

**CORPORATE GOVERNANCE AND THE HEDGING PREMIUM  
AROUND THE WORLD\***

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**ABSTRACT**

This paper examines the use of foreign currency derivatives (FCDs) and its potential impact on firm value in a broad sample of firms from thirty-five countries between 1990 and 1999. Our sample allows us to exploit differences in corporate governance across countries, their impact on risk management policies and their value implications. We find that on average, hedging is valuable around the world. The premium is statistically significant and economically large for firms with strong internal corporate governance (such as those with a large outside blockholder) and those which reside in countries with strong external governance (such as those with English legal origin), and insignificant for firms with weak internal governance and those which reside in countries with weak external governance. Finally, hedging is valuable even when internal corporate governance is weak, if the firm happens to reside in a country with good external governance.

Risk management theories (e.g., Smith and Stulz (1985), Froot, Scharfstein, and Stein (1993), and Leland (1998)) suggest that risk management adds value to a firm by reducing expected taxes or financial distress costs, by mitigating underinvestment, or by allowing a firm to increase its debt capacity and take advantage of debt tax-shields without an increase in risk. Previous empirical literature has examined which theories of hedging are borne out in the data (see e.g., Tufano (1996), Geczy, Minton, and Schrand (1997), Haushalter (2000), and Graham and Rogers (2002), among others), while, more recently, another stream has examined directly the impact of corporate risk management on firm value (see e.g., Allayannis and Weston (2001), Carter, Rogers, and Simkins (2003), and Guay and Kothari (2003)). Specifically, Allayannis and Weston (2001) find that the use of foreign currency derivatives increases value in a large sample of U.S. nonfinancial firms with exposure to exchange rates, while Carter et al. (2003) find a similar effect for the fuel hedging strategies of the US airline industry. On the other hand, Guay and Kothari (2003) argue that based on the magnitudes of the notional amounts of the derivatives used by U.S. firms, the value implications may be less strong.

While this prior work has focused on the value implications of risk management among U.S firms, in this paper we examine whether hedging adds value in a broad sample of firms, which reside in thirty-five countries, during 1990-1999. Our sample allows us to examine important issues that could not be examined before and in addition, serve as an out-of sample test of the hypothesis of whether risk management adds value. Specifically, we can exploit a) differences in internal as well as external corporate governance structures across countries and, b) differences in exchange-rate regimes and examine their implications for the value of risk management.<sup>1</sup>

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<sup>1</sup> Previous work using non-U.S. data has only examined which hedging theories hold across countries. In particular, Lel (2003) examines the impact of internal and external corporate governance and the degree of financial market development on the decision to hedge and finds evidence that they are both important determinants in the decision to hedge. More broadly, Bartram, Brown, and Fehle (2003) examine the use of financial derivatives in a large sample of nonfinancial firms across 48 countries and find evidence of common firm factors such as leverage, liquidity, and growth opportunities predicting derivatives use, however, not all of them in a manner consistent with theory. In addition, with the exception of the size of the local derivatives market, they find few country-specific factors to be important in the use of derivatives. Allayannis, Brown, and Klapper (2003) examine the determinants of alternative types of debt based on the currency denomination, including debt originally denominated in foreign currency and then swapped into domestic currency, in a sample of large East Asian firms during the Asian crisis and find evidence that macro-factors, such as interest-rate differentials affected the hedging decision of East Asian firms in a manner less consistent

We are not the first to acknowledge that corporate governance is important for the hedging decision. Smith and Stulz (1985) suggest that managers with a large proportion of their wealth tied into a firm might engage in risk management activities to protect themselves and not necessarily to benefit their shareholders. Tufano (1998) suggests that, while in the absence of agency conflicts risk management can allow a firm to avoid the deadweight costs of external financing and allow it to pursue profitable investment opportunities by guaranteeing the availability of internally generated funds (see Froot et al. (1993)), on the other hand, in the presence of agency conflicts, risk management could be value-destroying, since the absence of market discipline that external financing imposes on managers allows them to freely pursue their “pet” projects, irrespective of their value to the firm. Finally, Breeden and Viswanathan (1998) show that managers with inferior skills will be less likely to hedge and manage risk properly, unless monitored by outsiders. This is because hedging can improve the informativeness of the earnings numbers and reveal their true type (see also DeMarzo and Duffie (1995)). Empirically, Tufano (1996) finds that the existence of non-managerial blockholders is negatively linked to the decision to hedge, while Lel (2003) finds evidence that differences in corporate governance internationally significantly affect the hedging decision. What is unique to our paper is the linkage of internal and external corporate governance across countries and its affect on the value of risk management.<sup>2</sup>

