Institutional Investment and Corporate Risk Management

Xu Han[a], Elaine Laing[a], Yanzhi Wang[b]

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This paper examines the impact of various institutional investment styles on corporate risk management strategies. We find that institutions targeting undervalued firms (value-style) are motivated to monitor firms to adopt currency derivatives, while institutions targeting firms with more growth opportunities (growth-style) have no significant impact on financial hedging. To address endogeneity concerns, we employ a two-stage least squares analysis. We also confirm that value-style institutions play a consistent monitoring role in foreign currency hedging across target firms of varying sizes. Furthermore, value-style institutional ownership is positively associated with hedging decisions in firms with higher debt financing and capital ratios. However, the relation reverses in companies with greater profitability, higher equity financing, and stronger solvency. Lastly, firms invested by institutions favoring a value investment style, a long-term horizon, and larger firm sizes exhibit lower foreign exchange rate risk exposure.

Keywords: institutional ownership, foreign exchange risk, financial hedging

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a: Trinity Business School, Trinity College Dublin, Dublin, Ireland.
b: College of Management, and Center for Research in Econometric Theory and Application, National Taiwan University, Taiwan

1. Introduction

Foreign exchange rate risk management is crucial for firms as it mitigates cash flow volatility, thereby ensuring adequate internal funds, lower expected costs of financial distress, capitalizing on tax advantages, alleviating the underinvestment dilemma, reducing information asymmetry, ameliorating agency conflicts and diminishing firm-level risk exposure (Smith and Stulz, 1985; Froot et al., 1993; Nance et al., 1993; Tufano, 1996; Jin and Jorion, 2006; Hutson and Stevenson, 2010; Mefteh-Wali et al., 2012; Hutson and Laing, 2014; Breeden and Viswanathan, 2015; Hege et al., 2021). Foreign exchange risk arises from unexpected fluctuations in currency rates for multinationals (Jorion, 1999). Aggarwal and Harper (2010) report that 10 - 15% of 1047 U.S. companies are significantly exposed to foreign exchange rate fluctuations over the 1990-2003 period. The most used risk management techniques to minimize foreign currency risk include financial hedging and operational hedging (Bartram et al., 2010). Multinational companies conduct operational hedging by diversifying corporate business to offset foreign costs with foreign sales in the same currency (Hutson and Laing, 2014). Firms mainly utilize derivative instruments, including forwards, futures, options, and swaps, to implement financial hedging (Graham and Rogers, 2002; Kumar and Rabinovitch, 2013; Hutson and Laing, 2014; Hoberg and Moon, 2017; Hege et al., 2021). Kim et al. (2006) find that financial hedging with derivatives plays a much more vital risk-reduction role. Likewise, Bartram et al. (2010) find that operational hedging reduces exposure by 10 to 15 percent, compared to 40 percent for financial hedging.

There is a burgeoning literature on the influence of institutional ownership on corporate activities, including corporate governance, executive compensation, firm performance, mergers and acquisitions, innovation, dividend pay-out, and risk management.[1] Institutional investors exert influence on corporate activities by virtue of their substantial shareholdings, driven by their incentive to monitor managers and provide guidance to the companies in which they invest. Commonly used classification techniques are based on investment horizon and style (Bushee and Noe, 2000; Bushee, 2001; Bushee and Goodman, 2007). Prior studies find that firms with more aggregated institutional ownership tend to hedge more, as they are motivated to monitor managers to hedge against risk and enhance shareholder value (Géczy et al., 1997; Graham and Rogers, 2002; Adkins et al., 2007; Tai et al., 2014). Pathan et al. (2021) find that institutions with longer investment horizons, namely dedicated and quasi-indexer institutions,

[1] Prior studies include Wounaeott and Wonnacott, 1972; Graves, 1990; Coffee Jr, 1991; Jensen, 1993; Karpoff et al., 1996; Bushee, 1998; Chen et al., 1998; Hartzell and Starks, 2003; Grinstein and Michaely, 2005; Khan et al., 2005; Adkins et al., 2007; Chen and Miller, 2007; Chen et al., 2007; Cornett et al., 2007; Ferreira and Matos, 2008; Elyasiani and Jia, 2010; Aggarwal et al., 2011; Chung and Zhang, 2011; Aghion et al., 2013; Cao and Petrasek, 2014; Andriosopoulos and Yang, 2015; Korkeamaki and Xu, 2015; Luong et al., 2017; Sakaki et al., 2017; Massa and Zhang, 2018; Hutson et al., 2019; Mishra, 2022.

positively affect the usage of derivatives in banks, while banks with short institutional shareholdings are less likely to hedge against overall risk. Sayili et al. (2017) examine style investing and investigate the influence of growth- and value-style institutions in corporate innovation. To date, the impact of style investing on target firms' risk management remains unexplored.

We address the research gap and investigate the influence of institutional ownership classified by investment style on foreign exchange hedging. Prior studies focus on institutions classified by investment horizon, such as long-term and short-term. However, we explore the different roles that value-style and growth-style institutions play in determining the likelihood of corporate hedging. We contribute to the literature in several important ways. First, we find that institutions with value-style investing are more likely to monitor managers in overvalued firms with fewer growth opportunities to hedge in order to maximize shareholder value. We do not find that growth-style institutions impact firms with greater growth potential, as firms with more growth opportunities are motivated to hedge regardless of institutional supervision. Second, we address endogeneity concerns by conducting a two-least stage squares analysis and confirm that institutional ownership's influence on hedging is not biased due to reverse causality.

Third, we supplement the evidence of how different institutional ownership types classified by investment horizon affect corporate foreign exchange risk management. Firms with more institutional shareholdings subject to longer investment horizons are more likely to hedge due to constant monitoring. In contrast, transient institutional investors participate in a greater frequency of short-term trades, thereby diminishing their inclination towards monitoring corporate hedging activities compared to long-term institutional investors. Fourth, we explore the influence of institutions with a preference for firm size and growth potential on hedging decisions. We investigate the monitoring role in hedging that value-style institutions play, which is prominent in target firms with either large or small capitalization. In contrast, growth-style institutions do not affect financial hedging decisions regardless of firm size.

Fifth, value-style institutions are consistently motivated to monitor managers to hedge in firms with more debt financing and higher capital ratios, but such motivation diminishes in companies with greater profitability, higher equity financing and stronger solvency.

Finally, our analysis reveals that firms invested by value-style institutions are exposed to less foreign exchange risk owing to enhanced hedging oversight. Notably, the risk mitigation effect is more pronounced for the firms held by institutions with a longer investment horizon, a preference for large capitalization investing and a style of value investing.

The remainder of this paper is structured as follows. Section 2 reviews the related literature and develops the hypotheses. We discuss our data and methodology in section 3. Sections 4 and 5 present the descriptive statistics and multivariate analysis results, respectively. Section 6 summarizes and concludes.

2. Literature Review

2.1 Foreign Exchange Risk Management

There has been a significant amount of literature examining the extent and determinants of exposure to foreign exchange risk in a multinational environment.[2] For example, Hutson and Stevenson (2010) report 11.6% of significant foreign exchange risk exposure over the 1984 - 2003 period. This percentage rises to 14.06% for the 1999 - 2009 period (Hutson and Laing, 2014). In order to minimize the fluctuations of foreign exchange rates, a large number of companies engage in FX risk management by adopting currency derivatives and operational hedging (Allen and Pantzalis, 1996; Carter et al., 2003; Muller and Verschoor, 2006; Bartram et al., 2010). Howton and Perfect (1998) report that around 61% of Fortune 500 S&P companies in the U.S. adopt financial hedging policies, while 173 out of 325 (53.23%) companies use currency derivatives (Gay and Nam, 1998). More recently, Hoberg and Moon (2017) utilize a novel text-based approach to proxy for foreign exchange hedging based on keyword occurrences in 10-K reports, suggesting that 55.3% of firm-year observations are involved in adopting currency derivatives and 71.8% of the sample conduct operational hedging at the firm level. With a proxy of the ABHK index for operational hedging, Aggarwal et al. (2011) report roughly 89% of multinational firms engage in different extents of operational hedging to manage foreign exchange risk.

Prior studies have extensively examined how corporate hedging, as an effective risk management tool, is critical in maximizing firm value (Smith and Stulz, 1985; Froot et al., 1993; Graham and Rogers, 2002). First, hedging with derivatives reduces the expected financial distress costs due to less volatile cash flows and more sufficient internal funds (Mayers and Smith, 1982; Smith and Stulz, 1985; Froot et al., 1993; Nance et al., 1993; Tufano, 1996; Jin and Jorion, 2006; Campello et al., 2011). Second, sufficient internal funds also alleviate underinvestment problems for the company because firms' growth opportunities are not limited to expensive external financing (Froot et al., 1993; Gay and Nam, 1998; Jin and Jorion, 2006). Third, the concave tax function also enables firms to enjoy tax advantages by hedging (Mayers and Smith, 1982; Smith and Stulz, 1985; Griffin and Stulz, 2001). Finally, hedging

[2] Please refer to prior studies (Bodnar and Gentry, 1993; Bartov and Bodnar, 1994; Choi and Prasad, 1995; Bartov et al., 1996; Choi and Elyasiani, 1997; Allayannis and Ofek, 2001; Griffin and Stulz, 2001; Bodnar and Wong, 2003; Hutson and Stevenson, 2010; Hutson and Laing, 2014; Hoberg and Moon, 2017).

firms are required to disclose more information, which essentially reduces the information asymmetries between management and shareholders, potentially lessening agency conflicts (DeMarzo and Duffie, 1995; Mefteh-Wali et al., 2012; Breeden and Viswanathan, 2015). However, another stream argues that managers are motivated to adopt derivatives to hedge because of their level of risk aversion. To minimize their personal exposure and diversify their portfolios, managers hedge out of their interests rather than increase shareholders' value (Smith and Stulz, 1985; Tufano, 1996; Jin and Jorion, 2006). Furthermore, it is precautionary for managers to hedge more as entrenched managers have limited access to their intangible capital or short firm stocks, according to managerial entrenchment theory (Kumar and Rabinovitch, 2013). As managers accumulate firm shares, outside investors' monitoring and advisory functions in non-value-maximization behaviors are impaired (Demsetz, 1983; Fama and Jensen, 1983).

Furthermore, prior research has extensively investigated the factors influencing financial hedging against foreign exchange risk based on a firm's motivation to hedge. The degree of financial leverage increases the likelihood of financial hedging due to relieve financial distress dilemma (Berkman and Bradbury, 1996; Leland, 1998; Haushalter, 2000). Moreover, firms with lower liquidity are less exposed to foreign exchange rate fluctuations (Berkman and Bradbury, 1996; Muller and Verschoor, 2006). Other firm-specific characteristics, including firm size, market-to-book ratio and return-on-assets (ROA), are found to be positively associated to hedging likelihood and negatively related to firm foreign exchange risk exposure (Froot et al., 1993; DeMarzo and Duffie, 1995; Graham and Rogers, 2002; Kumar and Rabinovitch, 2013; Rampini et al., 2014; Doshi et al., 2018; Kuzmina and Kuznetsova, 2018). Furthermore, the quality of corporate governance has also become a focus of corporate financial and risk management literature. Lel (2012) demonstrates that firms with better governance quality are more likely to hedge due to the value maximization property of financial hedging. Hege et al. (2021) establish that firms with advanced corporate governance mechanisms mandated by the 2002 Sarbanes-Oxley are more likely to be involved in hedging and, hence, less exposed to exchange rate risk. From the perspective of the board, firms with more independent directors on the board are more likely to hedge, as a higher percentage of independent directors indicates stronger corporate governance with more board independence and effectiveness (Cyert et al., 2002; McShane et al., 2011).

2.2 Institutional Investment

Prior studies have found that institutional investors, as external corporate governance entities, play a critical role in monitoring and advisory (Coffee Jr, 1991; Jensen, 1993; Burns et al., 2010; Sakaki et al., 2017). A significant body of research has investigated the link between institutional stock ownership and corporate activities including corporate governance (Karpoff et al., 1996; Chen et al., 2007; Ferreira

and Matos, 2008; Aggarwal et al., 2011; Chung and Zhang, 2011), executive compensation (Hartzell and Starks, 2003; Khan et al., 2005), firm performance (Cornett et al., 2007; Elyasiani and Jia, 2010), corporate M&A (Chen et al., 2007; Andriosopoulos and Yang, 2015), R&D investment (Graves, 1990; Bushee, 1998; Chen and Miller, 2007; Mishra, 2022), dividend policy (Grinstein and Michaely, 2005), corporate innovation (Aghion et al., 2013; Luong et al., 2017) and risk management practices (Chen et al., 1998; Whidbee and Wohar, 1999; Carter et al., 2003; Cao and Petrasek, 2014; Korkeamaki and Xu, 2015; Massa and Zhang, 2018; Hutson et al., 2019).

