve as the control group. *H* firms apply hedge accounting to derivatives for at least one year during the sample period thus comprise the treatment group. The early adoption rate adjacent to the *H* column shows the percentage of firms that early adopted IFRS 9 provided their fiscal year-ends were eligible for early adoption (i.e., between 19 November 2013 and January 1, 2018, after which IFRS 9 became mandatory).

3.2. Research Design

To test our hypothesis and examine the real impacts of IFRS 9 hedging accounting standards, we begin with descriptive statistics to provide an intuitive assessment of our

[6] If a company's fiscal year begins after May 31, Compustat will defer that fiscal year.

predictions and then employ the difference-in-differences (DID) model as our primary empirical method to identify the causal effects of IFRS 9 adoption.

The DID model uses indicator variables to compare changes in each examined outcome before and after the event, capturing differential responses between hedge accounting users (*HA* firm-years) and non-users (*NHA* firm-years), while including control variables and fixed effects to isolate the marginal effects that can be attributed solely to IFRS 9 amendments. The empirical model is stated as follows:

$$\begin{aligned} Dependent\ Variable_{i,t} = {} & \alpha_0 + \beta_1 * Hedge\ Accounting\ Use_{i,t} + \beta_2 * IFRS\ 9_{i,t} \\ & + \beta_3 * Hedge\ Accounting\ Use_{i,t} * IFRS\ 9_{i,t} \\ & + \beta Controls_{i,t} + \sum \psi\ Industry\ dummies \\ & + \sum \lambda\ Year\ dummies + \varepsilon_{i,t}. \end{aligned}$$

The key independent variables of interest are *Hedge Accounting Use, IFRS 9*, and their interaction variable *Hedge Accounting Use * IFRS 9*. *IFRS 9* equals to 1 if the firm has adopted the new standard (including both early adoption and mandatory adoption) and 0 otherwise. *Hedge Accounting Use* equals 1 for firm-years in which derivatives are designated for hedge accounting and 0 for firm-years in which hedge accounting is not applied. This indicator is always 0 for control group *(NH* firms*)*, who never designate derivatives for hedge accounting, and 1 for treatment-group firm-years in which *H* firms apply hedge accounting. The coefficient on the interaction term *Hedge Accounting Use * IFRS 9* is our main parameter of interest, capturing the incremental effect of hedge accounting under IFRS 9 relative to firms' use of hedge accounting under IAS 39.

Control variables span several conceptual categories, including firm financial characteristics, financial performance measures, market and analyst forecast and other relevant covariates. A complete list of variables is summarized in Appendix A. For fixed effects, we include *Industry* and *Year* dummies to absorb time-invariant industry characteristics and common macroeconomic shocks while preserving cross-sectional and temporal variation necessary to isolate the effect of adoption. Firm fixed effects are excluded due to limited within-firm variation in our unbalanced panel, which may reduce explanatory power and inflate standard errors. We cluster robust standard errors at the firm level.

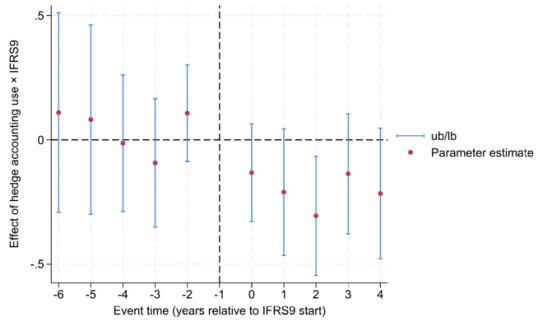
Our dependent variables are constructed in accordance with our developed hypotheses. For H1, which examines the level of hedging activities and hedge accounting use, we employ *Derivative Use* and *GL Derivative Use* to capture the magnitude of risk management activities. To examine hedge accounting designation in details, we analyze type-specific dependent variables including *CFH Use, NIH Use* and *FVH Use* as well as instrument-related dependent variables in terms of risks hedge or instrument types, such

as *Hedging Instrument Types, FX Instrument Types, Swaps*. For H2, which focuses on hedging effectiveness, we use proxies for risk exposure including *Firm Risk*, *Interest Rate Exposure*, *Commodity Price Exposure*, *FX Rate Exposure*, and *Cash Flow Volatility* (Guay,1999; Bodnar, Jong, and Macrae 2003; Zhang, 2009). For H3, where we expect more effective hedging to increase debt capacity and investment, we proxy for financing outcomes using the *Debt, Debt Issuance, Investment, Equity Issuance* to capture both the total level and year-to-year changes (Kausar et al., 2016).

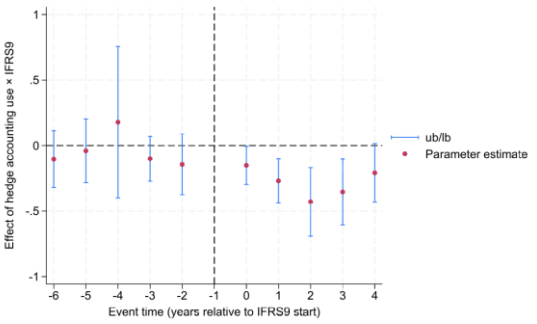
Before employing DID model, we conduct parallel trends tests on key dependent variables, with results presented in Figure 1. As pre-IFRS 9 coefficients fluctuate around zero and their confidence intervals cross the x-axis, the subsample of *HA* firm-years and the subsample of *NHA* firm-years exhibit parallel pre-event trends without systematic difference, thereby validating the use of DID model.

To further mitigate endogeneity concerns, we supplement our baseline regression with entropy balancing to align treatment and control firms on key covariates related to demand for hedging and determinants of investing and financing, including *ROA*, *Debt*, *Sales Growth*, *BM Ratio*, *Liquidity*, *Size*, *Investment*, *Tax*, *FE Error*, and *FE Dispersion* (Guay 1999; Panaretou, Shackleton, and Taylor 2013; Kausar et al. 2016). Entropy balancing automatically generates optimal weights to achieve covariate balance while retaining the full sample of observations.

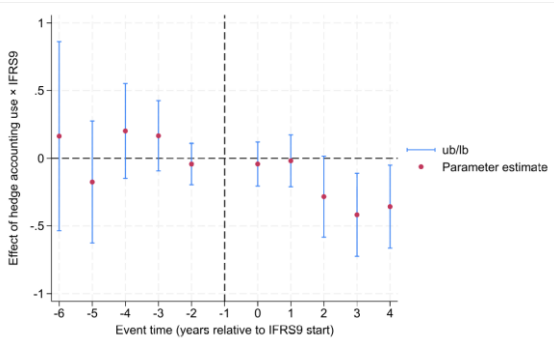
Figure 1: Parallel Trend Tests.



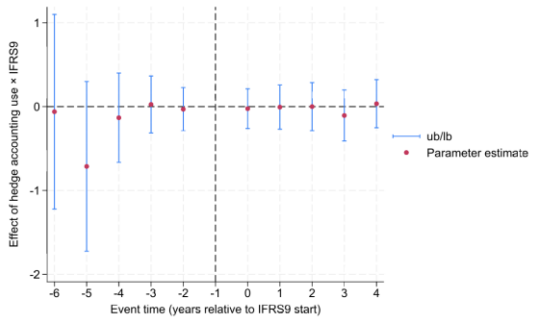
Cash Flow Volatility



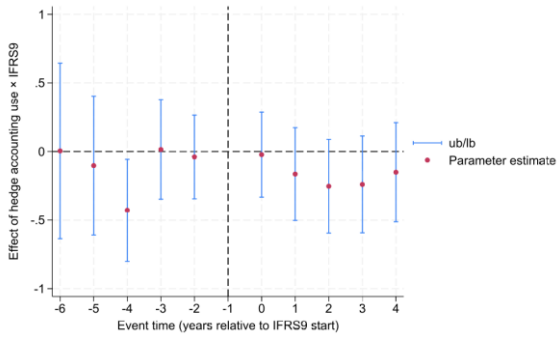
Firm Risk



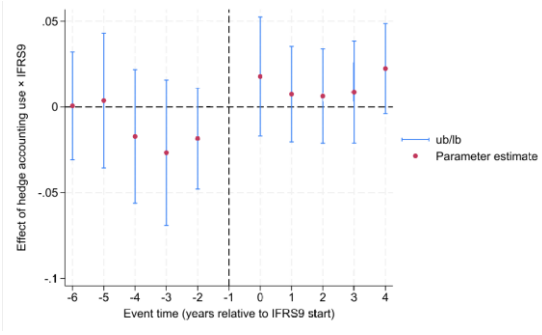
FX Rate Exposure



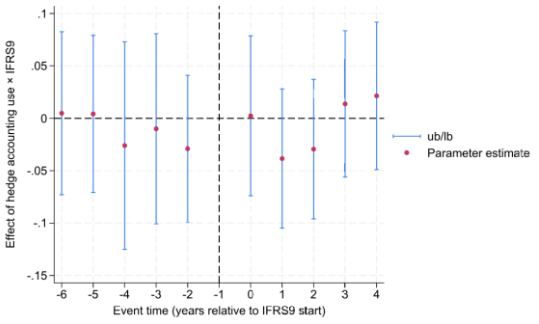
Interest Rate Exposure



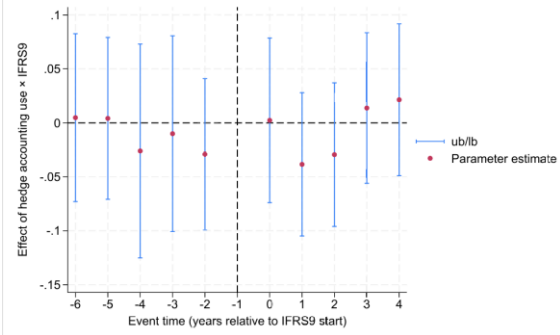
Commodity Price Exposure



Equity Issuance



Debt



Investment

4. Findings and Analyses

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics for treatment group (*H* firms) and control group (*NH* firms) in the periods before and after IFRS 9 adoption.