Corporate governance has some clear implications on the risk management decision and its effectiveness. First, if left alone, managers may engage in risk management activities, which may not serve shareholders’ interests. For example, if the insider is a large blockholder, as is often the case in firms outside the U.S. (see e.g., Lins (2003)), then he/she may simply want to protect himself/herself (Smith and Stulz (1985)), or to pursue his/her own interests (Tufano (1998)) and engage in hedging activities even when he/she should not. On the other hand, if the manager is well diversified due to cross-holdings in

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with hedging behavior and more consistent with speculation. Prior to those papers, work on derivatives usage was based on a single country (e.g., among others, Bodnar (1999) examines derivatives usage among German firms; Berkman and Bradbury (1997) examine NZ firms; Alkeback and Hagelin (1999) examine Swedish firms; and Bodnar, Jong, and Macrae (2002) examine derivatives usage among Dutch firms.)

other firms, or is of inferior ability then he/she may not engage in risk management activities even when he/she should (e.g., Breeden and Viswanathan (1998)). In both cases, this misalignment of interests may lead to sub-optimal, non-value-increasing risk management. Such misalignment can be tempered by good firm monitoring, such as the one provided by a large outside blockholder, such as institutions. More importantly, we should expect the quality of external corporate governance to have a strong influence on such agency costs and the resultant managerial activity. For example, stronger investor protection rights and stricter enforcement of these laws should reduce agency costs (e.g., Lins (2003), LLSV (2000), and Dyck and Zingales (2002)), and improve the value of the risk management activities. In addition, in countries with strong creditor rights, bankruptcy costs are expected to be large, and therefore hedging more valuable (see e.g., Smith and Stulz (1985))<sup>3</sup>. Although we highlight the implications of the interactions between internal and external corporate governance outlined above, we also document primary evidence on the impact of each type of governance structure on its own; for example, all else equal, we should expect firms in countries with strong shareholder rights to engage in higher-value risk management activities than firms in countries with weak shareholder rights.

We examine the value implications of risk management and its links to corporate governance using a broad (and unique) sample of exchange-traded American Depositary Receipts, which consists of firms from thirty-five countries during 1990-1999. Studying firms with ADRs has several advantages: first, these firms are required to file with SEC and reconcile with the US GAAP and FASB rules in their annual reports, hence potential biases due to differences in accounting standards across countries are limited.<sup>4</sup> Second, these are some of the largest, most liquid (and most sophisticated) firms in their local

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<sup>2</sup> Prior literature has found ample evidence on the impact of ownership structure and corporate governance more broadly, on capital structure decisions (e.g., Berger, Ofek, and Yermack (1997)), on investment decisions (e.g., Cho (1998)) and, on firm value (e.g., Lemmon and Lins (2003), La Porta, Lopez-de-Silanes, Shleifer, and Vishny –LLSV hereafter- (2002)).

<sup>3</sup> Claessens, Djankov, and Klapper (2003) find evidence supportive of the above argument, by showing that strong creditor rights along with stricter enforcement of laws result in greater likelihood of bankruptcy, while Miller and Puthenpurackal (2002) add to the evidence by finding a lower risk premium for foreign firms associated with stronger creditor protection laws and stricter enforcement.