Concerning institutional ownership, prior studies have extensively examined different types of institutional investors and their influence on corporate activities (Callen and Fang, 2013; Minton and Schrand, 2016; Pathan et al., 2021). Typical classification schemes of institutional investors include the legal types and types based on investment horizon and style[3]. Legal types of institutions mainly include bank trusts, insurance companies, investment advisors, pensions, and endowments, as specified by Thomson Financial. According to the institutional classifications[4], institutions are classified based on (i) investment style, (ii) investment horizon, and (iii) investment preference for certain firm size and growth.

The classification of institutional investment horizon by Bushee (2001) and Bushee and Noe (2000) has been actively used in prior studies (Chen et al., 2007; Minton and Schrand, 2016; Francis et al., 2017) to proxy for short-term and long-term oriented institutions. Pathan et al. (2021) examine the institutional investment horizon and bank risk, suggesting that short-term orientated institutional shareholdings cause increased bank risk, while long-term institutions tend to reduce bank risk. Short-term institutional investors are regarded as less motivated monitors who promote managerial myopia (Kahn and Winton, 1998; Maug, 1998; Bolton et al., 2006; Pathan et al., 2021). On the other hand, shareholders with longer investment horizons tend to monitor management properly, and thus, firms with longer-term institutional investors are better at mitigating risk (Elyasiani and Jia, 2010; An and Zhang, 2013; Appel et al., 2016; Harford et al., 2018; Fu et al., 2021; Gibson Brandon et al., 2022). Francis et al. (2017) utilize the relative dedicated institutional shareholdings to transient institutional shareholdings as a proxy for corporate governance, as a greater proportion of dedicated institutional ownership improves external monitoring.

Quasi-index institutions diversify their portfolios by buying and holding the constituent stocks of

[3] Please refer to Bushee, 1998; Bushee and Noe, 2000; Bushee, 2001; Abarbanell et al., 2003; Bushee and Goodman, 2007; Blouin et al., 2017.

[4] The institutional investor classification data is published at https://accounting-faculty.wharton.upenn.edu/bushee/iivars/

indices (Bushee, 1998). Prior studies indicate that quasi-indexers are motivated to monitor as they are in a long-term investment position (Monks and Minow, 1995; Pathan et al., 2021). However, Porter (1992) argues that quasi-indexers are less motivated to monitor or seek information due to their passive and fragmented ownership structure. Other research discusses quasi-indexers' influence separately from dedicated and transient institutions (Callen and Fang, 2013). However, Chen et al. (2007) find similar results between dedicated and quasi-index institutional investors when examining the different monitoring roles of institutions in post-merger performance.

Regarding the second classification scheme of institutions, Abarbanell et al. (2003) adopt factor and cluster analysis to classify institutions according to investment styles of institutions as well as firm characteristics of target firms, where institutional investors are classified into large-value, large-growth, small-value, and small-growth. Bushee and Goodman (2007) further examine value- and growth-style groups, which are closely related to informed trading due to the specialization in firm valuations, information interpretation, and gathering. Value-style institutions prefer undervalued firms, while growth-style institutions prefer outperforming peers (Barberis and Shleifer, 2003; Bushee and Goodman, 2007; Wahal and Yavuz, 2013). Similarly, Barberis and Shleifer (2003) examine empirical anomalies of value, growth, and other style-related investing.

2.3 Institutional Investment and Corporate Risk Management

Institutional investors play a critical monitoring role in corporate risk management practices, including interest rate risk, foreign exchange risk, credit risk, liquidity risk, as well as holistic risk management (Adkins et al., 2007; Pagach and Warr, 2011; Cao and Petrasek, 2014; Korkeamaki and Xu, 2015; Liu et al., 2018; Massa and Zhang, 2018; Hutson et al., 2019). In particular, Massa and Zhang (2018) examine the relationship between foreign institutional investors and corporate hedging, suggesting a more substantial positive impact of hedging on foreign institutional ownership in countries with lower transparency. Similarly, the results reported in Liu et al. (2018) with a sample of Chinese companies also support the notion that institutional investors enhance corporate governance transparency. Cao and Petrasek (2014) investigate the negative association between different legal types of institutional ownership and stock liquidity risk. Korkeamaki and Xu (2015) find that institutional investors involved in actively managing FX risk are more likely to invest in firms with higher foreign exchange risk exposure. Hutson et al. (2019) investigate the influence of external governance mechanisms with a sample of Chinese firms and find that firms with higher mutual fund ownership are less exposed to foreign exchange risk. Fok et al. (1997) present the mean difference results suggesting a positive relationship between institutional ownership and hedging. According to Whidbee and Wohar (1999), institutional investors with large stockholdings are motivated to monitor managers due to their

substantial ownership interest in the firm. Adkins et al. (2007) focus on US companies held by banks, suggesting that managers in firms with greater institutional ownership are more likely to be incentivized to adopt currency derivatives. Moreover, a positive relationship between aggregated institutional ownership and the usage of currency derivatives has also been investigated in other previous research (Géczy et al., 1997; Graham and Rogers, 2002; Tai et al., 2014). In addition to traditional risk techniques, Pagach and Warr (2011) find that firms invested more by institutional investors are more likely to conduct holistic risk management activities due to more incentives for CEOs.

In general, institutional investors with aggregated stock ownership tend to have a more advanced grasp of publicly accessible information than individual investors, primarily due to the characteristics inherent to institutional entities (Kumar, 2009). On the other hand, transient institutional investors tend to exploit tremendous advantages from information asymmetry by active trading compared to other categories of institutional investors (Chakravarty, 2001; Ke and Ramalingegowda, 2005; Sias et al., 2006; Yan and Zhang, 2009). Likewise, a hedge fund is characterized as "the best-informed institutional investor" by Parrino et al. (2003). Hence, firms with a greater proportion of dedicated and quasi-index institutional shareholdings are more likely to conduct hedging. Thus, firms are less exposed due to their shareholder value-maximization property. In contrast, transient institutions are less motivated to monitor and 'push' firms to conduct risk management as transient investors are involved in active trading, where 'their myopia' is associated with shorter-term orientation. Pathan et al. (2021) report consistent results suggesting that long-term institutional shareholdings are significantly and positively related to the derivative hedge ratio, while short-term institutional shareholdings have a significant and negative impact on hedging.

To date, research on the influence of different types of institutional investors on corporate risk management has focused on investment horizons or legal types. Nevertheless, the influence of institutional investors classified by past investment styles has not yet been examined. This paper aims to fill this literature gap by examining how value and growth-style institutional investors classified by their past investment styles affect financial hedging. Specifically, we will test the following two hypotheses.

Hypothesis 1: Value-style institutional shareholding is significantly associated with corporate financial hedging.

Hypothesis 2: Growth-style institutional shareholding is significantly associated with corporate financial hedging.

3. Data and Methodology

3.1 Sample

Our study utilizes a comprehensive data sample consisting of 13,651 observations from 1,088 unique non-financial companies listed in the Standard and Poor 1500 index from 2000 to 2020. We remove the firms in the financial industry with SIC codes of 6000 and 6999 because such firms are mostly market-makers of currency derivatives and thus are motivated to hedge differently than companies in other industries (Allayannis and Ofek, 2001). Furthermore, financial companies are subject to distinct business models and industry regulations compared to non-financial firms (Ahmed and Duellman, 2013). The data for control variables are collected from the DataStream, Capital IQ, and ExecuComp databases. We utilize institutional holdings data obtained from the Securities Exchange Commission (SEC) 13F filings. A detailed description of the variables and data sources utilized in our study is provided in Table 1.

3.2 Dependent Variable

Financial Hedging

The primary dependent variable is constructed with a text-based method to proxy for corporate derivatives usage against foreign exchange rate risk. The underlying algorithm is to identify relevant keywords from the annual reports, which have been broadly used in prior research and further refined over time.[5]

In this study, we follow Hoberg and Moon (2017) to use the same algorithm methodology to proxy for financial hedging against foreign exchange rate risk. To implement this approach, we employ a Python crawler program to search each firm's 10-K filing, available in the Electronic Data Gathering, Analysis and Retrieval system (EDGAR) database on the U.S. Securities and Exchange Commission (SEC) website. The crawler program enumerates keyword occurrences from three wordlists identical to those used in Hoberg and Moon (2017). Consistent with Hoberg and Moon (2017), we require that at least one word from each of the three wordlists *(detailed below)*, including their plural forms, appear within the same paragraph with a minimum distance of 25 words between any two keywords.[6][7]

5 For example, please see Guay, 1999; Graham and Rogers, 2002; Kim et al., 2006; Campello et al., 2011; Hoberg and Moon, 2017; Nguyen et al., 2019; Alexandridis et al., 2021; Hege et al., 2021; Sun et al., 2021.

6 False-positive word mentions are excluded from our results, such as phrases of "in the future", "forward-looking", or negative statements regarding hedging activities such as "do not use", "do not hedge", "do not enter", etc.

7 We utilized an enumerating programme developed in Python to obtain financial hedging data for the period spanning 2000 to 2020. We test the accuracy of the financial hedging data collected by first calculating the

(A) “currency”, “foreign exchange”

(B) “forward”, “future”, “option”, “swap”, “spot”, “derivative”, “hedge”, “hedging”, “hedged”

(C) “contract”, “position”, “instrument”, “agreement”, “obligation”, “transaction”, “Strategy”.

A binary variable is generated from raw mentions of hedging to indicate foreign currency hedging *(HEDGE)*, taking the value of 1 when hedge mentions exceed 0, and 0 otherwise. We use a linear probability model to estimate the likelihood of corporate financial hedging. The results remain robust when we utilize Logistic (Logit) regression models to explain the binary hedging variable, and our results remain robust under Probit regression models.

3.3 Independent Variable

We use the percentage of institutional shareholdings of different types of institutional investors. Institutional investors are classified into dedicated, transient and quasi-index based on their investment horizon (Bushee and Noe, 2000; Bushee, 2001). Following Bushee and Goodman (2007), we include the value (*VAL*) and growth (*GRO*) institutional ownership based on their investment preference for value or growth target firms. Moreover, we also refer to Abarbanell et al. (2003) to classify institutions into four types based on their past investing styles, which present a preference for the capitalization and growth potential of target firms, including large value (*LVA*), large growth (*LGR*), small value (*SVA*) and small growth (*SGR*) institutions.[8] We follow Aghion et al. (2013) and Sayili et al. (2017) to first compute the ownership percentage held by each institutional investor in each firm during every calendar quarter for each type of institutional shareholding. Next, we calculate the cumulative ownership percentages across all institutional investors of the same type for a specific firm in a given quarter. Finally, we average cumulative ownership percentages for each institutional ownership type within each company across quarters throughout the calendar year.

3.4 Control Variables

Firm size. Firm size positively influences the use of corporate derivatives due to economies of scale (Hagelin and Pramborg, 2006; Bodnar et al., 2011; Hutson and Laing, 2014). Hence, we predict a

Spearman rank correlation between our raw hedging mentions data and the FX raw mentions released in the Hoberg and Moon (2017) data library. The resulting correlation coefficient is 0.7913, significant at the 1% level, which indicates a high level of correlation between our hedging data and theirs. Secondly, we randomly select 2% of our firm-year observations and manually cross-check our results by reviewing the relevant 10-K files. Our accuracy rate is 87%, consistent with the accuracy rate of 87% reported in Sun et al. (2021) and within the range of 80%-97% reported in Hoberg and Moon (2017).

[8] We sincerely thank Dr. Brian Bushee for providing the relevant classification data at https://accounting-faculty.wharton.upenn.edu/bushee/

positive relation between firm size control and FX hedging. We use total assets to proxy for firm size.[9]

R&D/sales ratio. Per Miller and Reuer (1998), R&D expenses indicate the degree of business differentiation. Therefore, companies with greater R&D expenditure are more likely to conduct hedging to ensure sufficient internal funds which support their projects. We utilize the ratio of research and development expenses over sales (*RD*) as a proxy for business differentiation (Géczy et al., 1997; Hege et al., 2021).[10]

Leverage. Corporate hedging can lower the risk of financial distress (Smith and Stulz, 1985) and potential underinvestment risk due to decreased need for expensive external funds (Froot et al., 1993). Several prior studies have presented significant positive results regarding the impact of leverage on hedging (Dolde, 1993; Froot et al., 1993; Géczy et al., 1997; Haushalter, 2000). Thus, firms with higher degrees of leverage tend to hedge more (He and Ng, 1998; Kim et al., 2006).

Quick ratio. Companies with greater liquidity have access to sufficient internal funds, which reduces the expected cost of financial distress and alleviates underinvestment problems, resulting in less financial hedging (Nance et al., 1993; Géczy et al., 1997). A negative association between firm liquidity and hedging activities has been examined in prior studies (Kim et al., 2006; Hutson and Laing, 2014). Firm liquidity is proxied by the quick ratio (*QUICK*), measured by the difference between current assets and inventories over current liabilities.[11]

ROA. Mixed findings on the relationship between profitability and hedging have been provided in previous research, as less profitable companies are more likely to adopt hedging to lower financial distress costs and lessen the underinvestment problem (Graham and Rogers, 2002; Kuzmina and Kuznetsova, 2018); however, others investigate the positive association between hedging and return on total assets (ROA) due to economies of scale effects in hedging costs (Allayannis and Ofek, 2001; Iatridis, 2012). We utilize the return on total assets *(ROA)* as a proxy for firm-level profitability.