Derivative use (absolute fair value of all derivative assets and liabilities as percentage of total assets) shows a notably divergent trend between *H* and *NH* firms. For *H* firms, the mean level of total *Derivative Use* increases from 1.498 to 1.781, indicating an expansion in the scale of derivative holdings and economic hedging. In contrast, both the mean and median levels decline for *NH* firms, suggesting a contraction in derivative usage among non-hedge accounting users over the same period.

Focusing on hedge accounting practices, the mean of *Hedge Accounting Use* for *H* firms, which reflects the proportion of firm-years in which hedge accounting is designated, increases from 0.821 to 0.873. Cash flow hedges (*CFH Use*) remain the dominant hedge accounting type with an increase of 2% ((0.75-0.733)/0.733), while net investment hedges (*NIH Use*) rise substantially by 29% ((0.314-0.243)/0.243). We also observe a rise in the *Number of Hedged Risks* and a broader range of hedging instruments, such as increasing use of commodity derivatives, options and forwards, reflecting an expanded breadth and intensity of *H* firms' hedge activities.

Overall, these descriptive patterns suggest that firms expand their economic hedging activity and designate a greater percentage of their derivatives as hedging instruments following IFRS 9 adoption. In Section 4.2, we quantify these changes using difference-in-differences regressions and examine their implications for risk exposures and financing outcomes.

Regarding control variables, we observe systematic differences between the control and treatment group on key covariates such as *Size, ROA, BM Ratio, Revenue Growth, Leverage*, and *Tangible Assets*. These characteristics reflect economically important differences in industry composition, profitability, and capital structure, which are vital factors that influence firms' hedging and hedge accounting decisions. As such inherent sample selection differences may bias the results, these variables receive additional attention in our DID estimations and are explicitly balanced in the entropy balancing procedure.

Table 2: Descriptive Statistics.

	Pre IFRS9						Post IFRS9					
	Treatment Group (H) N = 498			Control Group (NH) N = 367			Treatment Group (H) N = 685			Control Group (NH) N = 553		
Variables	Mean	St. Dev.	Median	Mean	St. Dev.	Median	Mean	St. Dev.	Median	Mean	St. Dev.	Median
Key dependent variables												
Derivative Use	1.498	2.185	0.752	1.769	2.012	1.153	1.781	2.462	0.763	1.437	1.486	1.002
GL Derivative Use	0.453	0.950	0.128	0.792	1.244	0.314	0.420	0.869	0.131	0.803	1.320	0.232
UGL OCI	0.427	0.992	0.060	0.027	0.190	0.000	0.527	1.021	0.143	0.002	0.016	0.000
Hedge Accounting Use	0.821	0.383	1.000				0.873	0.333	1.000			
CFH Use	0.733	0.443	1.000				0.750	0.433	1.000			
FVH Use	0.094	0.293	0.000				0.064	0.245	0.000			
NIH Use	0.243	0.429	0.000				0.314	0.464	0.000			
Firm Risk	-0.274	0.535	-0.423	0.144	0.668	-0.030	-0.184	0.507	-0.307	0.206	0.792	0.008
Commodity Price Exposure	-0.112	0.851	-0.378	0.286	1.126	-0.105	-0.256	0.682	-0.459	0.226	1.169	-0.182
Interest Rate Exposure	0.163	1.002	-0.099	0.652	1.171	0.380	-0.361	0.569	-0.541	-0.100	0.827	-0.363
FX Rate Exposure	-0.392	0.644	-0.556	-0.042	0.789	-0.224	-0.089	0.823	-0.311	0.396	1.132	0.133
Cash Flow Volatility	-0.169	0.796	-0.238	-0.021	0.955	-0.212	-0.099	0.874	-0.216	0.270	1.192	-0.036
Debt	0.380	0.223	0.357	0.281	0.217	0.225	0.365	0.196	0.370	0.294	0.209	0.261
Debt Issuance	0.044	0.115	0.019	0.026	0.108	0.006	0.027	0.097	0.009	0.018	0.098	0.002
Investment	0.059	0.169	0.022	0.055	0.189	0.009	0.040	0.143	0.014	0.060	0.205	0.009
Equity Issuance	0.034	0.081	0.005	0.058	0.110	0.011	0.015	0.054	0.001	0.025	0.084	0.002
Number of Hedged Risks	1.722	0.710	2.000	1.409	0.607	1.000	1.830	0.698	2.000	1.400	0.594	1.000
Commodity Risk Hedged	0.324	0.469	0.000	0.501	0.501	1.000	0.404	0.491	0.000	0.490	0.500	0.000
Interest Risk Hedged	0.661	0.474	1.000	0.420	0.494	0.000	0.590	0.492	1.000	0.438	0.497	0.000
FX Risk Hedged	0.737	0.441	1.000	0.488	0.501	0.000	0.829	0.377	1.000	0.472	0.500	0.000
Hedging Instrument Types	1.689	0.875	1.000				1.862	0.880	2.000			
FX Instrument Types	0.954	0.762	1.000				0.995	0.725	1.000			
IR Instrument Types	0.560	0.565	1.000				0.527	0.571	0.000			
Commodity Instrument Types	0.195	0.410	0.000				0.336	0.547	0.000			
Options	0.105	0.324	0.000				0.169	0.442	0.000			

Swaps	0.542	0.548	1.000				0.582	0.562	1.000			
Forwards	0.671	0.609	1.000				0.737	0.663	1.000			
Cross-Currency Swaps	0.123	0.329	0.000				0.124	0.330	0.000			
FX Debt (NIH)	0.267	0.443	0.000				0.248	0.432	0.000			
Control / Other variables												
Earnings Volatility	0.016	0.029	0.007	0.024	0.029	0.014	0.015	0.020	0.009	0.028	0.036	0.016
Size	8.262	1.482	8.259	6.836	1.584	6.946	8.535	1.518	8.464	7.163	1.576	7.254
BM Ratio	0.809	0.661	0.676	1.106	0.990	0.857	0.899	0.735	0.701	1.247	1.138	0.893
ROA	0.034	0.070	0.040	0.001	0.092	0.014	0.036	0.069	0.037	0.033	0.114	0.031
Revenue Growth	0.083	0.207	0.054	0.133	0.400	0.059	0.085	0.268	0.055	0.157	0.397	0.056
Liquidity	1.722	1.351	1.470	2.114	1.945	1.539	1.756	1.385	1.439	1.760	1.524	1.343
Annual Return	0.291	1.371	-0.000	0.336	1.436	-0.052	0.120	0.806	-0.015	0.321	1.396	-0.016
Leverage	0.614	0.247	0.585	0.491	0.232	0.455	0.597	0.222	0.589	0.524	0.239	0.481
Big4	0.978	0.147	1.000	0.916	0.278	1.000	0.997	0.054	1.000	0.917	0.276	1.000
Tax	0.012	0.017	0.011	0.008	0.024	0.005	0.011	0.016	0.010	0.014	0.027	0.008
Foreign Sales	0.001	0.008	0.000	0.002	0.014	0.000	0.000	0.006	0.000	0.001	0.009	0.000
Inventory	0.086	0.112	0.033	0.071	0.108	0.017	0.093	0.113	0.046	0.067	0.101	0.020
Tangible Assets	6.771	2.350	7.080	5.690	2.421	6.036	7.009	2.510	7.673	6.064	2.448	6.589
Number of Estimates	7.270	5.227	6.000	4.954	3.736	4.000	6.919	4.812	6.000	4.498	3.797	3.000
Interest Burden	0.082	0.116	0.032	0.068	0.088	0.031	0.075	0.100	0.033	0.072	0.087	0.037
FE Error	0.013	0.027	0.003	0.045	0.108	0.010	0.018	0.047	0.004	0.052	0.119	0.012
FE Dispersion	0.005	0.011	0.002	0.013	0.022	0.005	0.007	0.014	0.003	0.015	0.023	0.006
Cash	0.048	0.062	0.024	0.063	0.085	0.032	0.055	0.071	0.029	0.063	0.075	0.033
SD Returns	0.022	0.013	0.019	0.032	0.016	0.028	0.026	0.013	0.022	0.035	0.017	0.031

Notes: Continuous variables are winsorized at 0.5th and 99.5th percentiles (*Annual Return* and *SD Return* are winsorized at 2nd and 98th). Variables are defined in appendix A. For *Hedge Accounting Use*, *CFH Use*, *FVH Use*, and *NIH Use*, the reported mean is calculated relative to the total number of firm-year observations. In contrast, for *Hedging Instrument Types*, *FX Instrument Types*, *IR Instrument Types*, *Commodity Instrument Types*, *Options*, *Swaps*, *Forwards*, *Cross-Currency Swaps*, *FX Debt (NIH)*, the mean is calculated only within the treatment group.