<sup>4</sup> Note also that with the exception of firms with ADRs, which have to comply with US GAAP, derivatives disclosures outside the U.S. are mostly voluntary (see Lel (2003) for a history of US GAAP related to derivatives disclosures). Also note that excluding non-ADR firms is not likely to bias our results, given that Allayannis et al. (2003) show no differences in the use of derivatives between firms that cross-list versus those that do not in a sample of large East Asian firms.

markets, which increases the likelihood of derivatives usage and facilitates comparisons with results based on U.S. samples used in prior studies.<sup>5</sup>

Similar to Allayannis and Weston (2001), we focus on firms with ex-ante exposure to exchange rates through foreign sales, so that our sample-firms have an incentive to use foreign currency derivatives (FCDs) for hedging purposes and expect that the use should be on average beneficial, consistent with value-enhancing risk management theories. It is very likely that these firms also use other types of derivatives, such as interest-rate or commodity derivatives, whose incident is correlated with the use of currency derivatives, so to an extent, the potential benefit should not be interpreted as arising solely from FCD use. Hence, as in Allayannis and Weston (2001), we interpret our results to reflect the value of a firm's overall risk management activities, rather than the value of its currency risk management alone; and currency derivatives use to be a mere proxy for risk management. To measure the impact of hedging on firm value, we follow closely the methodology in Allayannis and Weston (2001), which uses the market to book ratio as a proxy for firm value and includes a dummy in the regression to indicate whether a firm uses derivatives or not along with controls that have been used in prior work to control for factors that affect firm value, such as size, leverage and profitability.<sup>6</sup>

We find a positive and significant association between a firm's use of currency derivatives and its value, suggesting that risk management adds value for firms around the world. The magnitude of the hedging premium is substantial (on average 11.8%) for firms with exposure to exchange rate movements. This is undoubtedly large, however, it is in line with Allayannis and Weston's (2001) premium of 4.8% for US firms, if we consider the significantly higher exposure that these firms face due to the substantially higher exchange rate volatility of currencies outside the US. In sum, these results are consistent with the

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<sup>5</sup> The majority of prior work in risk management has used samples of large U.S. firms, such as the Fortune 500, or the S&P 500 firms (see e.g., Geczy et al. (1997), Graham and Rogers (2002) etc.). Allayannis and Weston (2001) use a more comprehensive sample of firms with assets above 500 million; however, the sample used here is similar (if not smaller) in terms of median size of assets (for the entire sample, median size of assets is 1978 million vs. 2573 in Allayannis and Weston).

<sup>6</sup> This methodology has been used extensively in corporate finance: research areas in which Q is used to measure firm value include cross listing (Doidge, Karolyi and Stulz (2001)), corporate diversification (Lang and Stulz (1994), and Servaes (1996)), takeovers (Servaes (1991)), equity ownership (La Porta, Lopez de Silanes, Shleifer, and Vishny (2002) and Lins (2003)), and hedging (Allayannis and Weston (2001)).

hypothesis that risk management adds value and corroborate earlier results on the premium for domestic US firms and the airline industry reported by Allayannis and Weston (2001) and Carter et al. (2003).

Our next tests examine the impact of internal, firm-specific corporate governance on the value of risk management. Consistent with our expectations, we find that firms with good internal corporate governance (such as firms with an outsider as the largest blockholder) are rewarded with a higher premium in their risk management activities. Risk management activities of firms in which an insider is the largest blockholder do not carry a significant premium, on average; however, our evidence suggests that they are not value destroying either. Similar results are obtained using several alternative proxies for good/weak internal corporate governance such as the absence/presence of family and state ownership, the presence/absence of institutional ownership, and the existence/nonexistence of high managerial cash flow rights.

We next examine the impact of external corporate governance on the hedging premium. Given the large cross-sectional variation in governance structures around the world and the severe agency costs in some settings, our sample allows us to further test whether risk management is a vehicle through which good corporate governance is translated into higher value, as Lemmon and Lins (2003) and LLSV (2002) have shown. Consistent with our expectations, we find that firms, which reside in countries with strong shareholder rights, strong creditor rights, or with an English legal origin, are rewarded with a significantly higher premium than firms with weak external corporate governance. These results also hold for several related proxies of external corporate governance that we use such as the efficiency of the judicial system, the level of public and private enforcement and the extent of a merger activity within the country. Although the hedging premium for firms residing in countries with weak external corporate governance is positive, it is never statistically significant. This suggests that by mitigating agency costs, strong external, country-specific corporate governance mechanisms produce value-increasing risk management policies.