ABHK. ABHK index measures firm multinationality, ranging from 1 to 7, with 1 for domestic firms, 2 for regional firms, 3-6 for transregional firms, and 7 for global firms. We follow Aggarwal et al. (2011) to manually collect subsidiary data from Exhibit 21 and compute the ABHK index for each firm-year. Hutson and Laing (2014) find an inverse U-shaped non-linear relation between operational hedging proxied by multinationality and FX financial hedging, as firms with low multinationality

[9] We take the natural logarithms of sales revenue to reduce the skewness bias.
[10] We take the natural logarithms of R&D/sales ratio to reduce the skewness bias.
[11] We take the natural logarithms of quick ratio to reduce the skewness bias.

adopt currency derivatives to manage foreign exchange risk after entering the global market at an earlier stage and then reduce the use of financial FX hedging as they benefit from decreased indirect FX exposure brought by operational hedging when firms become more multinational.

Industry dummies. We follow Hutson and Stevenson (2010) and Harford et al. (2018) also to include industry-year fixed effects to control for unobserved heterogeneity at the industry-year level. On econometric grounds, the popular approach of including industry-year fixed effects dominates adjusting by the industry-year mean (Gormley and Matsa, 2014). We utilize a 2-digit SIC code to derive industry dummies for each industry group in order to control for industry-fixed effects.

4. Summary Statistics and Correlation Analysis

Table 2 reports summary statistics for the variables we examine for the multivariate analysis. The mean value of the hedge dummy is 0.65, which indicates that 65% of firms in the sample engage in currency hedging, mainly similar to the statistics reported in prior studies, such as 55.3% reported in Hoberg and Moon (2017) for the 1997 – 2011 period and 59.6% presented in Qiu (2019) for the 1996 – 2013 period. The mean and median absolute FX exposure are 0.48 and 0.33, respectively. The mean absolute exposure for the US from 1984 – 2003, reported by Hutson and Stevenson (2010), is 0.41.

The mean value of institutional ownership percentages for the value (*VAL*) and growth (*GRO*) types are 19% and 14%, respectively, which is similar to the mean values for value and growth institutional ownership, 14% and 10%, reported in Sayili et al. (2017) for the 1991 – 1999 period. Comparatively, the mean and median ownership percentages presented by Huang and Paul (2017) for the 1981 – 2011 period are 23.75% and 14.35% for the value style institutional investors in non-dividend-paying firms, while the corresponding mean and median statistics for the growth style institutional investors are 25.97% and 16.74%, respectively.

Based on the summary statistics, we find that the average and median institutional ownership percentages of long-term institutions are dramatically larger than those of short-term institutions. For example, the mean long-term ownership is 58%, compared to 18% for transient institutions. Our result is the same as the figures published by Laksmana et al. (2023), where the mean ownership percentage of transient institutions is 18%.

Regarding the classification based on the dimensions of capitalization and valuation, the ownership percentage of large value (LVA) institutions exhibits the largest mean and median among the four institution groups, 0.23 and 0.23, respectively. The ownership percentage of the large growth (LGR)

group presents the smallest mean and median values, 15% and 19%, respectively. Yüksel (2015) also uses the classification data released by Abarbanell et al. (2003), where they report the mean institutional ownership percentages for LVA, LGR, SVA, and SGR groups from 1981 to 2012 are 27.40%, 24.22%, 21.28% and 26.25%, respectively. Our statistics are close to the mean value reported by Yüksel (2015).

Table 3 presents the Spearman Rank correlation matrix. The correlation coefficients suggest a significant negative relationship between FX risk exposure and hedging at the 1% level. We find that neither value nor growth style institutional ownership significantly correlates with hedge mentions, but growth (GRO) institutions positively correlate with risk exposure, and we will investigate this further in multivariate analysis. The ownership held by large-value (LVA), large-growth (LGR), small-growth (SGR) and long-term (LONG) institutions is positively correlated with hedge mentions and inversely correlated with risk exposure. In contrast, small-value (SVA) institutional ownership is negatively correlated with hedging at the 10% level or better.

5. Multivariate Analysis

5.1 Baseline Results

Table 4 exhibits the results for baseline regressions of hedging likelihood on different types of institutional ownership and other determinants of hedging decisions. We include institutional ownership held by institutions with value (VAL) and growth (GRO) styles separately in columns (1), (2), (4) and (5) under industry-year fixed effects and firm-year fixed effects, respectively. Higher ownership held by value-style institutions significantly increases firm hedging likelihood at the 5% level or better. In contrast, growth-style institutional ownership does not have a prominent influence on corporate hedging decisions. Institutions classified as growth investment style target firms with more growth opportunities, where firms with more growth opportunities are more likely to conduct financial hedging because it generates more internal funds and relieves the underinvestment dilemma (Froot et al., 1993; DeMarzo and Duffie, 1995; Kumar and Rabinovitch, 2013). Hence, growth-style institutions are less motivated to monitor managers to hedge as the investee companies are already at a higher hedging level. On the contrary, institutions classified as value investment style target undervalued firms with fewer growth opportunities, so value-style institutions are more motivated to engage in corporate hedging strategies to maximize shareholder value, indicating a positively significant association between value-style institutional ownership and hedging likelihood. Value-style institutions increase the hedging likelihood by roughly 16% - 24% of target firms. Columns (3) and (6) present the results for the impact of value and growth-style institutional ownership on hedging likelihood, which generates consistent results without being affected by multicollinearity.

The results for other determinants are also consistent with the findings in prior studies. *SIZE* significantly and positively impacts the hedging likelihood at the 1% level, suggesting that larger firms are more likely to use currency derivatives due to economies of scale. In prior research, R&D expenses over total sales positively influence corporate usage of currency derivatives. Due to the mismatch between foreign revenues and domestic costs, firms with long-term R&D projects are motivated to conduct hedging to ensure sufficient internal funds to support their projects (Géczy et al., 1997; Lewent and Kearney, 2008). However, our study does not find an insignificant impact of R&D proportion on hedging. We find that liquidity impacts hedging adoption at the 10% significance level or better, suggesting that firms are more resilient to financial distress when holding liquid assets, resulting in reduced necessity of hedging (Nance et al., 1993; Géczy et al., 1997; Kim et al., 2006; Hutson and Laing, 2014). We follow Hutson and Laing (2014) and Hege et al. (2021) to include the square of ABHK because of a nonlinear relation between multinationality and the hedging variable. The coefficients of the squared terms of the multinationality measure are all negative and significant at the 5% level or better, implying that firms increase the usage of currency derivatives as the firm multinationality level rises and decrease the usage when firms are highly multinational, which enables firms to benefit from natural hedging and fully operational hedging (Hutson and Laing, 2014). In baseline regressions, we do not find that leverage or profitability impacts hedging, but similar insignificant evidence also appears in prior studies.[12]

We follow Aggarwal et al. (2011) to conduct a sensitivity test and present results in Table 5 for changes in hedging, institutional ownership and other control variables from time *t-1* to *t*. We individually present the industry-year fixed effects results for VAL and GRO institutional ownership in columns (1) and (2). The change in value-style institutional ownership significantly and positively impacts the change in corporate hedging decisions at the 5% level, consistent with baseline regression results in Table 4. In line with the findings from Table 4, the change in stockholdings by growth-style institutions has no significant influence on the shift in financial hedging. Unaffected by the multicollinearity bias, the results for the change in value-style and growth-style institutional shareholdings hold in column (3) when the variables of *VAL* and *GRO* are both included in the same regression. The results are similarly supportive of our hypothesis when we estimate the regressions with firm fixed effects in place of industry fixed effects (see, e.g., columns (4) – (6)). We also include the results estimated from logistic models with firm-year and industry-year fixed effects included in Appendix A1.

[12] For example, insignificant empirical evidence can be found in Graham and Rogers (1999), Allayannis and Ofek(2001), Kim et al. (2006) and Kuzmina and Kuznetsova (2018).

5.2 Two-stage Least Squares Instrumental Variables (2SLS-IV)

Target companies ' hedging policies do not endogenously affect the methodology utilized to classify value-style and growth-style institutions. However, reverse causality generally exists between institutional ownership and hedging because firms could potentially attract certain types of institutional ownership by altering their hedging policies. For example, hedging firms are more likely to attract additional foreign institutional investors (Massa and Zhang, 2018). To further ameliorate the endogeneity concerns between institutional ownership and the usage of currency derivatives, we introduce two instrumental variables, namely, the mutual fund flow (MFF) and the annual Russell 1000/2000 index reconstitution, to conduct a two-stage least squares analysis.

We follow Barber et al. (2016) to use the percentage growth of new assets to calculate mutual fund flow.

$$F_{p,m,t} = \frac{TNA_{p,m,t}}{TNA_{p,m-1,t}} - (1 + R_{p,m,t})$$

Where $TNA_{p,m,t}$ is the total net assets managed by mutual fund p at the end of month m in a given year t, $TNA_{p,m-1,t}$ is the total net assets managed by mutual fund p at the end of month m -1, and $R_{p,m,t}$ is the total rate of return of fund p in month p. Next, we sum up the monthly percentage growth of new assets to obtain the annual mutual fund flow. Lastly, we sum up each firm's annual mutual fund flow in a given year t.

We exhibit the two-stage least square (2SLS) analysis results in Table 6, where the first-stage results in columns (1) and (3) suggest that mutual fund flow is positively and significantly corrected with institutional ownership, as mutual fund flow measures the percentage growth of new assets managed by the mutual fund, which is positively correlated with shareholdings of target companies. Furthermore, the determinants of mutual fund flow have been discussed in prior studies (such as Del Guercio and Tkac (2002) and Sirri and Tufano (1998)), indicating that fund flow as an instrumental variable is uncorrelated with corporate hedging decisions. However, fund flow indirectly affects the usage of currency derivatives only by the channel of affecting institutional ownership. Columns (1) and (3) of Table 6 contain the first-stage results with the dependent variable of value and growth-style institutional ownership, indicating that mutual fund flow is positively associated with both institutional ownership types.

We conduct three diagnostic tests to check the validity and relevance of the instrument. First, the Cragg-Donald Wald F Wald F-statistics, compared with the Stock–Yogo critical values at 5%, rule out weak instrument problems (Stock and Yogo, 2005). Second, the Kleibergen–Paap rank Lagrange multiplier

statistics are relatively large (41.14 and 44.19, respectively) and significant, with p-values both approaching 0.00, suggesting the instrument of fund flow is not underidentified. Third, the overidentification test for all instruments is also valid as the Hansen J-statistic p-values reported in columns (2) and (4) are 0.18 and 0.52, respectively, both in excess of 0.10 (Baum et al., 2003).

Columns (2) and (4) show the results for the second-stage regression, where the dependent variable is corporate hedging decisions. Consistent with the baseline results in Table 4, value-style institutional ownership is positively related to hedging at the 1 % level, while growth-style institutional shareholdings have no significant influence on hedging.

We also conduct another two-stage least square (2SLS) analysis with the Russell 1000 addition instrument.[13] Boone and White (2015) find a discontinuity in institutional ownership of firms positioned around the Russell 1000/2000 cut-off, especially for the quasi-indexer institutional ownership. The addition to the Russell 1000 leads to a proportional drop in value-style institutional shareholdings and an increase in growth-style institutional ownership, as value-style institutions prefer firms with larger market capitalization, resulting in a decline in the shareholdings of firms at the bottom of the Russell 1000 due to the value-weighted nature of the Russell indexes. Firms added to the Russell 1000 from the Russell 2000 are being held more by growth-style institutions since such institutions have a preference for firms with greater growth potential. The second stage regression results show that value-style institutions positively impact hedging and growth-style investors do not influence hedging. The post-test results also suggest that our instruments are valid.[14] The coefficients on value-style institutional shareholdings in both 2SLS regressions are positive and significant at the 10% level or better, confirming the causality between value-style institutions and corporate hedging decisions after addressing endogeneity concerns.

5.3 Sub-sample Analysis

We further conduct sub-period analysis for sub-samples to examine how value and growth-style institutional ownership affect corporate risk management in different periods. We exhibit the sub-period analysis results in Appendix A2, with columns (1) – (6) for the three periods of 2000 – 2010, 2011 –

[13] For the sake of brevity, we do not present the results in the main tables, but they are available upon request. .