4.2. Main Results

4.2.1. IFRS 9 Effects on Hedging Activities

Table 3 presents the derivative usage effects of IFRS 9. We regress the total fair value of derivatives used (both hedge accounting designated and non-hedge accounting designated) as a percentage of total assets (*Derivative Use*[7]) on the IFRS 9 adoption indicator and the dummy for whether hedge accounting is designated. We also conduct a parallel test using the absolute value of gains or losses associated with the aforementioned derivative use (*GL Derivative Use*[8]). Consistent with relatively strict pre-IFRS 9 hedge accounting eligibility, those firms using hedge accounting in the pre-IFRS 9 period invest less in derivatives than those not opting for hedge accounting, as evidenced by the negative coefficient on *Hedge Accounting Use*. The positive coefficient on *Hedge Accounting Use*IFRS 9* suggests this relationship reverses following IFRS 9 adoption. *Derivative Use* by hedge accounting firms increases by 1.75 times ((1.128 + 1.498)/1.498) from its pre-IFRS 9 level to the post-IFRS 9 period, compared with derivative use by non-users of hedge accounting[9].

We further regress the *Number of Hedged Risks*[10] with controls. In the third column of Table 4, the positive coefficient indicates that the adoption of the new IFRS 9 hedge accounting standard is significantly associated with approximately a 13% (0.223/1.722) increase in the number of risk categories being hedged, including interest rate risk, foreign exchange risk, and commodity risk. After decomposing hedging risks based on descriptive statistics, we find that hedge accounting users engage more intensively in managing commodity and foreign exchange risks compared with the control group, whereas interest rate risk management exhibits a more muted pattern.

Taken together, the increases in derivative use and the expansion in hedged risk categories indicate that IFRS 9 encourages firms to hold larger hedging positions and to pursue more comprehensive risk management strategies.

[7] From Compustat Daily Updates - Fundamentals Annual. We are aware that using total derivative use as a proxy for "hedging" activity could result in incorrect inferences because this measure likely also includes "speculative" activity (Chernenko and Faulkender, 2011). But due to limited disclosures and hand collection effort, and majority of our screened samples don't hold derivatives for speculative or trading purpose, we use this metric as rough proxy.

[8] From Compustat Daily Updates - Fundamentals Annual, including both realized and unrealized gain or loss.

[9] In this calculation, 1.280 represents the coefficient rise in *Derivative Use* per table 3, while 1.498 captures the average *Derivative Use* for the H firms prior to IFRS 9 adoption.

[10] Hand-collected from annual reports' risk management part. The number of unique risks that have been mitigated through derivative use.

Table 3: Derivative Use and IFRS 9.

Dependent Variable	Derivative Use	GL Derivative Use	Number of Hedged Risks
*Hedge Accounting Use*IFRS 9*	1.280**	0.469**	0.223**
	(0.580)	(0.199)	(0.102)
Hedge Accounting Use	-0.514	-0.461*	0.0164
	(0.471)	(0.224)	(0.116)
IFRS 9	-0.881*	-0.318	-0.121*
	(0.462)	(0.195)	(0.0648)
Interest Rate Exposure$_{t-1}$	-0.0155	0.0755*	-0.0275
	(0.142)	(0.0368)	(0.0292)
Commodity Price Exposure$_{t-1}$	-0.176	-0.0276	-0.0629**
	(0.134)	(0.0651)	(0.0216)
FX Rate Exposure$_{t-1}$	0.121	0.0625	-0.0354
	(0.137)	(0.0963)	(0.0235)
Firm Risk$_{t-1}$	-0.0282	-0.0318	-0.0119
	(0.0846)	(0.0837)	(0.0248)
Cash Flow Volatility$_{t-1}$	0.333*	0.0405	-0.0187
	(0.168)	(0.0408)	(0.0309)
Earnings Volatility$_{t-1}$	8.946*	4.262	1.912**
	(4.476)	(2.455)	(0.824)
ROA	-0.345	0.187	-0.364
	(1.578)	(0.829)	(0.245)
Interest Burden	5.504	-0.0314	-1.018*
	(3.314)	(0.673)	(0.535)
BM Ratio	-0.114	0.114	0.0270
	(0.104)	(0.111)	(0.0241)
Size	-0.123	-0.0935**	0.157***
	(0.140)	(0.0365)	(0.0282)
Tax	3.229	4.217	-1.175
	(5.439)	(3.171)	(1.063)
Liquidity	-0.0850	-0.0253	-0.0188
	(0.112)	(0.0181)	(0.0148)
Investment	-0.899	0.0509	0.0353
	(0.794)	(0.485)	(0.165)
Big4	0.973**	0.644*	-0.166
	(0.440)	(0.298)	(0.185)
Debt	0.854	0.0264	0.186
	(1.164)	(0.306)	(0.204)
Equity Issuance	-1.336	0.674	0.141
	(1.227)	(0.835)	(0.275)
Observations	613	741	1,312
R-squared	0.102	0.119	0.252

Notes: T-statistics (OLS) in parentheses: ***p < 0.01, **p < 0.05, *p < 0.1. Reported OLS statistics are based on robust standard errors and clustering at the firm levels. The number of observations in the DID model is limited due to data availability. First, several observations lack control-variable information in Compustat. Second, the dependent variable itself contains substantial missing values (e.g., the *Derivative Use* has only 803 observations). Since the dependent variable is already sparsely populated, imputing

missing control variables (e.g., using mean values) would not enhance sample quality and could instead introduce bias; therefore, no imputation was applied. *Derivative Use* is the annual average based on quarterly derivative use defined as the sum of the absolute values of the fair value of all derivative assets and liabilities, scaled by total assets multiplied by 100. *GL Derivative Use* is the absolute value of unrealized and realized gain or loss of *Derivative Use*, scaled by total assets multiplied by 100. *Number of Hedged Risks* is the number of unique risks (commodity price, interest rate, FX rate) being hedged. *IFRS 9* is the indicator variable equal to 1 for a firm when it adopts IFRS 9, including both early and mandatory adoption. *Hedge Accounting Use* is the indicator equal to 1 if derivatives are designated for hedge accounting in a given firm-year, and 0 otherwise. All variables are defined in appendix A.

4.2.2. IFRS 9 Effects on Hedge Accounting Designation

Table 4 and Table 5 present regression results on whether IFRS 9 affects firms' hedge accounting choices, including the likelihood of applying hedge accounting, the types of hedge accounting employed, and the portfolio of hedging instruments.

After IFRS 9 implementation, we find that firms significantly increased the frequency with which they designate derivatives for hedge accounting. The positive coefficient in the first column of Table 4 indicates that firms expand hedge accounting applications by approximately 4% (0.0361/0.821) relative to the pre-IFRS 9 period. A similar pattern appears in *UGLs Hedge Acc Use*, which shows an 18% increase (0.0787/0.427). Consistent with these results, our hand-collected data show that 16 companies with prior hedge activities begin adopting hedge accounting after IFRS 9 takes effect[11]. This new user pattern confirms that the broader eligibility criteria introduced by IFRS 9 enabled previously ineligible or nonparticipating firms to initiate hedge accounting.

Regarding hedge accounting types, fair value hedges decrease substantially by 15% (0.0137/0.094), while cash flow hedges remain the most prevalent form post-IFRS 9 despite an insignificant increase, and net investment hedges exhibit a substantial 21% increase (0.0512/0.243). These shifts in accounting types reflect firms' growing need to hedge foreign operations and their intention to reduce earnings volatility by recognizing unrealized holding gains or losses in OCI.

We then analyze whether hedge accounting companies expand the types of employed hedging instruments. The positive coefficient for *Hedging Instrument Types* indicates that IFRS 9 increase the number of unique hedging instruments by 10% (0.175/1.689). In the detailed breakdown, both *FX Instrument Types* and *Commodity Instrument Types* become more diverse after the reform, whereas *IR Instrument Types* exhibit a slight and statistically insignificant reduction, potentially because interest rate hedge accounting was already well supported under IAS 39 and IFRS 9 did not introduce major structural easing. The instrument-specific regression results show that IFRS 9 is associated with a significant increase in the use of options and swaps. We also observe a marked rise in net investment hedges for foreign currency-denominated debt, while changes in forward contracts and cross-currency swaps are statistically insignificant. These findings are consistent with IFRS 9's expanded scope of eligible hedging instruments and its more flexible effectiveness requirements.

[11] New user of hedge accounting may arise through three types: 1) firms that started designating to hedge accounting treatment already-in-place derivatives for which they previously did not use hedge accounting; 2) firms that in the pre-issuance period had designated derivatives related to some exposures but started newly designating already-in-place derivatives related to expanded exposures; 3) firms that initiate a derivative program with hedge accounting for a previously unhedged exposure after the issuance of new standards, while still having derivatives in place for other exposures in the pre-issuance period (Ali et al., 2025). Our IFRS study identify only the first type, which may partly explain the lower proportion of new hedge accounting users observed in our sample.

Overall, these patterns in derivative positions and accounting designations correspond to H1: the divergence in derivative use between hedge accounting users and nonusers demonstrates the link between accounting designations and underlying risk management activities for adopters, and firms are designating a larger share of their expanded derivative positions for hedge accounting in the post-IFRS 9 period. This aligns with IFRS 9 reforms that broaden the range of hedge accounting options available to derivative users.