Our last tests examine how the interaction of firm-specific internal corporate governance and country-specific external governance impact the value of risk management. We find that the impact of

weak external governance (such as weak shareholder rights or non-English origin) cannot be mitigated by good internal firm-level corporate governance (such as when the firm has an institution as its largest blockholder). However, and most interestingly, we find that weak internal firm-level corporate governance (such as when the firm has an insider as its largest blockholder) can be mitigated by strong external country-level governance (such as English origin). Therefore, while on average, firms with weak internal corporate governance do not add value with their risk management activities, when they reside in a country with strong legal environment, they do. This suggests that a strong legal environment reduces the ability of insiders to engage in risk management activities for their own benefit only. This finding also adds to prior evidence on the decision to use derivatives and CEO turnover after bad performance, which are more aligned with theory in the presence of strong external legal framework (see e.g., LeL (2003) and, DeFond and Hung (2002), respectively).

Finally, other external factors, besides a country's legal framework may affect directly the value of hedging. One obvious candidate in the case of exchange rate risk hedging is the choice between a fixed versus a floating exchange-rate regime. On the one hand, a floating currency may increase the day-to-day volatility and hence increase the value of hedging it, on the other hand, as the experience of East Asian countries in 1997 suggests, a fixed currency does not mean absence of exchange-rate risk, since the likelihood of a large devaluation is real. In fact, Eichenbaum and Rebello (2001) predict that a lower likelihood of hedging in fixed exchange rate regimes may exacerbate or even lead to a crisis. This last argument would suggest that hedging in fixed regimes could be more valuable. Consistent with the former argument, we find that hedging adds value under a floating currency regime. In addition, hedging seems more valuable in the period during 1996-99 (i.e., during and post-crises), evidence that would also be consistent with Eichenbaum and Rebello (2001) in the sense that post-crisis, once the devastating impact of the crisis is realized, investors reward firms that manage risks properly. Finally, in a test similar to the one in Allayannis and Weston (2001), in which we separate our sample according to an appreciation or depreciation of the dollar, we find that, opposite to Allayannis and Weston, risk management is more

valuable when the dollar appreciates (local currency depreciates). This finding is consistent, however, with recent evidence in Allayannis et al. (2003) for East Asian firms, which face large exposures through foreign debt (as opposed to foreign sales, which constitutes a large part of the exposure of US firms). In summary, our findings add to the evidence on the importance of corporate governance and suggest that one way that corporate governance improves value is through value-increasing risk management activities taken by managers.

The remainder of the paper is organized as follows. Section I develops the hypotheses and describes the data. Section II examines the impact of corporate governance on the value of risk management. Section III concludes.

## **I. Hypothesis development and Data**

To examine the relationship between firm valuation, corporate governance, and hedging for foreign firms in an international context, we gather a dataset of foreign firms that are cross-listed in the U.S. as level II and level III ADRs, for the period between 1990 and 1999.<sup>7</sup> The use of foreign firms with ADRs provides several advantages in studying the hedging practices of non-U.S. firms. For one, using cross-listed firms allows us to examine a sample that is free of any reporting bias. While firms' disclosure on derivatives usage is on a voluntary basis in most countries, the ADR firms are required to file periodically with the SEC and reconcile with the US GAAP and the Financial Accounting Standards Board (FASB) rules in their annual reports.<sup>8</sup> FASB rules SFAS 105 and SFAS 119 mandate that firms disclose their use of derivatives, if any, as well as the reasons for using them in 20-F forms, beginning June 15, 1990. In addition, this mandatory adherence to a single standard helps us control for the substantial differences that exist in accounting standards across countries as well as hand-collect detailed firm-level

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<sup>7</sup> See Miller (1999) for a complete description of the types of ADRs.