[14] For example, the Cragg-Donald Wald F Wald F-statistics are 36.14 and 46.91 which are much higher than the Stock–Yogo critical values of 13.91 at the 5%, alleviating weak instrument problems (Stock and Yogo, 2005). Besides, the p-values of Kleibergen–Paap rank Lagrange multiplier statistics are 0.00, suggesting that the null hypothesis that the instrument is underidentified is rejected. Moreover, the Hansen J-statistic p-values are 0.57 and 0.31, respectively, both in excess of 0.10, implying that the overidentifying restrictions are valid, i.e., uncorrelated with the error term (Baum et al., 2003).

2020, and full period excluding the Global Financial Crisis (GFC). We find that value-style institutional ownership consistently has a significant positive impact on corporate usage of currency derivatives at the 5% level or better over the three time periods, and the coefficients of *VAL* suggest that value-style institutional ownership affects hedging likelihood more in the 2000s than in the 2010s (0.3240 versus 0.2170). Growth-style institutional shareholding does exhibit a significant impact in any period.

5.4 Other Types of Institutional Ownership

Classified by Bushee and Noe (2000) and Bushee (2001), based on the investment horizon, dedicated and quasi-indexer institutions have a longer investment horizon than transient institutional investors. We follow Chen et al. (2007) and Pathan et al. (2021) to group dedicated and quasi-indexer institutions as long-term institutional shareholdings concerning the discussion of the influence of investment horizon on corporate risk management. We find that long-term institutional ownership significantly influences corporate hedging likelihood at the 1% level, as reported in columns (1) and (3) in Table 7. Institutions with longer investment horizons tend to actively engage in monitoring managers, and therefore, firms with longer-term institutions are more motivated to conduct financial hedging to increase shareholder value (Chen et al., 2007; Kumar and Robinovtch, 2013; Pathan et al.,2021). In contrast, transient institutions usually invest in a large number of firms for a shorter time span, so they are not expected to be motivated to monitor corporate hedging activities versus long-term institutional investors (Maug, 1998; Bolton et al., 2006; Pathan et al., 2021). Consistently, from the results reported in columns (2) and (3), we find that transient institutional ownership does not significantly impact hedging likelihood. We then control for firm-year fixed effects and report consistent regression results in columns (4) – (6) as industry-year fixed effects.

Table 8 presents the results for the impact of institutional ownership classified by investment styles and preferences for firm size and growth. The definitions for the four variables are illustrated in Section 3.3. Columns (1) – (4) show the results for four interacted institutional ownership types, respectively. We find that institutions with value investment style, regardless of the preference for firm size, positively and significantly affect corporate hedging decisions at the 5% level. Furthermore, the magnitudes of coefficients imply that value-style institutions with a preference for large-size firms have a greater positive impact on hedging likelihood than those with a preference for small-size firms (0.1249 > 0.1091 in columns (1) and (3); 10.1178 > 0.1064 in column (7); 0.1035 > 0.1033 in column (9)), as large-value style institutions are actively involved into monitoring and advising management regarding currency hedging. Moreover, the roles that large-growth and small-growth institutions play in corporate hedging are not prominent, as neither large-growth nor small-growth institutional ownership is significantly associated with hedging likelihood. The results for LGR and SGR remain similar when the two variables

are included in the same regression model, as presented in columns (8) and (9). The results are consistent when we replace firm-year fixed effects with industry-year fixed effects.[15]

5.5 Robustness Check

We further explore institutional investors' role in hedging propensity by interacting value-style institutional ownership with other firm characteristics. In Table 9, column (1) exhibits the results for the interaction terms between value-style institutional ownership and return on capital employed (*ROCE*), demonstrating that profitable firms with more value-style institutional ownership are less likely to hedge. Prior studies find that less profitable companies are inclined towards hedging to mitigate the impact of financial distress and alleviate underinvestment concerns, consequently implying a negative relationship between profitability and hedging (Graham and Rogers, 2002; Kuzmina and Kuznetsova, 2018). Based on the findings in baseline regressions, value-style institutions are motivated to monitor managers to hedge in firms, but such motivation is diminished in the companies with greater profitability. In column (2) of Table 9, value-style institutional ownership is found to significantly and negatively influence the probability of firm hedging at the 1% level in the firms with higher equity capital ratios over total invested capital. Firms with more equity financing than debt financing are less leveraged, resulting in less propensity to hedge to increase internal funds (Froot et al., 1993). Hence, our results indicate that more leveraged firms invested by value-style institutions are less likely to conduct hedging. Correspondingly, the result in column (3) implies that firms invested by value-style institutions present a high tendency to hedge when the capital invested is composed of a larger proportion of debt, as firms with more debt financing are more leveraged, whereas firms with greater financial leverage are more motivated to hedge to increase internal funds. *CAPRATIO* is the capitalization ratio, which measures the proportion of total debt in a firm's capital structure. Similar to the result for *DBTINVCAP*, firms with more debt in the capital structure invested by value-style institutions are more likely to engage in financial hedging due to the need for sufficient internal funds. We also interact interest coverage ratio with institutional ownership and exhibit results in column (5). We find that firms with higher interest coverage ratios invested by value-style institutions are less likely to hedge. Firms with higher interest coverage ratios are deemed to be poised to pay off debts, suggesting a lower probability of encountering financial distress (Géczy et al., 1997). In line with prior findings, firms with higher interest coverage ratios are less exposed to financial distress, resulting in a lower probability of hedging. While value-style institutions are motivated to monitor managers to hedge in

[15] We present the industry-year fixed effects regression results in Internet Appendix A3 for the sake of brevity.

firms, such motivation is diminished in companies with stronger solvency.[16]

We control corporate governance to conduct an additional robustness check for the impact of institutional ownership on corporate hedging decisions. Table 10 presents the results with panel A for the industry-year fixed effects and panel B for the firm-year fixed effects estimations. The results remain robust after controlling for governance-related factors, including the proportion of independent directors on board, CEO duality, CEO turnover in a given year, CEO tenure, CEO shareholdings, and CEO cash ratio. However, we do not obtain evidence that governance-related variables have a significant impact on hedging.

5.6 Institutional Ownership and Risk Exposure

Aggregated institutional ownership has been found to reduce corporate foreign exchange risk exposure in prior studies where mutual funds, as an external governance entity, are motivated to monitor firms to manage risk exposure (Hutson et al., 2019). Other research explores the risk-reduction role that different legal types of institutions play in target firms (Cao and Petrasek, 2014). Hence, we perform an additional test to investigate the relation between institutions, classified by investment horizons and preferences, and foreign exchange risk exposure.

Consistent with the two-stage approach advanced by Jorion (1990), we first estimate the sensitivity of stock returns to the trade-weighted U.S. dollar index to derive estimates of foreign exchange rate risk exposure with controls for the market factor to estimate foreign exchange rate exposure:

$$r_m^{i,t} = \alpha_0^{i,t} + \alpha_1^{i,t} R_m^t + \alpha_2^{i,t} FX_m^t + e_m^{i,t} \quad [1]$$

Where $r_m^{i,t}$ is the daily logarithm change in stock return for firm i in fiscal year t, R_m^t is the daily logarithm difference change in the Standard and Poor's 1500 index over the same period, and FX_m^t is the daily logarithm difference return on the U.S. dollar trade-weighted exchange rate index for the same period. In contrast to the seminal approach developed by Adler and Dumas (1984), Jorion's two-factor model incorporates market influence, which accounts for the joint impact of macroeconomic factors on the relationship between foreign exchange rate risk exposure and stock returns. The time-series regression coefficient $\alpha_2^{i,t}$ is obtained through the ordinary least squares (OLS) estimation for each firm in a certain fiscal year. Daily data on stock return changes are used for estimations based on fiscal year

[16] Unreported results suggest that growth-style institutions do not prominently affect corporate hedging decision in firms with certain capital structures, profitability and solvency.

to align with the data for other variables.[17] In the second stage, the square root of the absolute value of the coefficient $\left|\alpha_2^{i,t}\right|$ is transformed following the results of prior studies to get a normally distributed error term, reducing the impact caused by truncation bias (Dominguez and Tesar, 2006; Hutson and Stevenson, 2010, Hutson and Laing, 2014).

We report the results for the impact of different types of institutional ownership on firm-level foreign exchange risk exposure in Table 11. Value-style institutional ownership significantly decreases risk exposure by 0.2817 units at the 1% level, as value-style institutions target firms with greater valuation and lower risk. As discussed in the baseline result analysis, value-style institutions target firms with lower hedging levels than firms with growth-style institution investments. As a result, value-style institutional ownership reduces corporate risk exposure by conducting foreign exchange hedging. Similar to the hedging results in baseline models, growth-style institutions do not affect corporate risk exposure as they are not motivated to monitor firms to hedge and manage risk exposure.

Concerning the institutional investors classified by investment horizon, long-term institutional ownership presents a greater risk-reduction effect on firm exposure, as long-term-orientated institutions actively engage in monitoring corporate activities, including risk management. Regarding the results in columns (5) – (8), firms held by more large-value and large-growth-style institutions are significantly less exposed at the 1% level, as large companies generally have a more comprehensive risk management framework. In contrast, small-value and small-growth style institutional ownership does not affect firm-level foreign exchange risk exposure.

6. Conclusions

This paper investigates the impact of institutions with different investment styles on corporate risk management. Institutional investors are classified as value and growth styles based on their preference for investees with less or more growth opportunities. We find that firms with value-style institutional ownership are more likely to engage in financial hedging, while we do not find prominent empirical evidence on the influence of growth-style institutional shareholdings on hedging. Firms with more growth opportunities are more likely to conduct hedging regardless of institutional supervision, while institutions are motivated to monitor management in undervalued firms to hedge to maximize shareholder value. We employ two instrumental variables, mutual fund flow and the Russell 1000 addition, to confirm that the influence of institutional ownership on derivative usage is not

17 The data for daily stock return changes in each single OLS estimation match the beginning and ending dates of the corresponding fiscal year.

endogenously determined. We conduct additional tests to interact value-style institutional ownership with firm characteristics. We find that firms with more equity financing invested by value-style institutions are less motivated to engage in hedging as firms with more equity financing are less leveraged and, therefore, less exposed to financial distress. Conversely, firms with more debt financing in the capital structure are monitored by value-style institutions to adopt currency derivatives. Lastly, we examine how various institutional ownership types affect firm-level foreign exchange risk.

Our research supplements literature on the impact of institutional ownership classified by investment styles, specifically value- and growth-style institutions, on corporate usage of currency derivatives. We explore the proposition that different institutional investment preferences for firm growth opportunities also determine the institutions' motivation to monitor firms to hedge against foreign exchange risk. Therefore, foreign institutional investors and risk managers in multinational companies are particularly of interest in our research findings. Furthermore, we propose future research avenues on a multi-country study on how institutions with different investment styles influence other types of risk management, including interest rate risk and commodity risk.

References

Abarbanell, J. S., Bushee, B. J., and Smith Raedy, J. (2003). Institutional investor preferences and price pressure: The case of corporate spin-offs. *The Journal of Business*, *76*(2), 233-261.

Adkins, L. C., Carter, D. A., and Simpson, W. G. (2007). Managerial incentives and the use of foreign-exchange derivatives by banks. *Journal of Financial Research*, *30*(3), 399-413.

Aggarwal, R., Erel, I., Ferreira, M., and Matos, P. (2011). Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics*, *100*(1), 154-181.

Aggarwal, R., and Harper, J. T. (2010). Foreign exchange exposure of "domestic" corporations. *Journal of international money and Finance*, *29*(8), 1619-1636.

Aghion, P., Van Reenen, J., and Zingales, L. (2013). Innovation and institutional ownership. *American economic review*, *103*(1), 277-304.

Ahmed, A. S., and Duellman, S. (2013). Managerial overconfidence and accounting conservatism. *Journal of accounting research*, *51*(1), 1-30.

Alexandridis, G., Chen, Z., and Zeng, Y. (2021). Financial hedging and corporate investment. *Journal of corporate finance*, *67*, 101887.

Allayannis, G., and Ofek, E. (2001). Exchange rate exposure, hedging, and the use of foreign currency derivatives. *Journal of international money and Finance*, *20*(2), 273-296.

Allen, L., and Pantzalis, C. (1996). Valuation of the operating flexibility of multinational corporations. *Journal of International Business Studies*, *27*, 633-653.

An, H., and Zhang, T. (2013). Stock price synchronicity, crash risk, and institutional investors. *Journal of corporate finance*, *21*, 1-15.

Andriosopoulos, D., and Yang, S. (2015). The impact of institutional investors on mergers and acquisitions in the United Kingdom. *Journal of Banking & Finance*, *50*, 547-561.

Appel, I. R., Gormley, T. A., and Keim, D. B. (2016). Passive investors, not passive owners. *Journal of Financial Economics*, *121*(1), 111-141.

Barber, B. M., Huang, X., and Odean, T. (2016). Which factors matter to investors? Evidence from mutual fund flows. *The review of financial studies*, *29*(10), 2600-2642.

Barberis, N., and Shleifer, A. (2003). Style investing. *Journal of Financial Economics*, *68*(2), 161-199.