Table 4: Hedge Accounting Use and Types.

Variables	Hedge Accounting Use	UGLs Hedge Acc Use	CFH Use	FVH Use	NIH Use
IFRS 9	0.0361***	0.0787***	0.0147	-0.0137***	0.0512***
	(0.00947)	(0.0285)	(0.00984)	(0.00518)	(0.00789)
Fixed Effect	Firm	Firm	Firm	Firm	Firm
Observations	2,103	1,899	2,103	2,103	2,103
R-squared	0.845	0.686	0.828	0.719	0.799

Table 5: Hedging Instruments.

Variables	Hedging Instrument Types	FX Instrument Types	IR Instrument Types	Commodity Instrument Types	Options	Swaps	Forwards	Cross Currency Swaps	FX Debt NIH
IFRS 9	0.175***	0.0875***	-0.000364	0.0773***	0.0310***	0.0495**	0.0178	0.0143	0.0571***
	(0.0383)	(0.0249)	(0.0241)	(0.0157)	(0.0111)	(0.0237)	(0.0212)	(0.0137)	(0.0126)
Fixed Effect	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Observations	968	968	968	968	968	968	968	968	968
R-squared	0.692	0.803	0.686	0.833	0.867	0.685	0.814	0.7	0.855

Notes: T-statistics (OLS) in parentheses: ***p < 0.01, **p < 0.05, *p < 0.1. Reported OLS statistics are based on robust standard errors. Table 4 and Table 5 presents regression results regarding whether IFRS 9 impacts companies' hedge accounting choices, including the likelihood of applying hedge accounting, the types of hedge accounting employed, and the portfolio of hedging instruments. *Hedge Accounting Use* is the indicator equal to 1 if derivatives are designated for hedge accounting in a given firm-year, and 0 otherwise. *UGLs Hedge Acc Use* is the absolute value of unrealized gain or loss of derivative recognized through other comprehensive income, scaled by total assets multiplied by 100. *IFRS 9* is the indicator variable equal to 1 for a firm when it adopts IFRS 9, including both early and mandatory adoption. All variables are defined in appendix A.

4.2.3. IFRS 9 Effects on Risk Exposures and Cash Flow Volatility

In table 6, we evaluate H2, which predicts that the adoption of hedge accounting will lead to greater effectiveness of hedging as captured by reduced risk exposures and a decline in cash flow volatility. In the first four columns, we present results for our entire sample; in the next four columns, we present results using entropy-balanced matched sample. The estimated coefficient on the interaction term *Hedge Accounting Use*IFRS 9* represents the difference between the change in risk outcomes for hedge accounting users versus non-hedge accounting users when the IFRS 9 is adopted.

We find significant reductions in overall firm risk, FX risk exposure, and cash flow volatility. Changes in commodity risk exposure and interest risk exposure fall short of statistical significance. This result is consistent with the descriptive statistics on *Interest Rate Risk Hedged*, which indicate that hedge accounting users reduce their risk management activities related to interest exposure. Examining the economic magnitude of the post-IFRS 9 treatment effect for statistically evident dependent variables, relative to non-users, hedge accounting users experience an estimated average reduction of 19% in FX exposure, 13% in cash flow volatility, and 16% in firm risk[12].

After applying entropy balancing, we observe changes in the statistical significance of outcomes variables, with reduction in FX risk exposure becoming statistically insignificant and the reductions in overall firm risk and cash flow volatility remaining significant, although the significance level of cash flow volatility decreases. These results suggest that the improvement in FX risk may be driven by differences in corporate characteristics rather than by the causal effect of IFRS 9 hedge accounting itself. Applying the same magnitude estimate approach to entropy-balanced coefficients yields an estimated average reduction of 11% in cash flow volatility and 18% in firm risk. As the magnitude gap between baseline and entropy balancing is minimal, we treat the entropy balanced specification as an endogeneity test but rely on the baseline DID coefficients for analysis in remainder of Section 4.

Overall, the consistent direction and similar magnitudes between both sets of estimates support H2, providing evidence that hedge accounting firms achieve better risk management outcomes through more effective hedging activities under the revised standards.

[12] As our dependent variables are standardized (z-scored) and the treatment variable is a binary indicator (*Hedge Accounting Use*), economic magnitudes are calculated by multiplying the baseline regression coefficient by the pre-standardization standard deviation of each dependent variable to convert the effects back to original scale, and then scaling by the pre-IFRS 9 mean of hedge accounting users' exposure (as presented in Table 2). For *Firm Risk*, the computation is (−0.185×0.02478)/0.02830. Similarly, the estimated 13% reduction in *Cash Flow Volatility* and 19% reduction in *FX Rate Exposure* correspond to (−0.198×0.02440)/0.03829 and (−0.211×2.51118)/2.83156 respectively.

Table 6: IFRS 9 Hedge Accounting Effects on Risk Exposures and Cash Flow Volatility.

	Baseline DID Tests					Tests with Entropy Balancing				
Dependent Variable	Firm Risk	Interest Rate Exposure	Commodity Price Exposure	FX Rate Exposure	Cash Flow Volatility	Firm Risk	Interest Rate Exposure	Commodity Price Exposure	FX Rate Exposure	Cash Flow Volatility
*Hedge Accounting Use*IFRS 9*	-0.185**	0.129	-0.0790	-0.211**	-0.198**	-0.206**	0.155	-0.0825	-0.196	-0.179*
	(0.0912)	(0.150)	(0.0973)	(0.102)	(0.0995)	(0.103)	(0.230)	(0.0974)	(0.144)	(0.104)
Hedge Accounting Use	0.0937	-0.313**	-0.00951	-0.0371	-0.0867	0.0398	-0.464**	-0.0643	-0.212*	-0.0146
	(0.105)	(0.152)	(0.0913)	(0.0998)	(0.107)	(0.0886)	(0.224)	(0.0897)	(0.120)	(0.112)
IFRS 9	0.183**	-0.111	0.198	0.0928	0.173	0.211**	-0.0917	0.244*	0.117	0.162
	(0.0863)	(0.130)	(0.139)	(0.116)	(0.131)	(0.101)	(0.162)	(0.147)	(0.139)	(0.140)
Size	-0.189***	-0.0550**	-0.136***	-0.106***	-0.0567	-0.146***	-0.0538	-0.0667*	-0.0655**	-0.0585
	(0.0352)	(0.0245)	(0.0257)	(0.0283)	(0.0352)	(0.0331)	(0.0346)	(0.0371)	(0.0298)	(0.0423)
ROA		-0.302	0.442	-0.413	2.866***		-0.383	0.583	-0.658	3.325***
		(0.314)	(0.335)	(0.346)	(0.456)		(0.381)	(0.398)	(0.402)	(0.574)
BM Ratio	0.141***	0.0134	0.0860*	0.0709	-0.192***	0.221***	0.110*	0.106*	0.224***	-0.235***
	(0.0456)	(0.0449)	(0.0472)	(0.0484)	(0.0334)	(0.0518)	(0.0589)	(0.0550)	(0.0717)	(0.0582)
Leverage	0.532**	0.296*		0.522***	-0.500**	0.189	0.110		0.525***	-0.198
	(0.246)	(0.153)		(0.162)	(0.237)	(0.175)	(0.184)		(0.167)	(0.322)
Interest Burden		0.689					0.998			
		(0.545)					(0.772)			
STInvestments		1.386					2.327**			
		(0.884)					(1.058)			
Cash			0.0251					-0.0786		
			(0.509)					(0.466)		
Inventory			-0.303					-0.519		
			(0.359)					(0.317)		
PPE					-0.264					-0.0463
					(0.178)					(0.268)
SD Returns					10.41***					9.198**
					(3.396)					(3.991)

Tax	-2.155					-3.351**				
	(1.304)					(1.423)				
Fixed Effects	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year
Observations	1,521	1,584	1,580	1,657	1,639	1,438	1,496	1,489	1,563	1,586
R-squared	0.280	0.263	0.270	0.415	0.314	0.241	0.281	0.194	0.431	0.299
F-test (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: T-statistics (OLS) in parentheses: ***p < 0.01, **p < 0.05, *p < 0.1. Reported OLS statistics are based on robust standard errors and clustering at the firm level. Table 6 shows the estimated coefficients from difference-in-differences regressions of risk outcomes on hedge accounting usage under IFRS 9 and controls for each risk exposure category. The sample period is 2011 – 2024 and includes treatment firms that use derivatives with varying intensity of hedge accounting, and control firms that use derivatives without hedge accounting throughout the sample. *Hedge Accounting Use*IFRS 9* is the main variable of interest. *IFRS 9* is the indicator variable equal to 1 for a firm when it adopts IFRS 9, including both early and mandatory adoption. *Hedge Accounting Use* is the indicator equal to 1 if derivatives are designated for hedge accounting in a given firm-year, and 0 otherwise. *Cash Flow Volatility* is the Z-score of the standard deviation of quarterly operating cash flows during the most recent two years, scaled by total assets. *Commodity Price Exposure* is the Z-score of the absolute value of the estimated coefficient from a regression of firms' monthly holding period stock returns on the monthly percentage change in the Producer Price Index for 36 months prior to fiscal-year end. *Firm Risk* is the Z-score of the annual standard deviation of the residuals from a market model regression of daily returns on the CRSP value-weighted index. *FX Rate Exposure* is the Z-score of the absolute value of the estimated coefficient from a regression of firms' monthly holding period stock returns on the monthly percentage change in the Canadian Effective Exchange Rates (CEER) for 36 months prior to fiscal-year end. *Interest Rate Exposure* is the Z-score of the absolute value of the estimated coefficient from a regression of firms' monthly holding period stock returns on the monthly percentage change in the Canada Treasury Bills (3-month) for 36 months prior to fiscal-year end. All variables are defined in appendix A.