<sup>8</sup> A report by the United Nations Conference on Trade and Development states that on average, only half the firms that use derivatives disclosed this information in their financial statements (See, "The role of accounting in the East Asian financial crisis: lessons learned?" Transnational Corporations, published by United Conference on Trade and Development, Geneva, volume 7 (3), December 1998. The report compares the compliance of firms with the International Accounting Standards across five East Asian countries.)

governance information. Further, ADRs constitute a more natural setting to examine financial hedging than their local counterparts because they have greater growth opportunities, greater foreign exchange exposure, and are generally some of the largest firms in their local markets (e.g., see Doidge, Karolyi and Stulz (2003)).<sup>9</sup> Therefore our sample avoids potential biases due to differences in accounting standards and issues of voluntary disclosures that are present in local firms, since the firms in our sample are large multinational firms for which reporting of their derivatives use is mandatory.<sup>10</sup>

The sample of cross-listed foreign firms that are subject to the U.S. disclosure and reporting regulations are obtained from CRSP. This list is augmented with the Bank of New York's ADR database, available on the website [www.adrbny.com](http://www.adrbny.com), and the one of the Securities Data Company (SDC). After excluding financial institutions and utilities, which may have different motivations for the use of derivatives than non-financial firms, the sample contains 543 foreign firms. We also exclude non-unique ADRs and those with missing financial data and 20-F forms. This screening reduces the sample size to 410 firms. We then exclude firms that are located in countries for which the LLSV variables do not exist. These firms are mainly from China and ex-Soviet block countries. Finally, we exclude ADRs with incomplete data in COMPUSTAT tapes. Our final sample contains 1,630 firm-year observations from thirty-four countries. It is an unbalanced panel set of 386 firms.

We hand-collect data on whether these firms use foreign exchange derivatives, and the reasons of using them from the 20-F forms and annual reports filed with the SEC. The reasons include hedging, speculating, or market making. All the firms in our sample indicate that they use derivative contracts solely for hedging purposes. The 20-F forms are obtained from Thomson Research (formerly Global Access). We

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<sup>9</sup>Existing literature indicates that large firms, firms with greater ex-ante foreign exchange risk and firms with greater growth opportunities are more likely to engage in hedging activities. In fact, most of the recent U.S. based studies focus on large firms with existing foreign exchange exposure (e.g., Geczy et al. (1997), and Allayannis and Weston (2001)).

<sup>10</sup>A potential disadvantage of using cross-listed firms as representatives of firms in their respective countries is that they may have different characteristics than their local counterparts. Cross-listing in the U.S. enables firms to access external financing at a lower cost (e.g., Errunza and Miller (2000)). Further, cross-listed firms have lower controlling shareholder and managerial agency costs (since they become subject to the U.S. securities laws) relative to those that do not cross-list (e.g., Coffee (1999), Doidge et al. (2003), and Reese and Weisbach (2002)). These features of ADRs can influence the possible effect of hedging on corporate valuation. However, the bias associated with our ability to detect such a relationship should be against us. Further, it is important to note that Allayannis et al. (2003) show that cross-listing does not affect the extent that firms hedge foreign debt.

follow Lins (2003) in defining the firm-level governance variables that are collected from the 20-F forms and proxy statements.

#### *A1. Hypothesis development and variable definitions*

We use the market-to-book ratio as a proxy for Tobin's  $Q$  to proxy for the firm's market value. Tobin's  $Q$  is defined as the ratio of total assets less the book value of equity plus the market value of equity to the book value of assets. Since the distribution of Tobin's  $Q$  is skewed in our sample (the mean value of Tobin's  $Q$  is 2.20 whereas its median value is 1.48), we use the natural log of  $Q$  to take into account this skewness. This also makes our results more comparable to those of Allayannis and Weston (2001) who also use the natural log of  $Q$  to correct for the skewness of its distribution.

##### *A.1.1 Control Variables*

To control for factors that have been shown to affect firm value ( $Q$ ), we use the following firm-level financial control variables. Since firm size has been shown to affect firm value (e.g., see Mueller (1987) and Peltzman (1977)), we include the log of total assets to control for the effect of firm size on  $Q$ . We also use the log of sales as an alternative proxy for firm size.