Bartov, E., and Bodnar, G. M. (1994). Firm valuation, earnings expectations, and the exchange-rate exposure effect. *The Journal of Finance*, *49*(5), 1755-1785.

Bartov, E., Bodnar, G. M., and Kaul, A. (1996). Exchange rate variability and the riskiness of US multinational firms: Evidence from the breakdown of the Bretton Woods system. *Journal of Financial Economics*, *42*(1), 105-132.

Bartram, S. M., Brown, G. W., and Minton, B. A. (2010). Resolving the exposure puzzle: The many facets of exchange rate exposure. *Journal of Financial Economics*, *95*(2), 148-173.

Baum, C. F., Schaffer, M. E., & Stillman, S. (2003). Instrumental variables and GMM: Estimation and testing. *The Stata Journal*, *3*(1), 1-31.

Berkman, H., and Bradbury, M. E. (1996). Empirical evidence on the corporate use of derivatives. *Financial management*, 5-13.

Blouin, J. L., Bushee, B. J., and Sikes, S. A. (2017). Measuring tax-sensitive institutional investor ownership. *The Accounting Review*, *92*(6), 49-76.

Bodnar, G. M., and Gentry, W. M. (1993). Exchange rate exposure and industry characteristics: evidence from Canada, Japan, and the USA. *Journal of international money and Finance*, *12*(1), 29-45.

Bodnar, G. M., Giambona, E., Graham, J. R., Harvey, C. R., and Marston, R. C. (2011). Managing risk management. AFA 2012 Chicago Meetings Paper,

Bodnar, G. M., and Wong, M. F. (2003). Estimating exchange rate exposures: issues in model structure. *Financial management*, 35-67.

Bolton, P., Scheinkman, J., and Xiong, W. (2006). Executive compensation and short-termist behaviour in speculative markets. *The review of Economic studies*, *73*(3), 577-610.

Boone, A. L., and White, J. T. (2015). The effect of institutional ownership on firm transparency and information production. *Journal of Financial Economics*, *117*(3), 508-533.

Breeden, D. T., and Viswanathan, S. (2015). Why do firms hedge? An asymmetric information model. *The Journal of Fixed Income*, *25*(3), 7-25.

Burns, N., Kedia, S., and Lipson, M. (2010). Institutional ownership and monitoring: Evidence from financial misreporting. *Journal of corporate finance*, *16*(4), 443-455.

Bushee, B. J. (1998). The influence of institutional investors on myopic R&D investment behavior. *Accounting Review*, 305-333.

Bushee, B. J. (2001). Do institutional investors prefer near-term earnings over long-run value? *Contemporary Accounting Research*, *18*(2), 207-246.

Bushee, B. J., and Goodman, T. H. (2007). Which institutional investors trade based on private information about earnings and returns? *Journal of accounting research*, *45*(2), 289-321.

Bushee, B. J., and Noe, C. F. (2000). Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of accounting research*, 171-202.

Callen, J. L., and Fang, X. (2013). Institutional investor stability and crash risk: Monitoring versus short-termism? *Journal of Banking & Finance*, *37*(8), 3047-3063.

Campello, M., Giambona, E., Graham, J. R., and Harvey, C. R. (2011). Liquidity management and corporate investment during a financial crisis. *The review of financial studies*, *24*(6), 1944-1979.

Cao, C., and Petrasek, L. (2014). Liquidity risk and institutional ownership. *Journal of Financial Markets*, *21*, 76-97.

Carter, D. A., Simkins, B. J., and Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, *38*(1), 33-53.

Chakravarty, S. (2001). Stealth-trading: Which traders' trades move stock prices? *Journal of Financial Economics*, *61*(2), 289-307.

Chang, E. C., Lin, T.-C., and Ma, X. (2013). Governance Through Trading: Does institutional trading discipline empire building and earnings management? 6th Conference on Professional Asset Management 2013,

Chen, C. R., Steiner, T. L., and Whyte, A. M. (1998). Risk-taking behavior and management ownership in depository institutions. *Journal of Financial Research*, *21*(1), 1-16.

Chen, W. R., and Miller, K. D. (2007). Situational and institutional determinants of firms' R&D search intensity. *Strategic management journal*, *28*(4), 369-381.

Chen, X., Harford, J., and Li, K. (2007). Monitoring: Which institutions matter? *Journal of Financial Economics*, *86*(2), 279-305.

Choi, J. J., and Elyasiani, E. (1997). Derivative exposure and the interest rate and exchange rate risks of US banks. *Journal of Financial Services Research*, *12*(2), 267-286.

Choi, J. J., and Prasad, A. M. (1995). Exchange risk sensitivity and its determinants: a firm and industry analysis of US multinationals. *Financial management*, 77-88.

Chung, K. H., and Zhang, H. (2011). Corporate governance and institutional ownership. *Journal of Financial and Quantitative Analysis*, *46*(1), 247-273.

Coffee Jr, J. C. (1991). Liquidity versus control: The institutional investor as corporate monitor. *Colum. L. Rev.*, *91*, 1277.

Cornett, M. M., Marcus, A. J., Saunders, A., and Tehranian, H. (2007). The impact of institutional ownership on corporate operating performance. *Journal of Banking & Finance*, *31*(6), 1771-1794.

Cyert, R. M., Kang, S.-H., and Kumar, P. (2002). Corporate governance, takeovers, and top-management compensation: Theory and evidence. *Management Science*, *48*(4), 453-469.

Del Guercio, D., and Tkac, P. A. (2002). The determinants of the flow of funds of managed portfolios: Mutual funds vs. pension funds. *Journal of Financial and Quantitative Analysis*, *37*(4), 523-557.

DeMarzo, P. M., and Duffie, D. (1995). Corporate incentives for hedging and hedge accounting. *The review of financial studies*, *8*(3), 743-771.

Demsetz, H. (1983). The structure of ownership and the theory of the firm. *The Journal of law and economics*, *26*(2), 375-390.

Dolde, W. (1993). The trajectory of corporate financial risk management. *Journal of Applied Corporate Finance*, *6*(3), 33-41.

Doshi, H., Kumar, P., and Yerramilli, V. (2018). Uncertainty, capital investment, and risk management. *Management Science*, *64*(12), 5769-5786.

Elyasiani, E., and Jia, J. (2010). Distribution of institutional ownership and corporate firm performance. *Journal of Banking & Finance*, *34*(3), 606-620.

Fama, E. F., and Jensen, M. C. (1983). Separation of ownership and control. *The Journal of law and economics*, *26*(2), 301-325.

Ferreira, M. A., and Matos, P. (2008). The colors of investors' money: The role of institutional investors around the world. *Journal of Financial Economics*, *88*(3), 499-533.

Fok, R. C., Carroll, C., and Chiou, M. C. (1997). Determinants of corporate hedging and derivatives: A revisit. *Journal of Economics and Business*, *49*(6), 569-585.

Francis, B. B., Hasan, I., Hunter, D. M., and Zhu, Y. (2017). Do managerial risk-taking incentives influence firms' exchange rate exposure? *Journal of corporate finance*, *46*, 154-169.

Froot, K. A., Scharfstein, D. S., and Stein, J. C. (1993). Risk management: Coordinating corporate investment and financing policies. *The Journal of Finance*, *48*(5), 1629-1658.

Fu, L., Pan, L., and Wu, F. (2021). Does passive investment have a positive governance effect? Evidence from index funds ownership and corporate innovation. *International Review of Economics & Finance*, *75*, 524-545.

Gaspar, J.-M., Massa, M., and Matos, P. (2005). Shareholder investment horizons and the market for corporate control. *Journal of Financial Economics*, *76*(1), 135-165.

Gay, G. D., and Nam, J. (1998). The underinvestment problem and corporate derivatives use. *Financial management*, 53-69.

Géczy, C., Minton, B. A., and Schrand, C. (1997). Why firms use currency derivatives. *The Journal of Finance*, *52*(4), 1323-1354.

Gibson Brandon, R., Glossner, S., Krueger, P., Matos, P., and Steffen, T. (2022). Do responsible investors invest responsibly? *Review of Finance*, *26*(6), 1389-1432.

Gormley, T. A., and Matsa, D. A. (2014). Common errors: How to (and not to) control for unobserved heterogeneity. *The review of financial studies*, *27*(2), 617-661.

Graham, J. R., and Rogers, D. A. (2002). Do firms hedge in response to tax incentives? *The Journal of Finance*, *57*(2), 815-839.

Graves, S. B. (1990). Institutional ownership and corporate R&D investment: A multi-industry study. *Technological Forecasting and Social Change*, *37*(1), 59-76.

Griffin, J. M., and Stulz, R. M. (2001). International competition and exchange rate shocks: a cross-country industry analysis of stock returns. *The review of financial studies*, *14*(1), 215-241.

Grinstein, Y., and Michaely, R. (2005). Institutional holdings and payout policy. *The Journal of Finance*, *60*(3), 1389-1426.

Guay, W., and Kothari, S. P. (2003). How much do firms hedge with derivatives? *Journal of Financial Economics*, *70*(3), 423-461.

Guay, W. R. (1999). The sensitivity of CEO wealth to equity risk: an analysis of the magnitude and determinants. *Journal of Financial Economics*, *53*(1), 43-71.

Hagelin, N., and Pramborg, B. (2006). Empirical evidence concerning incentives to hedge transaction and translation exposures. *Journal of Multinational Financial Management*, *16*(2), 142-159.

Harford, J., Kecskés, A., and Mansi, S. (2018). Do long-term investors improve corporate decision making? *Journal of corporate finance*, *50*, 424-452.

Hartzell, J. C., and Starks, L. T. (2003). Institutional investors and executive compensation. *The Journal of Finance*, *58*(6), 2351-2374.

Haushalter, G. D. (2000). Financing policy, basis risk, and corporate hedging: Evidence from oil and gas producers. *The Journal of Finance*, *55*(1), 107-152.

He, J., and Ng, L. K. (1998). The foreign exchange exposure of Japanese multinational corporations. *The Journal of Finance*, *53*(2), 733-753.

Hege, U., Hutson, E., and Laing, E. (2021). Mandatory governance reform and corporate risk management. *Journal of corporate finance*, *68*, 101935.

Hoberg, G., and Moon, S. K. (2017). Offshore activities and financial vs operational hedging. *Journal of Financial Economics*,

125(2), 217-244.

Howton, S. D., and Perfect, S. B. (1998). Currency and interest-rate derivatives use in US firms. *Financial management*, 111-121.

Huang, W., and Paul, D. L. (2017). Institutional holdings, investment opportunities and dividend policy. *The Quarterly Review of Economics and Finance*, *64*, 152-161.

Hutson, E., and Laing, E. (2014). Foreign exchange exposure and multinationality. *Journal of Banking & Finance*, *43*, 97-113.

Hutson, E., Laing, E., and Ye, M. (2019). Mutual fund ownership and foreign exchange risk in Chinese firms. *Journal of International Financial Markets, Institutions and Money*, *60*, 169-192.

Hutson, E., and O'Driscoll, A. (2010). Firm-level exchange rate exposure in the Eurozone. *International Business Review*, *19*(5), 468-478.

Hutson, E., and Stevenson, S. (2010). Openness, hedging incentives and foreign exchange exposure: A firm-level multi-country study. *Journal of International Business Studies*, *41*(1), 105-122.

Iatridis, G. (2012). Hedging and earnings management in the light of IFRS implementation: Evidence from the UK stock market. *The British Accounting Review*, *44*(1), 21-35.

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, *48*(3), 831-880.

Jin, Y., and Jorion, P. (2006). Firm value and hedging: Evidence from US oil and gas producers. *The Journal of Finance*, *61*(2), 893-919.

Kahn, C., and Winton, A. (1998). Ownership structure, speculation, and shareholder intervention. *The Journal of Finance*, *53*(1), 99-129.

Karpoff, J. M., Malatesta, P. H., and Walkling, R. A. (1996). Corporate governance and shareholder initiatives: Empirical evidence. *Journal of Financial Economics*, *42*(3), 365-395.

Ke, B., and Ramalingegowda, S. (2005). Do institutional investors exploit the post-earnings announcement drift? *Journal of Accounting and Economics*, *39*(1), 25-53.

Khan, R., Dharwadkar, R., and Brandes, P. (2005). Institutional ownership and CEO compensation: a longitudinal examination. *Journal of Business Research*, *58*(8), 1078-1088.

Kim, Y. S., Mathur, I., and Nam, J. (2006). Is operational hedging a substitute for or a complement to financial hedging? *Journal of corporate finance*, *12*(4), 834-853.

Korkeamaki, T., and Xu, D. (2015). Institutional investors and foreign exchange risk. *Quarterly Journal of Finance*, *5*(03), 1550013.

Kumar, A. (2009). Who gambles in the stock market? *The Journal of Finance*, *64*(4), 1889-1933.

Kumar, P., and Rabinovitch, R. (2013). CEO entrenchment and corporate hedging: Evidence from the oil and gas industry. *Journal of Financial and Quantitative Analysis*, *48*(3), 887-917.