4.2.4. IFRS 9 Effects on Debt Financing and Investment

Although Section 4.2.3 confirms a significant improvement in the effectiveness of hedging following the IFRS 9 reform, evidence also suggests that the reduction does not apply uniformly across all types of risk. Adjusting for entropy balancing further reduces the statistical significance of effects in certain risk exposures. This weakening of the risk reduction effect directly impacts H3, as the assumed increases in debt capacity and investment depend heavily on the extent of underlying improvements in risk management.

Table 7 shows no statistically significant increase in debt financing or investment as the positive coefficients are merely suggestive rather than conclusive. These null effects align with the view that the causal chain from enhanced hedging to debt financing and investment is long and potentially fragile in practice. Even if IFRS 9 improves hedging effectiveness in certain areas, the magnitude of these improvements may be insufficient to substantially alter firms' leverage policies or their willingness to undertake new investment projects, especially given that financing and investment decisions are constrained by broader macroeconomic and firm-specific factors.

For completeness, we also examine whether equity financing was affected. Interestingly, we find a significant increase in equity issuance after the implementation of IFRS 9. This result is reflected in the smaller decline in equity issuance among hedge accounting users relative to the overall downward trend in the sample. In terms of economic magnitude, the change in hedge accounting rules corresponds to an absolute increase of approximately 2.7 percentage points in equity issuance as a percentage of assets. One possible explanation is that the enhanced transparency and reduced information asymmetry associated with hedge accounting reduce external financing frictions, effects that are typically more pronounced in equity markets than in bond markets. Equity investors may be more responsive to improvements in financial reporting quality, whereas bond markets—which rely heavily on collateral, credit ratings, and lender relationships—may require more substantial or persistent changes in corporate risk profiles before adjusting lending behavior. Consequently, in the post-IFRS 9 period, hedge accounting users may find equity financing easier than debt financing, leading to the asymmetric pattern observed in our results.

Table 7: IFRS 9 Hedge Accounting Effects on Debt Financing and Investment.

	Baseline DID Tests				Tests with Entropy Balancing			
Dependent Variable	Debt	Debt Issuance	Investment	Equity Issuance	Debt	Debt Issuance	Investment	Equity Issuance
*Hedge Accounting Use*IFRS 9*	0.0108	0.00413	0.00324	0.0270***	0.0311	0.00768	0.0207	0.0243***
	(0.0222)	(0.0117)	(0.0174)	(0.0100)	(0.0246)	(0.0130)	(0.0193)	(0.00922)
Hedge Accounting Use	0.0268	0.00395	-0.00843	-0.0259***	-0.0180	-0.000148	-0.0200	-0.0271***
	(0.0290)	(0.00997)	(0.0157)	(0.00856)	(0.0296)	(0.0105)	(0.0154)	(0.00801)
IFRS 9	-0.0386	0.00701	0.00895	-0.0102	-0.0685	0.000729	-0.0123	-0.0109
	(0.0338)	(0.0138)	(0.0209)	(0.0161)	(0.0477)	(0.0154)	(0.0234)	(0.0154)
Size	-0.0144	0.00465	0.00306	-0.00142	-0.0487***	-0.00254	-0.00157	-0.00288**
	(0.0135)	(0.00324)	(0.00290)	(0.00155)	(0.0168)	(0.00408)	(0.00308)	(0.00142)
ROA	-0.263***	-0.120***	0.438***	-0.0653*	-0.317**	-0.150***	0.499***	-0.0682
	(0.0786)	(0.0357)	(0.0782)	(0.0386)	(0.129)	(0.0488)	(0.0910)	(0.0492)
BM Ratio	-0.0202	-0.00357	-0.00599	-0.00379	-0.0614**	-0.0131***	-0.00411	-0.00432
	(0.0126)	(0.00288)	(0.00463)	(0.00290)	(0.0270)	(0.00415)	(0.00686)	(0.00297)
Liquidity	-0.0148***	0.000455	-0.00603***	-0.000915	-0.0150***	-0.000233	-0.00703**	-0.000707
	(0.00365)	(0.000788)	(0.00165)	(0.000887)	(0.00503)	(0.000858)	(0.00325)	(0.000930)
Revenue Growth	0.0918***	0.0904***	0.228***	0.0821***	0.133***	0.113***	0.241***	0.0827***
	(0.0273)	(0.0161)	(0.0313)	(0.0147)	(0.0282)	(0.0174)	(0.0323)	(0.0125)
Tangible Assets	0.0212**	-0.000272			0.0252**	0.00169		
	(0.00966)	(0.00195)			(0.0116)	(0.00256)		
Annual Return	-0.00458	-0.00725***	-0.00420	0.00110	-0.0160**	-0.0115***	-0.0125***	-0.00119
	(0.00416)	(0.00229)	(0.00459)	(0.00236)	(0.00807)	(0.00317)	(0.00426)	(0.00275)
Fixed Effects	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year
Observations	1,584	1,584	1,599	1,589	1,577	1,577	1,599	1,557
R-squared	0.371	0.157	0.306	0.172	0.439	0.173	0.283	0.160
F-test (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: T-statistics (OLS) in parentheses: ***p < 0.01, **p < 0.05, *p < 0.1. Reported OLS statistics are based on robust standard errors and clustering at the firm level. Table 7 shows the estimated coefficients from difference-in-differences regressions of measures of external financing and investing, on hedge accounting usage under IFRS 9 and related controls. The sample period is 2011 – 2024 and includes treatment firms that use derivatives with varying intensity of hedge accounting, and control firms that use derivatives without hedge accounting throughout the sample. *Hedge Accounting Use*IFRS 9* is the main variable of interest. *IFRS 9* is the indicator variable equal to 1 for a firm when it adopts IFRS 9, including both early and mandatory adoption. *Hedge Accounting Use* is the indicator equal to 1 if derivatives are designated for hedge accounting in a given firm-year, and 0 otherwise. *Debt* is the sum of long-term and short-term debt, scaled by lagged total assets. *Debt Issuance* is the end-of-year long-term and short-term debt minus beginning-of-year total debt, scaled by lagged total assets. *Equity Issuance* is the annual increase in the total of common/ordinary stock + capital surplus/ share premium reserve + preferred / preference stock (capital) - treasury stock, scaled by total assets. *Investment* is the change in fixed assets (property, plant, and equipment and intangible assets), scaled by lagged total assets. All variables are defined in appendix A.

4.3. Real Effects Comparison under IFRS and U.S. GAAP

At the starting point of empirical comparison, we examine the sample composition (Table 1) in both studies, as these characteristics provide descriptive insights into hedge accounting users and reveal factors associated with hedge accounting adoption. In terms of sample size, the Ali et al. (2025) study includes 464 unique firms and 2,533 firm-year observations, whereas our sample contains 199 firms and 2,103 observations, with a longer observation window partially compensating for the smaller firm coverage. Regarding the distribution of control and treatment groups, the U.S. GAAP sample comprises 363 H firms and 101 NH firms, corresponding to 2,037 and 496 firm-year observations, indicating that hedge accounting designated firm-years account for over 80% of the sample panel. In contrast, our Canadian sample is more balanced, with hedge accounting users representing approximately 56% of total observations. With respect to time composition, both studies exhibit relatively even distribution across sample years, except that our sample contains sparser observations in 2011–2012, the sensitivity of which is examined in Section 5.2. Adoption timing also differs across regimes: under U.S. GAAP, ASU 2017-12 was adopted in a staggered pattern between 2017 and 2019, with only 5% of firms adopting early in 2017, whereas IFRS 9 adoption was more gradual, with 18% of firms adopting before the mandatory effective date between 2014–2017. Additionally, industry composition is more concentrated in the U.S. GAAP sample, with hedge accounting users clustered in manufacturing (58%) and non-users in mining (50%). These differences reflect underlying economic determinants of hedging and hedge accounting use across the two settings.

For the developed hypotheses on the real effects of hedge accounting standards, both studies examine the level of hedging activities and hedge accounting use, the impacts on risk exposures, and the effects on debt and investment, whereas information asymmetry, proxied by bid–ask spreads, is analyzed only in the U.S. GAAP study. Table 8 summarizes the difference-in-differences coefficients on the interaction term for key dependent variables in both studies, providing the central metrics for comparing the magnitude of real effects of hedge accounting reforms across accounting frameworks. We interpret the "economic magnitude" of incremental effects as the implied percentage change in each outcome variable relative to its pre-reform mean for hedge accounting users. Since the treatment variables differ across studies, magnitudes cannot be obtained by directly comparing the raw coefficients[13]. Instead, we first identify outcome variables with statistically significant coefficients, and calculate the economic magnitudes of each dependent variable by translating the regression coefficient back into original units and scaling the resulting effect by the pre-adoption mean of the corresponding risk exposure

[13] For example, *Designated Use* used in U.S. GAAP study is a continuous variable capturing the designated amount of hedge-accounted derivative used in U.S. GAAP results, whereas *Hedge Accounting Use* in our setting is a binary indicator that records whether hedge accounting is designated in a given firm-year. See Table 8 notes and Appendix A for detailed explanation.

proxy, with adjustments for the continuous treatment variable in the U.S. GAAP study and the standardized dependent variables in our IFRS study[14]. This procedure yields magnitudes that are comparable across the two regimes, forming the foundation of our cross-regime comparison. We then conduct the comparison following the order of developed hypotheses.