To control for financial constraints, we include a dividend dummy, which equals one if the firm's dividend yield is greater than the median dividend yield for the sample in the current year. We do not construct our dividend dummy to indicate whether the firm paid dividend in the current year or not, because most firms in our sample pay dividends. Previous studies argue that the greater the dividend yield, the lower the probability that the firm is financially constrained (e.g., Fazzari, Hubbard, and Petersen (1988)). Firms that are more likely constrained may have higher  $Q$  values because they only undertake positive NPV projects (see, Lang and Stulz (1994), and Servaes (1996)). We should hence expect a negative relationship between dividend dummy and  $Q$ . Leverage, defined as the ratio of total debt to shareholder equity, is included to control for the possible effects of capital structure on firm value. More

profitable firms are likely to have higher  $Q$  values and thus firm profitability (proxied by the ratio of net income to total assets) is included in the analysis.

We also control for the firm's investment opportunities, as several studies show that firms with greater growth opportunities are more likely to engage in hedging (e.g., Froot, Scharfstein, and Stein (1993) and Gezcy, Minton, and Schrand (1997)). We use three variables to proxy for investment growth. As in Yermack (1996), we use the ratio of capital expenditures to sales and the ratio of research and development expenses to sales. In addition, similar to Morck and Yeung (1991) we use consumer goodwill, defined as the ratio of advertising to total sales, to control for the effect of investment growth on the relationship between hedging and firm value. If information is missing for any of these variables, we assume them to be zero.<sup>11</sup>

Earlier literature on firm diversification suggests that industrial diversification is value destroying. That is, firms with multiple industrial segments have lower  $Q$  values relative to single-segment firms (e.g., Berger and Ofek (1995), and Lang and Stulz (1994)). Therefore, we control for the effect of industry-wise diversification on  $Q$ . We include a diversification indicator variable, which equals one if the firm has at least another business segment with a different four-digit SIC code, and zero otherwise. Furthermore, we use year dummies to control for time effects, two-digit SIC codes to control for industry effects, and country dummies to control for cross-country variation in  $Q$  due to unobserved factors.

Finally, the currency regime of the country may influence the relationship between hedging and firm value for the following reasons: First, the foreign exchange volatility may be affected by the choice of currency regime, and second, foreign exchange restrictions may limit the firm's access to hedging instruments such as derivatives. To examine this issue, we construct a dummy variable that equals one if the country exchange regime is a floating or a soft pegged regime (FLOAT) and zero otherwise. We expect that the value-adding effect of hedging to be more valuable in countries with a floating currency regime.

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<sup>11</sup>However, we also repeat the analyses excluding the missing observations and find that the results are qualitatively similar.

### *A.1.2. Governance variables*

In addition to the previously mentioned factors, we also examine the relationship between hedging and firm valuation under different corporate governance mechanisms. Derivatives can be used either for hedging purposes or to speculate on firm output. Theory states that hedging is a value-increasing strategy because it reduces cash flow volatility and allows firms to reduce the likelihood of financial distress or to mitigate underinvestment (e.g., Smith and Stulz (1985), and Froot, Scharfstein, and Stein (1993)). Use of derivatives to speculate on firm output in subjective market conditions, on the other hand, should increase the cash flow volatility. Therefore, the positive impact of hedging on firm value, as documented by Allayannis and Weston (2001) and implied by many other papers, should be observed only when firms use derivatives for hedging purposes. Also, hedging as a result of managerial risk aversion or to allow management to pursue their “pet” projects should not lead to an increase in value. Thus, we hypothesize that the positive effect of hedging is associated with better corporate governance since better-governed firms are more likely to use derivatives for hedging purposes. Specifically, we examine the effects of internal firm-level ownership structure and external country-level governance mechanisms, as well as the interaction of them on the relationship between hedging and firm value.