Kuzmina, O., and Kuznetsova, O. (2018). Operational and financial hedging: Evidence from export and import behavior. *Journal of corporate finance*, *48*, 109-121.

Laksmana, I., Harjoto, M. A., and Kim, H. (2023). Managing disclosure of political risk: The case of socially responsible firms. *Journal of Business Research*, *154*, 113366.

Lel, U. (2012). Currency hedging and corporate governance: a cross-country analysis. *Journal of corporate finance*, *18*(2), 221-237.

Leland, H. E. (1998). Agency costs, risk management, and capital structure. *The Journal of Finance*, *53*(4), 1213-1243.

Lewent, J. C., and Kearney, A. J. (2008). Identifying, measuring, and hedging currency risk at Merck. In *Corporate Risk Management* (pp. 257-278). Columbia University Press.

Liu, N., Laing, E., Cao, Y., and Zhang, X. (2018). Institutional ownership and corporate transparency in China. *Finance Research Letters*, *24*, 328-336.

Luong, H., Moshirian, F., Nguyen, L., Tian, X., and Zhang, B. (2017). How do foreign institutional investors enhance firm innovation? *Journal of Financial and Quantitative Analysis*, *52*(4), 1449-1490.

Massa, M., and Zhang, L. (2018). Does corporate hedging attract foreign institutional investors? Evidence from international firms. *Journal of International Business Studies*, *49*, 605-632.

Maug, E. (1998). Large shareholders as monitors: Is there a trade-off between liquidity and control? *The Journal of Finance*, *53*(1), 65-98.

Mayers, D., and Smith, C. W. (1982). On the corporate demand for insurance. *Foundations of insurance economics*, 190-205.

McShane, M. K., Nair, A., and Rustambekov, E. (2011). Does enterprise risk management increase firm value? *Journal of Accounting, Auditing & Finance*, *26*(4), 641-658.

Mefteh-Wali, S., Boubaker, S., and Labégorre, F. (2012). Derivatives use and analysts' earnings forecast accuracy. *Frontiers in Finance and Economics*, *9*(1), 51-86.

Mian, S. L. (1996). Evidence on corporate hedging policy. *Journal of Financial and Quantitative Analysis*, *31*(3), 419-439.

Miller, K. D., and Reuer, J. J. (1998). Firm strategy and economic exposure to foreign exchange rate movements. *Journal of International Business Studies*, *29*, 493-513.

Minton, B. A., and Schrand, C. (2016). Institutional investments in pure play stocks and implications for hedging decisions. *Journal of corporate finance*, *37*, 132-151.

Mishra, C. S. (2022). Does institutional ownership discourage investment in corporate R&D? *Technological Forecasting and Social Change*, *182*, 121837.

Monks, R., and Minow, N. (1995). Corporate governance on equity ownership and corporate value. *Journal of Financial Economics*, *20*(3), 293-315.

Muller, A., and Verschoor, W. F. (2006). Foreign exchange risk exposure: Survey and suggestions. *Journal of Multinational Financial Management*, *16*(4), 385-410.

Nance, D. R., Smith Jr, C. W., and Smithson, C. W. (1993). On the determinants of corporate hedging. *The Journal of Finance*, *48*(1), 267-284.

Nguyen, D. D., Nguyen, L., and Sila, V. (2019). Does corporate culture affect bank risk-taking? Evidence from loan-level data. *British Journal of Management*, *30*(1), 106-133.

Nguyen, H., and Faff, R. (2010). Does the type of derivative instrument used by companies impact firm value? *Applied Economics Letters*, *17*(7), 681-683.

Pagach, D., and Warr, R. (2011). The characteristics of firms that hire chief risk officers. *Journal of Risk and Insurance*, *78*(1), 185-211.

Parrino, R., Sias, R. W., and Starks, L. T. (2003). Voting with their feet: Institutional ownership changes around forced CEO turnover. *Journal of Financial Economics*, *68*(1), 3-46.

Pathan, S., Haq, M., Faff, R., and Seymour, T. (2021). Institutional investor horizon and bank risk-taking. *Journal of corporate finance*, *66*, 101794.

Porter, M. E. (1992). Capital choices: Changing the way America invests in industry. *Journal of Applied Corporate Finance*, *5*(2), 4-16.

Qiu, Y. (2019). Labor adjustment costs and risk management. *Journal of Financial and Quantitative Analysis*, *54*(3), 1447-1468.

Rampini, A. A., Sufi, A., and Viswanathan, S. (2014). Dynamic risk management. *Journal of Financial Economics*, *111*(2), 271-296.

Sakaki, H., Jackson, D., and Jory, S. (2017). Institutional ownership stability and real earnings management. *Review of Quantitative Finance and Accounting*, *49*, 227-244.

Sayili, K., Yilmaz, G., Dyer, D., and Küllü, A. M. (2017). Style investing and firm innovation. *Journal of Financial Stability*, *32*, 17-29.

Sias, R. W., Starks, L. T., and Titman, S. (2006). Changes in institutional ownership and stock returns: Assessment and methodology. *The Journal of Business*, *79*(6), 2869-2910.

Sirri, E. R., and Tufano, P. (1998). Costly search and mutual fund flows. *The Journal of Finance*, *53*(5), 1589-1622.

Smith, C. W., and Stulz, R. M. (1985). The determinants of firms' hedging policies. *Journal of Financial and Quantitative Analysis*, *20*(4), 391-405.

Stock, J., & Yogo, M. (2005). Asymptotic distributions of instrumental variables statistics with many instruments. *Identification and inference for econometric models: Essays in honor of Thomas Rothenberg*, *6*, 109-120.

Sun, W., Yin, C., and Zeng, Y. (2021). Financial Hedging, Corporate Cash Policy, and the Value of Cash. *British Journal of Management*.

Tai, V. W., Lai, Y.-H., and Lin, L. (2014). Local institutional shareholders and corporate hedging policies. *The North American Journal of Economics and Finance*, *28*, 287-312.

Tufano, P. (1996). Who manages risk? An empirical examination of risk management practices in the gold mining industry. *The Journal of Finance*, *51*(4), 1097-1137.

Wahal, S., & Yavuz, M. D. (2013). Style investing, comovement and return predictability. *Journal of Financial Economics*, *107*(1), 136-154.

Whidbee, D. A., and Wohar, M. (1999). Derivative activities and managerial incentives in the banking industry. *Journal of corporate finance*, *5*(3), 251-276.

Wounaeott, T. H., and Wonnacott, R. J. (1972). Introductory Statistics for Business and Economics. In: John Wiley and Sons.

Yan, X., and Zhang, Z. (2009). Institutional investors and equity returns: Are short-term institutions better informed? *The review of financial studies*, *22*(2), 893-924.

Yüksel, H. Z. (2015). Does investment horizon matter? Disentangling the effect of institutional herding on stock prices. *Financial Review*, *50*(4), 637-669.

Table 1: Variable Definitions

Variable Names	Definitions	Data sources
HEDGE	A binary variable equal to 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise.	SEC 10-K filings
VAL GRO LONG SHORT QIX LVA LGR SVA SGR	The division into institution types is constructed based on data from Brian Bushee, which is available at https://accounting-faculty.wharton.upenn.edu/bushee/. The abbreviations of institution types are listed: VAL = Value style, GRO = Growth style, LONG = dedicated and quasi-indexer, SHORT = transient, LVA = Large Value style, LGR = Large Growth style, SVA = Small Value style, SGR = Small Growth style. Please refer to Section 3.3 for a detailed description.	Institutional Investor Classification Data available at https://accounting-faculty.wharton.upenn.edu/bushee/; SEC Form 13F Institutional Holdings
ABHK	ABHK refers to the ABHK index, which measures firm multinationality, ranging from 1 to 7, with 1 = domestic firms, 2 = regional, 3-6 = trans-regional and 7 = global.	EX-21, hand-collection
SIZE	Total assets ($millions) (logarithm form is utilized)	WRDS
RD	R&D/sales (logarithm form is utilized)	WRDS
QUICK	Quick ratio (logarithm form is utilized)	WRDS
DA	Long-term debt/total assets	WRDS
ROA	Return on assets	WRDS
MFF	Mutual fund flow (*MFF*) is the percentage growth of new assets. Please refer to Section 5.2 for a detailed description.	SEC Form 13F Institutional Holdings
RPI	Reward-punishment intensity (*RPI*) is the absolute value of changes in institutional investors' positions.	SEC Form 13F Institutional Holdings
ROCE	A binary variable if a firm's return on capital employed is greater than the median value	WRDS
EQINVCAP	The ratio of common equity over invested capital	WRDS
DBTINVCAP	The ratio of long-term debt over invested capital	WRDS
CAPRATIO	Capitalization ratio which is equal to the proportion of debt in a company's capital base funded from lenders and stockholders	WRDS
INTCOVR	Interest coverage ratio which is equal to a company's earnings before interest and taxes (EBIT) by its interest expense	WRDS
EXPOSURE	The absolute value of foreign exchange rate risk exposure coefficient estimated from the two-factor model in Jorion (1990)	CRSP

Table 2: Summary Statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) p25	(6) p50	(7) p75	(8) max
Dependent variables								
HEDGE	13,651	0.65	0.48	0.00	0.00	1.00	1.00	1.00
EXPOSURE	13,651	0.47	0.47	0.01	0.14	0.33	0.63	2.55
Institutional Investor by Growth Style								
VAL	13,651	0.19	0.10	0.00	0.11	0.17	0.25	0.48
GRO	13,651	0.14	0.10	0.00	0.06	0.12	0.19	0.45
Institutional Investor by Investment Horizon								
LONG	13,651	0.58	0.16	0.00	0.50	0.61	0.69	1.05
SHORT	13,651	0.18	0.09	0.00	0.12	0.17	0.23	0.45
Institutional Investor by Investment Style								
LVA	13,651	0.23	0.09	0.00	0.17	0.23	0.29	0.43
LGR	13,651	0.15	0.08	0.00	0.09	0.14	0.19	0.36
SVA	13,651	0.21	0.11	0.00	0.12	0.19	0.28	0.51
SGR	13,651	0.18	0.10	0.00	0.11	0.17	0.25	0.48
Firm Characteristics								
SIZE	13,651	9.91	23.68	0.00	0.49	1.91	7.25	159.08
RD	13,651	3.39	7.15	0.00	0.00	0.00	2.99	48.08
QUICK	13,651	1.55	1.38	0.12	0.74	1.17	1.83	9.07
DA	13,651	0.21	0.18	0.00	0.06	0.20	0.32	0.83
ROA	13,651	1.13	3.10	-1.29	0.04	0.08	0.14	16.40
ABHK	13,651	4.09	2.08	1.00	2.00	4.00	6.00	7.00

Notes: This table presents the summary of statistics for the variables examined in the paper. *HEDGE* is a binary variable equal to 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise. *EXPOSURE* is the absolute value of the risk exposure coefficient obtained from the two-factor model advanced by Jorion (1990), which is utilized in additional tests. The data for the institutional classification is obtained from http://accounting.wharton.upenn.edu/faculty/bushee/IIclass.html. The institution types are abbreviated as follows. VAL = Value style, GRO = Growth style, LONG = dedicated and quasi-indexer, SHORT = transient, LVA = Large Value style, LGR = Large Growth style, SVA = Small Value style, SGR = Small Growth style. *SIZE* is the value of the total assets of a firm in millions. *MB* is the market-to-book ratio. *RD* is R&D expenses divided by total sales. *QUICK* refers to quick ratio. *DA* is the long-term debt-to-assets ratio. *ROA* is the ratio of return on assets. *ABHK* refers to the ABHK index, which measures the multinationality of firms, ranging from 1 to 7, with 1 = domestic firms, 2 = regional, 3-6 = trans-regional, and 7 = global. All data used are winsorized at the 1% and 99% levels.