Increase in the level of hedging activities and hedge accounting use is identified in both studies. Regarding the level of economic hedging, both studies observe increases in derivative use and in the number of hedged risks. For derivative use, the U.S. GAAP study finds that firms designating hedge accounting increase their derivative positions to 1.74 times their pre-ASU level relative to nonusers, while our IFRS findings show a nearly identical magnitude of 1.75 times, indicating comparable expansion in economic hedging. For the number of hedged risks, our IFRS study identifies a 13% increase in the categories of risks hedged, whereas the U.S. GAAP study documents a 7% increase, which is lower than the IFRS estimate. Regarding hedge accounting use, both studies document more frequent hedge accounting designation at the firm-year level and larger amounts of unrealized holding gains and losses recognized in OCI. Examining the composition of hedge accounting types, U.S. GAAP firms assign 16% more of their derivatives to cash flow hedges (CFH) and net investment hedges (NIH), increasing their usage by 31% as a percentage of total assets. They also register a 28% increase in unrealized holding gains or losses under CFH and NIH, compared with an 18% increase in our IFRS study. Additionally, greater frequency and diversity in hedging instrument use is observed in both settings, with the U.S. GAAP study identifying a 16% increase in unique instruments used and our IFRS study identifying a 10% increase. In terms of newly adopting hedge accounting users, the U.S. GAAP study identifies 74 new users out of 363 treatment firms, while our IFRS study identifies 16 new users out of 102 firms, representing approximately 16%, which is slightly below the 20% ratio under U.S. GAAP. Therefore, the level of economic hedging appears broadly similar across the two studies despite differences in sample composition and potential selection bias. However, all dimensions reflecting hedge accounting use under U.S. GAAP exhibit a consistently stronger upward trend than under IFRS. In particular, the smaller increase in OCI recognition under IFRS 9 suggests that ASU 2017-12 provides stronger relief for hedge accounting application, as it eliminates the separate measurement and presentation of hedge ineffectiveness for OCI-recognized hedges, whereas IFRS 9 only modestly relaxes the effectiveness requirements. This pattern aligns with our theoretical reasoning that IFRS 9 provides less extensive hedge accounting relief compared with ASU 2017-12.

[14] For continuous treatment variables, the economic magnitude is computed by multiplying the regression coefficient by the post-adoption mean of treatment intensity. For standardized (z-scored) dependent variables, the coefficient is first multiplied by the pre-standardization standard deviation of the corresponding variable. In both cases, the resulting change is then scaled by the pre-adoption mean exposure, yielding an interpretable percentage change relative to baseline levels.

The next dimension concerns risk exposures and operating volatility. In terms of statistically significant outcomes, our IFRS results show reductions in overall firm risk, cash flow volatility, and foreign currency exposure, whereas the U.S. GAAP study additionally identifies reductions in interest rate exposure and reports stronger statistical significance for the overlapping outcomes. Regarding economic magnitude, our IFRS estimates indicate reductions of 16% in firm risk, 13% in cash flow volatility, and 19% in FX exposure, while the U.S. GAAP study documents reductions of approximately 5% in firm risk and 6% in cash flow volatility, driven by 13% and 14% declines in interest rate and foreign exchange exposures respectively. However, the larger magnitudes observed in our IFRS setting should not be interpreted as evidence that IFRS 9 delivers stronger improvements in firms' operating risk management, as our estimates may be less reliable and more sensitive to noise. Our dependent variables rely on a binary indicator of hedge accounting use, which is inherently less granular and informative than the benchmark study's continuous measure of designated hedge accounting intensity. This limitation in measurement precision is further discussed in Section 5.3.

The major difference lies in the effects on debt and investment, where the two studies yield opposite results. Under IFRS, we observe no significant changes in debt financing or investment but an increase in equity financing, with equity issuance rising by 2.7%. By contrast, the U.S. GAAP study reports that ASU 2017-12 led to greater use of debt financing, including an approximately 8% increase in debt levels as a percentage of assets, a 21% increase in debt issuance, and a 20% increase in investment. Although bid–ask spreads in the equity market decline by 5%, this does not translate into an increase in equity issuance. A potential explanation is that U.S. firms are more responsive to ASU 2017-12 and apply higher levels of economic hedging and hedge accounting, while U.S. capital markets may place greater informational value on effective hedging. These patterns may generate larger and more detectable changes in firms' financing strategies and capital structure, producing effects sizable enough to be captured as statistically significant in regression analyses. More accurate interpretation would require further research, particularly examining the cost and composition of debt financing, as well as the interaction between accounting reforms and capital market dynamics, including benchmark interest rate movements, information asymmetry, and investor incentives and behavior.

In conclusion, the empirical comparison indicates that the adoption of IFRS 9 hedge accounting has weaker real effects than ASU 2017-12, particularly with respect to hedge accounting designation and firms' debt financing and investment behavior. This finding is consistent with the theoretical reasoning derived from the standards: the elimination of hedge ineffectiveness and the more flexible documentation requirements afforded under ASU 2017-12 provide stronger relief and lower compliance costs, thereby more effectively encouraging firms to adjust both their accounting practices and capital structure decisions. Despite the magnitude differences, both studies document directionally similar improvements, including increases in hedging activities and

enhanced hedging effectiveness. These shared patterns support the appropriateness of hedge accounting reforms promoted by both the IASB and the FASB and highlight the potential benefits of adopting more flexible and less burdensome hedge accounting standards.

Table 8: Comparison of DID Interaction Coefficients Under U.S. GAAP and IFRS.

Dependent Variable	**U.S. GAAP**	**IFRS**
Effects on Hedge Activities & Hedge Accounting		
Derivative Use	0.398**	1.280**
	(2.006)	(0.580)
Number of Hedged Risks	0.100**	0.223**
	(2.979)	(0.102)
UGLs Hedge Acc Use	0.098***	0.079***
	(3.801)	(0.029)
Effects on Risk Exposures & Cash Flow Volatility		
Firm Risk	−0.002***	-0.185**
	(−5.630)	(0.091)
Interest Rate Exposure	−0.040***	0.129
	(−3.830)	(0.150)
Commodity Price Exposure	−0.076	-0.079
	(−1.401)	(0.097)
FX Rate Exposure	−0.257***	-0.211**
	(−5.984)	(0.102)
Cash Flow Volatility	−0.006***	-0.198**
	(−3.507)	(0.100)
Effects on Debt and Investment		
Debt	0.067***	0.0108
	(6.134)	(0.022)
Debt Issuance	0.023**	0.004
	(2.831)	(0.012)
Investment	0.029**	0.003
	(2.817)	(0.017)
Equity Issuance	0.009	0.027***
	(0.588)	(0.010)

Notes: T-statistics (OLS) in parentheses: ***p < 0.01, **p < 0.05, *p < 0.1. Reported OLS statistics are based on robust standard errors and clustering at the firm level. All variables are defined in appendix A. This table presents coefficients on the interaction variable from difference-in-differences regressions estimated under U.S. GAAP *(ASU 2017-12)* and IFRS *(IFRS 9)*. For H2 and H3 dependent variables, the reported coefficients correspond to *Designated Use * ASU 2017* under U.S. GAAP and *Hedge Accounting Use * IFRS 9* under IFRS, capturing the incremental effect of hedge accounting in the post-reform period relative to the pre-reform regime. *Designated Use* measures the designated amount of hedge-accounted derivatives whereas *Hedge Accounting Use* is a binary indicator of whether derivatives are designated for hedge accounting. Due to constraints in data availability and the granularity of hand-collected information, our IFRS tests rely on indicator-based measures. For H1 dependent variables, under U.S. GAAP the interaction *Hedge Accounting Use * ASU 2017* is used for *Derivative Use*, while *UGLs Hedge Acc Use* relies on *ASU 2017* and *IFRS 9* indicators respectively.

4.4. Additional Analyses

4.4.1. Endogeneity

To mitigate endogeneity issues and strengthen the explanatory power of our empirical results, we employ a combination of parallel trend tests, control variables, and firm and year fixed effects, supplemented by entropy balancing. Figure 1 in Section 3.2 presents the parallel-trend tests, where we examine the pre-IFRS 9 trend of key dependent variables for the treatment and control groups and confirm that both groups exhibit similar pre-event trends in risk exposure and capital structure, thereby validating the suitability of the difference-in-differences model for causal identification. We adopt entropy balancing instead of propensity score matching (PSM), as it delivers better covariate balance, addresses selection bias more effectively, and retains a larger set of observations. When implementing entropy balancing, we include the key covariates that differ between hedge accounting users and non-users as well as other determinants of profitability and financing to generate optimal reweighting for achieving balance. The incremental improvements from entropy balancing relative to the baseline model are discussed in detail in Section 4.2.