First, we examine whether the firm-level internal ownership structures influence the effect of hedging on firm value. Many studies show that firm value is adversely affected by the degree of managerial agency costs (e.g., see Shleifer and Vishny (1997), Lins (2003), and Claessens, Djankov, Fan, and Lang (2002)).<sup>12</sup> In the context of risk management, the firm’s ownership structure may influence how firms use derivatives contracts.<sup>13</sup> For example, corporate insiders and inside blockholders may have different incentives than the outside investors and this difference in incentives can adversely affect the positive effect of hedging on firm value. In particular, to the extent that corporate insiders do not bear the

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<sup>12</sup>See Holderness (2002) for a survey of the effects of blockholders on firm valuation.

<sup>13</sup>Although the empirical evidence on the relationship between the firm-level internal ownership structure and corporate hedging decision is limited, Tufano (1996) documents that the existence of non-managerial blockholders reduces the extent of hedging. Differentiating among different types of blockholders, Lel (2003) finds that inside blockholders reduce the likelihood of hedging

consequences of their decisions, they may use derivatives for reasons other than value maximization. Further, managers with inferior skills, for example, may want to take bets on firm output rather than hedging the financial risks, in order to increase the noise associated with firm performance and hide their true managerial ability (Breedon and Viswanathan (1998)). Therefore, managerial blockholders may have fewer incentives to appropriately manage firm risks. We hypothesize that the positive impact of hedging on firm valuation is reduced if managers are also the largest blockholders in the firm, i.e., if there is a misalignment in the incentives of inside blockholders and outside investors.

Non-managerial blockholders, on the other hand, may function as monitors of the firm's actions and thus mitigate managerial agency costs. Therefore, the existence of non-managerial blockholders may prevent the use of derivatives for speculation, and force its use for hedging purposes. Thus, we hypothesize that hedging is associated with greater firm valuation when outside blockholders exist. Studying foreign firms provides a natural setting to measure the impact of firm ownership structure on the role of risk management on firm valuation since managerial agency costs are more severe, due to the fact that more complex ownership structures, such as pyramids and cross-holdings, which exist outside the U.S. exacerbate managerial agency problems and hence may play an even more important role in determining the effect of hedging on firm value (e.g., LLSV (1998) and Lins (2003)).<sup>14</sup> At the same time, ADRs are presumably some of the best firms outside the U.S., so, on average, we should not expect to find extreme value-destroying hedging activities in our sample.

Second, we examine the potential effects of the external corporate governance environment on the relationship between hedging and firm valuation. The external corporate governance environment at the country level may influence the effect of hedging on firm value by mitigating the potential adverse effects of agency costs of equity and debt (e.g., see LLSV (2002)). Furthermore, if managers with inferior ability use derivatives for speculation purposes rather than for hedging, so that their performance measure does

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whereas outside blockholders and blockholders that are financial institutions or institutional investors increase the likelihood of hedging.

<sup>14</sup> See Denis and McConnell (2003) and the citations contained therein.

not reflect their ability perfectly, then increased monitoring of managerial activities should mitigate this adverse effect. Since one such monitoring mechanism is the level of external shareholder protection, we hypothesize that the use of derivatives is value-adding for firms located in countries with stronger investor protection rights.

Third, we examine how the interaction between firm-level internal ownership structure and country-level external governance structure influences the effect of hedging on firm valuation. The level of investor protection laws can influence the degree of capital market imperfections which firms and investors are exposed to, making hedging more valuable in such countries with more severe market imperfections (e.g., see LLSV (2002)). As noted earlier, managerial agency costs may negatively affect the positive effect of hedging on firm valuation. However, these adverse effects can be mitigated by the existence of stronger investor protection rights, which serve to monitor managerial activities (e.g., see Lins (2003), LLSV (2000), and Dyck and Zingales (2002)). Thus, strong investor protection rights can help align the interest of managers with those of shareholders by enabling greater levels of shareholder scrutiny of managerial decisions. Therefore, we should expect that hedging is positively related to firm value in countries with stronger investor protection rights.