Table 3: Spearman Rank Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) EXPOSURE	1															
(2) HEDGE	-0.08*	1														
(3) VAL	0.01	*0.01*	1													
(4) GRO	*0.02*	0.01	0.16*	1												
(5) LONG	-0.07*	0.10*	0.54*	0.52*	1											
(6) SHORT	0.01	0.02*	0.52*	0.52*	0.39*	1										
(7) LVA	-0.16*	0.21*	0.36*	0.25*	0.63*	0.38*	1									
(8) LGR	-0.06*	0.10*	0.18*	0.69*	0.61*	0.36*	0.48*	1								
(9) SVA	0.04*	-0.03*	0.91*	0.23*	0.53*	0.60*	0.25*	0.15*	1							
(10) SGR	*-0.01*	0.01	0.31*	0.68*	0.59*	0.68*	0.30*	0.36*	0.39*	1						
(11) SIZE	-0.13*	0.23*	-0.08*	-0.09*	0.12*	-0.02*	0.45*	0.13*	-0.16*	-0.08*	1					
(12) RD	-0.04*	0.24*	-0.08*	0.09*	0.08*	0.03*	0.08*	0.04*	-0.06*	0.14*	0.05*	1				
(13) QUICK	0.03*	0.01	0.00	0.11*	0.04*	0.08*	-0.13*	-0.03*	0.06*	0.17*	-0.28*	0.36*	1			
(14) DA	-0.04*	0.08*	**-0.02**	-0.10*	-0.01	-0.03*	0.13*	-0.01	-0.04*	-0.08*	0.35*	-0.15*	-0.33*	1		
(15) ROA	-0.05*	-0.00	-0.15*	0.14*	-0.07*	-0.07*	-0.03*	0.17*	-0.16*	-0.06*	-0.33*	-0.11*	0.05*	-0.17*	1	
(16) ABHK	-0.08*	0.46*	-0.05*	0.03*	0.10*	-0.04*	0.17*	0.12*	-0.08*	-0.00	0.20*	0.37*	0.07*	0.03*	0.03*	1

Notes: This table presents the Spearman Rank correlation matrix. *HEDGE* is a binary variable equal to 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise. *EXPOSURE* is the absolute value of the risk exposure coefficient obtained from the two-factor model advanced by Jorion (1990), which is utilized in additional tests. The institution types are abbreviated as follows. VAL = Value style, GRO = Growth style, LONG = dedicated and quasi-indexer, SHORT = transient, LVA = Large Value style, LGR = Large Growth style, SVA = Small Value style, SGR = Small Growth style. *SIZE* is the value of the total assets of a firm in millions. *RD* is R&D expenses divided by total sales. *QUICK* refers to quick ratio. *DA* is the long-term debt-to-assets ratio. *ROA* is the ratio of return on assets. *ABHK* refers to the ABHK index, which measures firm multinationality, ranging from 1 to 7, with 1 = domestic firms, 2 = regional, 3-6 = trans-regional and 7 = global. "*" denotes significance at 1%, those highlighted in **bold** are significant at the 5 percent level, and those in *italics* are significant at the 10 percent level.

Table 4: Baseline Regression analysis: institutional investment style and corporate hedging

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: industry-year fixed effects			Panel B: firm-year fixed effects		
VAL	0.2442***		0.2541***	0.1654**		0.1525**
	(0.08)		(0.08)	(0.07)		(0.07)
GRO		-0.0194	0.0444		-0.0908	-0.0519
		(0.08)	(0.08)		(0.07)	(0.07)
SIZE	0.0706***	0.0669***	0.0708***	0.0833***	0.0837***	0.0839***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
RD	0.0026	0.0016	0.0025	-0.0034	-0.0033	-0.0033
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
QUICK	-0.0220*	-0.0243**	-0.0225*	-0.0064	-0.0058	-0.0058
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
ABHK	0.1359***	0.1360***	0.1357***	0.0674***	0.0678***	0.0673***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ABHKSQ	-0.0091***	-0.0092***	-0.0091***	-0.0050**	-0.0051**	-0.0050**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
DA	0.0461	0.0501	0.0438	0.0087	0.0082	0.0086
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
ROA	-0.0008	-0.0017	-0.0010	-0.0008	-0.0007	-0.0006
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.7291***	-0.6331***	-0.7398***	-0.7174***	-0.6782***	-0.7160***
	(0.08)	(0.08)	(0.09)	(0.18)	(0.18)	(0.18)
Observations	13,651	13,651	13,651	13,638	13,638	13,638
R-squared	0.335	0.333	0.335	0.609	0.608	0.609
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	No	No	No
Firm FE	No	No	No	Yes	Yes	Yes
Adjusted R-squared	0.331	0.329	0.331	0.575	0.575	0.575

Notes: This table presents the linear regression results for the influence of institutional investment style on the likelihood of corporate hedging. Columns (1) – (3) present the results estimated from the linear probability model with industry-year fixed effects included; columns (4) – (6) exhibit the results estimated from the linear probability model with firm-year fixed effects included. The dependent variable of the hedging dummy is equal to 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise. The independent variables *VAL* and *GRO* refer to the institutional investors with value and growth investment styles, respectively. *SIZE* is the value of the total assets of a firm in millions. *RD* is R&D expenses divided by total sales. *QUICK* refers to quick ratio. *DA* is the long-term debt-to-assets ratio. *ROA* is the ratio of return on assets. *ABHK* refers to the ABHK index, which measures firm multinationality, ranging from 1 to 7, with 1 = domestic firms, 2 = regional, 3-6 = trans-regional and 7 = global. *ABHKSQ* is the square of ABHK. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 5: Sensitivity analysis (Change in Hedging and Change in Institutional Ownership)

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: industry-year fixed effects			Panel B: firm-year fixed effects		
	ΔHEDGE	ΔHEDGE	ΔHEDGE	ΔHEDGE	ΔHEDGE	ΔHEDGE
ΔVAL	1.2719***		1.2792***	0.1427**		1.1391**
	(0.09)		(0.09)	(0.06)		(0.07)
ΔGRO		0.9814	1.0325		0.9044	0.9252
		(0.08)	(0.08)		(0.06)	(0.06)
ΔSIZE	1.0741***	1.0703***	1.0743***	0.0747***	1.0780***	1.0787***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
ΔRD	1.0019	1.0010	1.0018	-0.0030	0.9971	0.9972
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ΔQUICK	0.9749**	0.9728**	0.9744**	-0.0100	0.9908	0.9910
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
ΔABHK	1.1375***	1.1375***	1.1373***	0.0557***	1.0572***	1.0570***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ΔABHKSQ	0.9919***	0.9919***	0.9919***	-0.0036	0.9964	0.9965
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ΔDA	1.0418	1.0435	1.0402	-0.0057	0.9934	0.9938
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
ΔROA	0.9984	0.9975	0.9983	-0.0011	0.9992	0.9992
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.4730***	0.5192***	0.4696***	-0.5861***	0.5770***	0.5565***
	(0.04)	(0.04)	(0.04)	(0.19)	(0.11)	(0.11)
Observations	12,480	12,480	12,480	12,465	12,465	12,465
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	No	No	No
Firm FE	No	No	No	Yes	Yes	Yes
Adjusted R-squared	0.331	0.328	0.331	0.589	0.589	0.589

Notes: This table presents estimates of regressions of changes in hedging decisions (*ΔHEDGE*) on changes in institutional ownership with different investment styles. Columns (1) – (3) present the results estimated from the linear probability model with industry-year fixed effects included; columns (4) – (6) exhibit the results estimated from the linear probability model with firm-year fixed effects included. The dependent variable of the hedging dummy is equal to 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise. We included firm and industry fixed effects in columns (1) – (3) and columns (4) – (6), respectively. The main independent variables are changes in total institutional ownership (*ΔVAL, ΔGRO*) with value and growth investment styles, respectively, from *t-1* to *t*. Other explanatory variables are the changes from period $t-1$ to *t*, denoted as *Δ*. *SIZE* is the value of the total assets of a firm in millions. *RD* is R&D expenses divided by total sales. *QUICK* refers to quick ratio. *DA* is the long-term debt-to-assets ratio. *ROA* is the ratio of return on assets. *ABHK* refers to the ABHK index, which measures firm multinationality, ranging from 1 to 7, with 1 = domestic firms, 2 = regional, 3-6 = trans-regional and 7 = global. *ABHKSQ* is the square of ABHK. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 6: Two-stage Lease Stage (2SLS) Analysis with Mutual Fund Flow Instrument

	(1)	(2)	(3)	(4)
	First-stage	Second-stage	First-stage	Second-stage
Dep. Variables	VAL	HEDGE	GRO	HEDGE
MFF	0.0130***		0.0141***	
	(0.00)		(0.00)	
VAL		3.808***		
		(1.14)		
GRO				-0.678
				(0.73)
SIZE	-0.0150***	0.0532***	-0.00226	0.119***
	(0.00)	(0.01)	(0.00)	(0.01)
RD	-0.00392***	0.0197***	0.00239***	-0.000948
	(0.00)	(0.00)	(0.00)	(0.00)
QUICK	-0.0113***	-0.0123	0.0155***	0.0132
	(0.00)	(0.02)	(0.00)	(0.01)
ABHK	-0.000224	0.146***	0.00331	0.0651***
	(0.00)	(0.03)	(0.00)	(0.02)
ABHKSQ	-9.79e-06	-0.00704**	-0.000388	-0.00502**
	(0.00)	(0.00)	(0.00)	(0.00)
DA	0.0138	0.154**	0.0484***	-0.0486
	(0.01)	(0.07)	(0.01)	(0.06)
ROA	-0.00439***	0.0555***	0.00469***	0.00143
	(0.00)	(0.01)	(0.00)	(0.00)
Observations	13,548	13,548	13,548	13,548
C–D WF statistic	57.25		25.05	
Stock-Yogo weak ID test critical values at the 5%	13.91		13.91	
K–P LM statistic		41.14		44.19
K–P LM statistic P-value		0.00		0.00
Hansen J Statistic		1.78		0.42
Hansen J test P-value		0.18		0.52

Notes: This table presents the two-stage least square (2SLS) results with the mutual fund flow (MFF) instrumental variable. We present the first-stage results in columns (1) and (3) with the dependent variable of *VAL* and *GRO*, which are the institutional investors with value and growth investment styles, respectively. The second-stage results are included in columns (2) and (4), respectively, with the dependent variable of the hedging dummy equal to 1 if hedge activities are mentioned at least once in 10-K reports, and 0 otherwise. *SIZE* is the value of the total assets of a firm in millions. *RD* is R&D expenses divided by total sales. *QUICK* refers to quick ratio. *DA* is the long-term debt-to-assets ratio. *ROA* is the ratio of return on assets. *ABHK* refers to the ABHK index, which measures firm multinationality, ranging from 1 to 7, with 1 = domestic firms, 2 = regional, 3-6 = trans-regional and 7 = global. *ABHKSQ* is the square of ABHK. Industry and year dummies are included. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. Kleibergen–Paap rank Lagrange multiplier statistic (K–P LM statistic) is the underidentification test, and Cragg-Donald Wald F statistic (C–D WF statistic) is the weak identification test. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 7: Investment Horizon

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: industry-year fixed effects			Panel B: firm-year fixed effects		
LONG	1.1221**		1.1140**	1.0670**		1.0673**
	(0.05)		(0.05)	(0.03)		(0.03)
SHORT		1.1260	1.0900		1.0176	1.0201
		(0.09)	(0.09)		(0.05)	(0.05)
SIZE	1.0678***	1.0705***	1.0688***	1.0825***	1.0861***	1.0827***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
RD	1.0017	1.0016	1.0016	0.9964**	0.9965*	0.9964**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
QUICK	0.9748**	0.9752**	0.9745**	0.9925	0.9930	0.9923
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
DA	1.0472	1.0454	1.0438	1.0099	1.0087	1.0103
	(0.05)	(0.05)	(0.05)	(0.03)	(0.03)	(0.03)
ROA	0.9979	0.9980	0.9978	0.9988	0.9989	0.9987
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ABHK	1.1443***	1.1453***	1.1442***	1.0696***	1.0704***	1.0696***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
ABHKSQ	0.9910***	0.9910***	0.9910***	0.9950***	0.9949***	0.9950***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.5063***	0.5105***	0.4945***	0.5124***	0.5068***	0.5096***
	(0.04)	(0.04)	(0.04)	(0.06)	(0.06)	(0.06)
Observations	13,651	13,651	13,651	13,638	13,638	13,638
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	No	No	No
Firm FE	No	No	No	Yes	Yes	Yes
Adjusted R-squared	0.330	0.329	0.330	0.575	0.574	0.575

Notes: This table presents the regression results for the influence of institutional investors with long-term and short-term investment horizons on corporate hedging likelihood. Columns (1) – (3) present the results estimated from the linear probability model with industry-year fixed effects included; columns (4) – (6) exhibit the results estimated from the linear probability model with firm-year fixed effects included. The dependent variable of the hedging dummy is equal to 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise. The independent variables *LONG* and *SHORT* are institutional shareholdings with long-term and short-term investment horizons, respectively. *SIZE* is the value of the total assets of a firm in millions. *RD* is R&D expenses divided by total sales. *QUICK* refers to quick ratio. *DA* is the long-term debt-to-assets ratio. *ROA* is the ratio of return on assets. *ABHK* refers to the ABHK index, which measures firm multinationality. *ABHKSQ* is the square of ABHK. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 8: Investment Style

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SVA	0.1091**				0.1064**		0.1006**		0.1033**
	(0.05)				(0.05)		(0.05)		(0.05)
SGR		-0.0358			-0.0237			-0.0389	-0.0308
		(0.05)			(0.05)			(0.05)	(0.05)
LVA			0.1249**			0.1178**	0.1114*		0.1035*
			(0.06)			(0.06)	(0.06)		(0.06)
LGR				0.0689		0.0543		0.0717	0.0717
				(0.06)		(0.06)		(0.06)	(0.06)
Constant	-0.7122***	-0.6699***	-0.6558***	-0.6639***	-0.7080***	-0.6482***	-0.6923***	-0.6581***	-0.6787***
	(0.12)	(0.11)	(0.11)	(0.11)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,638	13,638	13,638	13,638	13,638	13,638	13,638	13,638	13,638
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.575	0.574	0.575	0.575	0.575	0.575	0.575	0.575	0.575