Early adoption does not pose a major endogeneity concern in our setting. Our hand-collected *IFRS 9* variable incorporates each firm's actual adoption year, ensuring that the treatment indicator in the DID model reflects firm-specific implementation timing and thus naturally adjusts for early adoption. The control group of non-hedge users mitigates the risks associated with staggered adoption, consistent with the guidance in Baker, Larcker, and Wang (2022).

4.4.2. Robustness Tests

To test the validity of our empirical setting and results, we conduct additional robustness tests focusing on the 2011-2012 IFRS transition period and 2020 COVID-19 period. The motivation to examine 2011-2012 is two-fold: these years reflect the transition from Canadian GAAP to IFRS, and they contain a small and unbalanced number of observations (51 and 59 firm-years respectively, compared with an average of 150 in other years; see Table 1, Panel B). Consequently, the transition years may introduce effects outside the scope of our studied event and may introduce sample selection bias that interferes with regression estimates. Regarding COVID-19 period, since IFRS permits hedge accounting only when transactions are highly probable and an economic relationship exists between the hedged item and the hedging instruments exists, many practitioners suggest that COVID-19 crisis reduced or even suspended firm's hedging activities because risk exposures became highly unpredictable and some distressed firms experienced sharp declines in revenue or operating cash flows, thereby eliminating the need or ability to continue hedge accounting (PwC 2020; KPMG 2021). Academic studies

also routinely exclude COVID years to preserve cleaner results unaffected by macroeconomic shocks.

To assess robustness, we compare the baseline DID estimates with a specification excluding 2011–2012 and another excluding 2020. Based on intuitive reasoning and practitioner evidence, our expectation was that removing these early-transition and crisis-year observations would increase statistical significance. However, as shown in Appendix B, excluding 2011–2012 produces minimal change, aside from a reduced level of significance for *Cash Flow Volatility*, where the p-value increases from the 5% to the 10% threshold. Excluding 2020 reduces the overall level of statistical significance, and *Equity Issuance* becomes the only variable that remains statistically significant, contradicting our intuitive expectation.

These findings indicate that the 2011–2012 observations remain informative despite their reduced count, as the lower number of observations primarily reflects missing data for the control group while the remaining firm-years still contribute meaningfully to the treatment group in the pre–IFRS 9 window. For COVID-19 period, we propose possible explanations as follows: the pandemic shock appears to have affected both *H* and *NH* firms symmetrically, such that the aggregate impact of the crisis is largely absorbed by the year fixed effects; hedging activities may become more salient and divergent between treatment and control groups during periods of heightened uncertainty, with the treatment effect amplified as hedge accounting users benefit from continued hedge accounting while non-users face more unmitigated volatility; removing 2020 observations reduces the already modest post-window sample, thereby excluding observations containing meaningful variation and informational dispersion. Collectively, these factors suggest that excluding either the 2011-2012 transition years or the COVID-19 period removes informative cross-sectional variation rather than teasing out noise, resulting in weakened statistical significance.

4.4.3. Limitations

The first limitation lies in sample selection and data collection. As sample is constructed only on Canadian non-financial listed firms, we obtain 2,103 observations after all necessary screening process. This relatively modest sample size may weaken statistical significance and reduce the explanatory power of our difference-in-differences estimates. In addition to sample size, a portion of sample firms are cross listed, headquartered and listed in Canada but also traded on U.S. exchanges. Although these firms always apply IFRS, their hedging decisions may be influenced by U.S. market conditions or investor pressures. We did not isolate the effects for cross-listed firms due to the limited number of such observations and difficulties in forming a separate test group. Regarding data quality, we rely primarily on Compustat North America, where U.S. firms exhibit higher data quality and granularity than Canadian firms due to differences in market activity and disclosure transparency. This results in higher missing ratios in certain control variables

and compromises some proxies measures for dependent variables, potentially affecting the precision and significance of regression estimates. More fundamentally, because IFRS is a globally adopted standard across multiple European and Asian jurisdictions, evidence based solely on Canadian firms may not generalize to regions with different institutional, regulatory, or reporting environments. Future research could strengthen external validity by incorporating larger multi-country samples or cross-sectional analyses.

Our difference-in-differences model design could also be further refined. Currently, we use a traditional binary model, proxying economic hedging with *Derivative Use* and hedge accounting use with indicator variables capturing designation status, types of risks hedged, and instruments used. Because *Derivative Use* includes both hedged and unhedged derivatives, it is an imperfect proxy for economic hedging and cannot fully distinguish speculative positions from hedging positions. Similarly, the hedge accounting use variables are inferior to a *Designated Use* measure (absolute fair value of hedge-accounted derivatives as a percentage of total assets), which would more precisely quantify usage intensity and capture cross-sectional variation. These limitations arise primarily from restricted disclosures, missing data at database level, and time constraints that hinder more granular hand-collection of qualitative information.

Residual endogeneity can only be mitigated but not fully eliminated. Although we construct a control group of non-hedge users unaffected by the IFRS 9 hedge accounting requirements and apply entropy balancing to align key covariates, inherent differences between treatment and control firms remain, including sectoral composition, size, profitability, and their exposure to macroeconomic trends and volatility. Regarding early adoption, a more cautious approach would involve conducting cross-sectional DID analyses separately for early adopters and mandatory adopters, or estimating stacked regressions as robustness tests to address concerns related to staggered adoption (Baker, Larcker, and Wang 2022).

5. Conclusion

This study examines whether the transformation introduced by IFRS 9's hedge accounting standards affects firms' economic hedging behaviors and real outcomes. IFRS 9 replaced the complex rule-based and operationally burdensome hedge accounting requirements under IAS 39 with a more principles-based framework designed to better reflect entities' risk management practices, expand eligibility for hedge accounting, and simplify hedge effectiveness assessments. Leveraging hand-collected data on hedge accounting designations for Canadian non-financial firms from 2011–2024, we employ descriptive statistics and difference-in-differences empirical models to analyze the incremental effects of IFRS 9 adoption on firms' hedging activities, risk exposures, and capital structure. The empirical design is additionally supported by entropy balancing and robustness tests related to early transition and COVID-19 periods.

We find that IFRS 9 adoption leads to a 13% increase in the number of hedged risks and a 3% increase in the use of hedge accounting. This expanded level of hedging activities combined with improved hedge accounting designation is associated with significant reductions in firm risk exposure (16%) and cash flow volatility (13%), demonstrating more effective hedging. Despite the absence of significant impacts on debt financing and investment, IFRS 9 adopters show an increase in equity issuance by an absolute amount of 2.7%. Furthermore, we find that the real effects documented under IFRS 9 appear directionally similar but less pronounced compared with those under ASU 2017-12, consistent with theoretical differences in hedge ineffectiveness reporting and disclosure requirements.

This study fills the research gap as no prior study has explored and examined the real effects of IFRS 9 hedge accounting standards. By referencing and extending research on ASU 2017-12 under U.S. GAAP, our findings provide evidence on how the principles-based framework affects hedging activities and real outcomes, and clarify the channels through which accounting standards influence corporate risk management behavior. For regulators and practitioners, this study provides insights to evaluate whether IFRS 9 amendments have genuinely reduced preparer burden, improved the alignment between underlying economic hedging and hedge accounting measurement, and enhanced the informativeness of risk management disclosures. This study also highlights the importance of considering cross-regime differences between IFRS and U.S. GAAP. Given the weaker impacts on hedge accounting designation, risk exposure reduction, and debt financing, the IASB may consider further simplifying or increasing the flexibility of hedge accounting requirements.

This study faces limitations related to sample and measurement precision including sample scope, empirical model design, and residual endogeneity, which are detailed in Section 5. Serving as a tractable pilot analysis quantifying the real effects of hedge

accounting reform in IFRS setting, our findings may support and guide future research employing more precise models or broader analytical scopes.

Future work could incorporate more granular hand-collected disclosures to refine measures of hedge accounting intensity or extend the analysis to multi-country IFRS environments. Research could also broaden the scope beyond hedge accounting to the full IFRS 9 framework, which includes financial instrument classification and expected credit loss recognition, thereby exploring how interactions among standard components shape firms' risk management and reporting behaviors. A related topic for future work would be to shift from examining whether and to what extent IFRS 9 has exerted effects to identifying the determinants that amplify or constrain the magnitude of hedge accounting outcomes**,** such as enforcement strength, market conditions, and taxation. Future research could also develop our descriptive contextual benchmarking of hedge accounting standards under IFRS and U.S. GAAP into causal empirical examination by employing integrated cross-standard samples or structural identification approaches.

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7. Appendix

Appendix A: Variable Definitions.