Notes: This table presents the regression results for the influence of institutional investors with a preference for firm capitalization and growth on corporate hedging likelihood. The results are estimated from linear probability model regressions with firm and year-fixed effects included. The dependent variable is the hedging dummy, which equals 1 if hedge activities are mentioned at least once in 10-K reports, and 0 otherwise. The independent variables are constructed based on institutional investment styles or their firm size and growth preferences, with LVA = Large Value style, LGR = Large Growth style, SVA = Small Value style, and SGR = Small Growth style. The control variables included are the same as in the baseline regressions. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 9: Robustness Check with Interaction Terms

	(1)	(2)	(3)	(4)	(5)
VAL	0.2966***	0.3641***	0.1051**	0.1272**	0.3174***
	(0.05)	(0.07)	(0.05)	(0.05)	(0.06)
ROCE * VAL	-0.2456***				
	(0.07)				
EQINVCAP * VAL		-0.2694***			
		(0.08)			
DBTINVCAP * VAL			0.2522***		
			(0.08)		
CAPRATIO *VAL				0.1799***	
				(0.07)	
INTCOVR * VAL					-0.3030***
					(0.07)
ROCE	0.0540***				
	(0.02)				
EQINVCAP		0.0084			
		(0.01)			
DBTINVCAP			-0.0086		
			(0.01)		
CAPRATIO				-0.0030	
				(0.00)	
INTCOVR					0.0462***
					(0.02)
Constant	-0.7923***	-0.7799***	-0.7919***	-0.7749***	-0.7127***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Control Variables	Yes	Yes	Yes	Yes	Yes
Observations	13,234	13,241	13,216	13,235	12,044
Year FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.574	0.574	0.574	0.574	0.578

Notes: This table presents the regression results for the influence of institutional investors interacting with firm characteristics on corporate hedging likelihood. The results are estimated from the firm-year fixed effects model regressions with the dependent variable of the hedging dummy, which is equal to 1 if hedge activities are mentioned at least once in 10-K reports, and 0 otherwise. The institutional ownership variable, *VAL*, refers to the shareholdings by institutions preferring firms with higher valuation. *ROCE* is a binary variable if a firm's return on capital employed exceeds the median value. *EQINVCAP* is the ratio of common equity over invested capital. *DBTINVCAP* is the ratio of long-term debt over invested capital. *CAPRATIO* is the capitalization ratio. *INTCOVR* is a binary variable if a firm's interest coverage ratio exceeds the media value. The control variables included are the same as in the baseline regressions. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 10: Robustness Check with Corporate Governance

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: industry-year fixed effects			Panel B: firm-year fixed effects		
VAL	0.1523**		0.1343*	0.1523**		0.1343*
	(0.07)		(0.07)	(0.07)		(0.07)
GRO		-0.1045	-0.0654		-0.1045	-0.0654
		(0.07)	(0.08)		(0.07)	(0.08)
IND	-0.0001	0.0075	-0.0001	-0.0001	0.0075	-0.0001
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
CEODUALITY	0.0013	0.0008	0.0012	0.0013	0.0008	0.0012
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
CEOCHANGE	0.0062	0.0067	0.0060	0.0062	0.0067	0.0060
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
CEOLTENURE	-0.0037	-0.0038	-0.0040	-0.0037	-0.0038	-0.0040
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
CEOSHRS	0.0010	0.0011	0.0010	0.0010	0.0011	0.0010
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEOCASH	-0.0006	-0.0006	-0.0005	-0.0006	-0.0006	-0.0005
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.8100***	-0.7876***	-0.8078***	-0.8100***	-0.7876***	-0.8078***
	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,624	11,624	11,624	11,624	11,624	11,624
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.596	0.596	0.596	0.596	0.596	0.596

Notes: This table presents the regression results for a robustness check while controlling for governance factors. Columns (1) – (3) present the results estimated from the linear probability model with industry-year fixed effects included; columns (4) – (6) exhibit the results estimated from the linear probability model with firm-year fixed effects included. The dependent variable of the hedging dummy is equal to 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise. The independent variables *VAL* and *GRO* refer to the institutional investors with value and growth investment styles, respectively. *IND* is the proportion of independent directors on the board. *CEODUALITY* is a binary variable that equals 1 if the CEO is also the chairman of the firm, and 0 otherwise. *CEOCHANGE* is a binary variable that equals 1 if the CEO is replaced in the current year, and 0 otherwise. *CEOLTENURE* is a binary variable that equals 1 if the CEO has been in the position for over 20 years, and 0 otherwise. *CEOSHRS* is the value of restricted stock held by the CEO. *CEOCASH* is the cash ratio that equals the total current compensation (a sum of salary and bonus) divided by the total compensation that the CEO receives. The control variables included are the same as in the baseline regressions. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 11: Risk Exposure for Institutional Investment Growth Style, Horizon and Investment Style

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VAL	-0.2817***							
	(0.07)							
GRO		-0.1014						
		(0.07)						
LONG			-0.2823***					
			(0.04)					
SHORT				-0.0284				
				(0.08)				
LVA					-0.5235***			
					(0.08)			
LGR						-0.2970***		
						(0.08)		
SVA							-0.0978	
							(0.07)	
SGR								-0.1068
								(0.07)
Constant	1.1317***	1.0909***	1.0803***	1.0931***	1.0374***	1.0716***	1.1060***	1.0977***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,651	13,651	13,651	13,651	13,651	13,651	13,651	13,651
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.206	0.205	0.208	0.205	0.208	0.206	0.205	0.205

Notes: This table presents the baseline regression results for the influence of institutional investment style on foreign exchange rate risk exposure. The results are estimated from linear firm-year fixed effects regressions with the dependent variable of the absolute value of the risk exposure coefficient obtained from the two-factor model advanced by Jorion (1990). The independent variables are constructed based on institutional investment styles or their preference for firm size and growth opportunities. The institution types are abbreviated as follows. VAL = Value style, GRO = Growth style, LONG = dedicated and quasi-indexer, SHORT = transient, LVA = Large Value style, LGR = Large Growth style, SVA = Small Value style, SGR = Small Growth style. The control variables included are the same as in the baseline regressions. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Internet Appendix A1: institutional investment style on the likelihood of corporate hedging

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: firm-year fixed effects			Panel B: industry-year fixed effects		
VAL	4.9092***		4.7453***	3.4795***		3.5206**
	(2.41)		(2.39)	(1.68)		(1.75)
GRO		0.6041	0.8567		0.7631	1.0525
		(0.30)	(0.44)		(0.36)	(0.51)
SIZE	2.1063***	2.0942***	2.1107***	1.6224***	1.5968***	1.6227***
	(0.18)	(0.18)	(0.18)	(0.07)	(0.07)	(0.07)
RD	1.0162	1.0172	1.0166	1.0214	1.0170	1.0212
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
QUICK	0.9274	0.9337	0.9294	0.8559**	0.8503**	0.8552**
	(0.07)	(0.08)	(0.08)	(0.06)	(0.06)	(0.06)
DA	1.4748	1.4485	1.4737	1.2646	1.3022	1.2610
	(0.47)	(0.46)	(0.47)	(0.39)	(0.40)	(0.39)
ROA	0.9843	0.9840	0.9850	0.9956	0.9919	0.9954
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ABHK	1.3058**	1.2953**	1.3059**	1.6666***	1.6607***	1.6668***
	(0.15)	(0.15)	(0.15)	(0.18)	(0.18)	(0.18)
ABHKSQ	0.9937	0.9947	0.9937	0.9836	0.9840	0.9836
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Constant				0.0100***	0.0135***	0.0099***
				(0.01)	(0.01)	(0.01)
Observations	7,984	7,984	7,984	13,651	13,651	13,651
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	No	No	No
Industry FE	No	No	No	Yes	Yes	Yes
Pseudo R-squared	0.204	0.203	0.204	0.304	0.303	0.304

Notes: This table presents the baseline regression results for the influence of institutional investment style on the likelihood of corporate hedging. Columns (1) – (3) present the results estimated from the logit firm-year fixed effects regression models; columns (4) – (6) exhibit the results estimated from the logit industry-year fixed effects regression models. The dependent variable is a hedging dummy equal to 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise. The independent variables *VAL* and *GRO* refer to the institutional investors with value and growth investment styles, respectively. *SIZE* is the value of the total assets of a firm in millions. *RD* is R&D expenses divided by total sales. *QUICK* refers to quick ratio. *DA* is the long-term debt-to-assets ratio. *ROA* is the ratio of return on assets. *ABHK* refers to the ABHK index, which measures firm multinationality, ranging from 1 to 7, with 1 = domestic firms, 2 = regional, 3-6 = trans-regional and 7 = global. *ABHKSQ* is the square of ABHK. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Internet Appendix A2: Sub-period Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	2000-2010		2011-2020		Full period excluding the GFC	
VAL	0.3240***		0.2170**		0.2195***	
	(0.10)		(0.09)		(0.08)	
GRO		-0.1303		0.0796		0.0085
		(0.10)		(0.09)		(0.08)
SIZE	0.0738***	0.0696***	0.0671***	0.0640***	0.0694***	0.0662***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
RD	0.0060*	0.0051	0.0013	0.0003	0.0018	0.0010
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
QUICK	-0.0493***	-0.0505***	-0.0027	-0.0054	-0.0160	-0.0184
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
DA	-0.0103	0.0061	0.0895	0.0849	0.0605	0.0625
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)
ROA	-0.0008	-0.0014	0.1242*	0.0923	-0.0010	-0.0019
	(0.00)	(0.00)	(0.07)	(0.07)	(0.00)	(0.00)
ABHK	0.1314***	0.1311***	0.1373***	0.1370***	0.1396***	0.1399***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ABHKSQ	-0.0085***	-0.0085***	-0.0095***	-0.0094***	-0.0096***	-0.0096***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.6691***	-0.5421***	-0.7474***	-0.6692***	-0.6917***	-0.6108***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.08)	(0.08)
Observations	5,379	5,379	8,272	8,272	11,498	11,498
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.346	0.343	0.317	0.316	0.320	0.318

Notes: This table presents the sub-period results for the influence of value-style and growth-style institutional ownership on corporate hedging likelihood for the periods of 2000-2010, 2011-2020, and the full period excluding the global financial crisis (GFC) period from 2007-2009. The results are estimated from linear probability model regressions with the dependent variable of the hedging dummy equal to 1 if hedge activities are mentioned at least once in 10-K reports, and 0 otherwise. *SIZE* is the value of the total assets of a firm in millions. *RD* is R&D expenses divided by total sales. *QUICK* refers to quick ratio. *DA* is the long-term debt-to-assets ratio. *ROA* is the ratio of return on assets. *ABHK* refers to the ABHK index, which measures firm multinationality. *ABHKSQ* is the square of ABHK. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Internet Appendix A3: corporate hedging and institutional ownership by a preference for firm capitalization and growth

VARIABLES	(1) hedge	(2) hedge	(3) hedge	(4) hedge	(5) hedge	(6) hedge	(7) hedge	(8) hedge	(9) hedge
LVA	0.2827***				0.2678***		0.2499***		0.2371**
	(0.10)				(0.10)		(0.10)		(0.10)
LGR		0.1286			0.0632			0.1434	0.1130
		(0.10)			(0.10)			(0.10)	(0.10)
SVA			0.1923**			0.1912**	0.1674**		0.1739**
			(0.08)			(0.08)	(0.08)		(0.08)
SGR				-0.0426		-0.0362		-0.0623	-0.0796
				(0.08)		(0.07)		(0.08)	(0.08)
Constant	-0.5933***	-0.6242***	-0.7434***	-0.6200***	-0.5897***	-0.7292***	-0.6917***	-0.5993***	-0.6568***
	(0.08)	(0.08)	(0.09)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,651	13,651	13,651	13,651	13,651	13,651	13,651	13,651	13,651
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.331	0.329	0.330	0.329	0.331	0.330	0.332	0.329	0.332

Notes: This table presents the regression results for the influence of institutional investors with a preference for firm capitalization and growth on corporate hedging likelihood. The results are estimated from linear probability model regressions with industry-year fixed effects controlled. The dependent variable of the hedging dummy is 1 if hedge activities are mentioned at least once in 10-K reports and 0 otherwise. The independent variables are constructed based on institutional investment styles or their firm size and growth preferences, with LVA = Large Value style, LGR = Large Growth style, SVA = Small Value style, and SGR = Small Growth style. The control variables included are the same as in the baseline regressions. Standard errors robust to heteroskedasticity and clustering at the firm level are included in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.