Key dependent variables	
Cash Flow Volatility	Z-score of the standard deviation of quarterly operating cash flows during the most recent two years, scaled by total assets.
Commodity Price Exposure	Z-score of the absolute value of the estimated coefficient from a regression of firms' monthly holding period stock returns on the monthly percentage change in the Producer Price Index for 36 months prior to fiscal-year end.
Debt	Sum of long-term and short-term debt, scaled by lagged total assets.
Debt Issuance	End-of-year long-term and short-term debt minus beginning-of-year total debt, scaled by lagged total assets.
Equity Issuance	Annual increase in the total of common/ordinary stock + capital surplus/ share premium reserve + preferred / preference stock (capital) - treasury stock, scaled by total assets.
Firm Risk	Z-score of the annual standard deviation of the residuals from a market model regression of daily returns on the CRSP value-weighted index.
FX Rate Exposure	Z-score of the absolute value of the estimated coefficient from a regression of firms' monthly holding period stock returns on the monthly percentage change in the Canadian Effective Exchange Rates (CEER) for 36 months prior to fiscal-year end.
Interest Rate Exposure	Z-score of the absolute value of the estimated coefficient from a regression of firms' monthly holding period stock returns on the monthly percentage change in the Canada Treasury Bills (3-month) for 36 months prior to fiscal-year end.
Investment	Change in fixed assets (property, plant, and equipment and intangible assets), scaled by lagged total assets.
Number of Hedged Risks	Number of unique risks (commodity price, interest rate, FX rate) being hedged.
Detailed dependent variables	
Commodity Risk Hedged	Indicator equal to 1 if commodity risk is hedged through derivatives.
FX Risk Hedged	Indicator equal to 1 if foreign currency risk is hedged through derivatives.
Interest Risk Hedged	Indicator equal to 1 if interest rate risk is hedged through derivatives.
Hedging Instrument Types	Number of unique instrument types used.
Commodity Instrument Types	Number of unique commodity instrument types used.
FX Instrument Types	Number of unique FX instrument types used.
IR Instrument Types	Number of unique interest rate instrument types used.
Cross-Currency Swaps	Indicator equal to 1 if cross-currency swaps are used.
Forwards	Number of unique types of forwards and futures used.
FX Debt NIH	Indicator equal to 1 if foreign-denominated debt is designated as a net investment hedge.
Options	Number of unique types of options and other non-linear derivatives used.
Swaps	Number of unique types of swaps used.
Variable of Interest	

IFRS 9	Indicator variable equal to 1 for a firm when it adopts IFRS 9, including both early and mandatory adoption.
Hedge Accounting Use	Indicator equal to 1 if derivatives are designated for hedge accounting in a given firm-year, and 0 otherwise.
Derivative Use	Annual average based on quarterly derivative use defined as the sum of the absolute values of the fair value of all derivative assets and liabilities, scaled by total assets multiplied by 100.
GL Derivative Use	Absolute value of unrealized and realized gain or loss of Derivative Use, scaled by total assets multiplied by 100.
UGLs Hedge Acc Use	Absolute value of unrealized gain or loss of derivative recognized through other comprehensive income, scaled by total assets multiplied by 100.
Treat	Indicator equal to 0 for firms in the control group, defined as non-hedge accounting users that never adopt hedge accounting throughout the entire sample period, and 1 otherwise.
CFH Use	Indicator equal to 1 if cash flow hedges are applied.
FVH Use	Indicator equal to 1 if fair value hedges are applied.
NIH Use	Indicator equal to 1 if net investment hedges are applied.
Controls and Other Variables	
Annual Return	Annualized daily stock returns of a firm.
Big4	Indicator equal to 1 if the firm is audited by a Big 4 audit firm.
BM Ratio	Book value of equity divided by market value of equity.
Cash	Cash scaled by total assets.
Earnings Volatility	Standard deviation of quarterly earnings before extraordinary items during the most recent two years, scaled by total assets.
FE Dispersion	Analyst earnings forecast dispersion, defined as the interanalyst standard deviation of annual earnings forecasts (I/B/E/S) deflated by opening stock price (at beginning of year).
FE Error	Analyst earnings forecast error, defined as the absolute value of the difference between the consensus annual earnings forecast and the actual earnings (I/B/E/S) scaled by opening stock price (at beginning of year).
Foreign Sales	Foreign sales scaled by total revenue.
Interest Burden	Interest expense divided by total revenue.
Inventory	Inventory scaled by total assets.
Leverage	Total liabilities scaled by lagged total assets.
Liquidity	Current assets divided by current liabilities.
Number of Estimates	Analyst following, defined as the total number of analysts following a firm in a given year (I/B/E/S).
Revenue Growth	Year-on-year percentage change in total revenue.
ROA	Return on assets, defined as income before extraordinary items divided by lagged total assets.
SD Returns	Annual standard deviation of a firm's daily stock returns.
Size	Natural logarithm of the sum of market value of equity, total liabilities, and preferred stock.
Tangible Assets	Natural logarithm of the sum of property, plant and equipment, and inventory net of depreciation.
Tax	Income taxes scaled by total assets.

Appendix B: Robustness Tests

Baseline

Dependent Variable	Interest Rate Exposure	Commodity Price Exposure	FX Rate Exposure	Cash Flow Volatility	Firm Risk	Debt	Debt Issuance	Investment	Equity Issuance
*Hedge Accounting Use*IFRS 9*	0.129	-0.0790	-0.211**	-0.198**	-0.185**	0.0108	0.00413	0.00324	0.0270***
	(0.150)	(0.0973)	(0.102)	(0.0995)	(0.0912)	(0.0222)	(0.0117)	(0.0174)	(0.0100)
Hedge Accounting Use	-0.313**	-0.00951	-0.0371	-0.0867	0.0937	0.0268	0.00395	-0.00843	-0.0259***
	(0.152)	(0.0913)	(0.0998)	(0.107)	(0.105)	(0.0290)	(0.00997)	(0.0157)	(0.00856)
IFRS 9	-0.111	0.198	0.0928	0.173	0.183**	-0.0386	0.00701	0.00895	-0.0102
	(0.130)	(0.139)	(0.116)	(0.131)	(0.0863)	(0.0338)	(0.0138)	(0.0209)	(0.0161)
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year
Observations	1,584	1,580	1,657	1,639	1,521	1,584	1,584	1,599	1,589
R-squared	0.263	0.270	0.415	0.314	0.280	0.371	0.157	0.306	0.172

Remove FY2011 & 2012

Dependent Variable	Interest Rate Exposure	Commodity Price Exposure	FX Rate Exposure	Cash Flow Volatility	Firm Risk	Debt	Debt Issuance	Investment	Equity Issuance
*Hedge Accounting Use*IFRS 9*	0.105	-0.0791	-0.225**	-0.193*	-0.188**	0.0127	0.00434	0.00227	0.0288***
	(0.138)	(0.0988)	(0.0983)	(0.0992)	(0.0932)	(0.0224)	(0.0119)	(0.0177)	(0.0104)
Hedge Accounting Use	-0.283**	-0.00845	-0.0183	-0.0919	0.0973	0.0254	0.00349	-0.00842	-0.0281***
	(0.139)	(0.0927)	(0.0959)	(0.109)	(0.108)	(0.0291)	(0.0102)	(0.0162)	(0.00898)
IFRS 9	-0.101	0.193	0.0986	0.172	0.185**	-0.0395	0.00712	0.00979	-0.0107
	(0.127)	(0.141)	(0.116)	(0.131)	(0.0868)	(0.0338)	(0.0139)	(0.0209)	(0.0162)

Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year
Observations	1,555	1,548	1,624	1,595	1,487	1,540	1,540	1,556	1,545
R-squared	0.268	0.271	0.420	0.315	0.277	0.372	0.159	0.307	0.174

Remove FY2020

Dependent Variable	Interest Rate Exposure	Commodity Price Exposure	FX Rate Exposure	Cash Flow Volatility	Firm Risk	Debt	Debt Issuance	Investment	Equity Issuance
*Hedge Accounting Use*IFRS 9*	0.151	-0.0812	-0.136	-0.163	-0.141	0.0124	0.00262	0.000700	0.0251**
	(0.148)	(0.0995)	(0.0954)	(0.103)	(0.0903)	(0.0226)	(0.0121)	(0.0175)	(0.0103)
Hedge Accounting Use	-0.312**	-0.00615	-0.0575	-0.0767	0.0781	0.0264	0.00344	-0.00900	-0.0255***
	(0.152)	(0.0938)	(0.0999)	(0.107)	(0.106)	(0.0293)	(0.0101)	(0.0157)	(0.00862)
IFRS 9	-0.141	0.202	0.0135	0.130	0.141	-0.0394	0.00874	0.0120	-0.00839
	(0.131)	(0.142)	(0.113)	(0.132)	(0.0884)	(0.0337)	(0.0139)	(0.0207)	(0.0163)
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year	Industry Year
Observations	1,446	1,444	1,515	1,499	1,385	1,451	1,451	1,464	1,454
R-squared	0.271	0.283	0.373	0.328	0.239	0.367	0.144	0.282	0.168

Statement on the Usage of Artificial Intelligence ("AI")

This paper makes only limited use of AI. ChatGPT is the sole AI tool applied, and exclusively for two purposes: providing occasional writing refinements and identifying minor coding issues in STATA and Python. For language support, ChatGPT was used strictly to detect grammatical or spelling errors in the manuscript. For coding, it assisted only in identifying mistakes that impeded script execution and in suggesting minor technical improvements. It is important to emphasize that ChatGPT did not generate any original content and exerted no influence on the research design, empirical analyses, or conclusions. Given this limited use, the risks associated with AI are minimal. Nevertheless, AI tools may still introduce errors. To mitigate such risks, all outputs assisted by AI were carefully reviewed and cross-checked by both authors. In summary, although AI had no substantive role in shaping the academic contribution of this paper, it improved the efficiency of the research process and enhanced the paper's presentation.