#### *A.1.2.1 Internal Governance variables*

We use three main variables to examine the relationship between firm-level internal governance structures and the effect of hedging on firm value to proxy for firm-level governance mechanisms. Following Lins (2003) and Lang, Lins, and Miller (2003), ‘largest BH is an insider’ is defined as a dummy variable that equals one if the largest blockholder, i.e., another firm/person/family that owns 10% or more of outstanding shares, is in the firm management, zero otherwise. Because the severity of managerial agency costs is greater if managerial blockholders exist, we expect that hedging is not value-adding when there is an inside blockholder. Similarly, ‘largest BH is an outsider’ is defined as a dummy variable that equals one if the largest blockholder is not in the firm management, zero otherwise. As this type of

blockholders can monitor managers' actions, a positive effect from this type of blockholders on the relationship between hedging and firm value is expected (see e.g., Mitton (2002)).

In further tests, we refine the definition of the blockholder to include several specific types of blockholders, such as whether the outside blockholder is an institutional investor, a family, or the state, that have been shown in prior work to have an important role in firm governance and in affecting agency costs. Specifically, Shleifer and Vishny (1997) argue that large shareholders, such as institutions, have stronger financial incentive to monitor management, while Coffee (1991) and Gillan and Starks (2000) add that institutional investors have greater incentives to monitor since they cannot always sell the shares of underperforming firms due to potential adverse price effects as well as due to indexing. McConnell and Servaes (1990) find empirical evidence of a significant positive relationship between  $Q$  and the fraction of shares owned by institutional investors and Smith (1996) finds an increase in shareholder wealth when financial institutions include a firm in their watch list. Finally, recently, Hartzell and Starks (2003) find that institutional ownership is positively related to the pay-for-performance sensitivity of executive compensation and negatively related to the level of compensation suggesting that institutions mitigate agency costs through effective monitoring. We expect firms with an institution as a large outside blockholder to add value through risk management.

On the contrary, we expect firms with a family affiliation to engage in less valuable risk management activities than firms without such affiliation. Fama and Jensen (1985) show how large, undiversified shareholders could employ different investment decision rules than diversified shareholders, and pursue objectives such as firm growth or firm survival, and not firm value maximization. Further, Shleifer and Summers (1988) note that families have incentives to redistribute rents from employees to themselves. Faccio, Lang, and Young (2001) examine family ownership and control among East Asian firms and find that family control leads to wealth expropriation when financial markets are not very transparent. Similarly, we expect firms, which have the state as a large blockholder to engage in less valuable risk management activities. State-owned firms' inefficiencies have long been documented (see

e.g., Boycko, Shleifer, and Vishny (1995)). Shleifer and Vishny (1997) explain state ownership in terms of cash flow and control rights: ...”While in theory these firms are controlled by the public, the de facto control rights belong to the bureaucrats. These bureaucrats can be thought of as having extremely concentrated control rights, but no significant cash flow rights because the cash flow ownership of state firms is effectively dispersed amongst the taxpayers in the country”. Dewenter and Malatesta (2001) find in a sample of large, non-US, industrial firms that state-owned firms are significantly less profitable and exhibit significantly greater labor intensity (measured by the employee to sales ratio) than privately-owned firms. Similarly, LaPorta and Lopez-de-Silanes (1999) and Claessens and Djankov (1998) find improved profitability for newly privatized Mexican and Eastern European firms respectively.

Another classification we use is according to the presence or not of a CEO who also holds the position of chairman of the board (dual CEO). Jensen (1993) and Yermack (1996) find that firms are more highly valued and boards more effective monitors when the CEO and the chairman positions are separated. Clearly, the presence of a dual CEO gives rise to a conflict of interest as the CEO can then evaluate his own performance and set the agenda of the board. We should expect that such firms would be more likely to pursue risk management activities for reasons outside value maximization.

Finally, we distinguish firms according to the cash flow and voting rights of the largest managerial blockholder. Generally, higher managerial cash flow rights and lower managerial voting rights mitigate agency conflicts and allow managers to pursue value maximization. Claessens et al. (2002) in a large sample of East Asian corporations disentangles the incentive and entrenchment effect of large ownership and finds that firm value increases with the cash flow ownership of the largest blockholder and falls when the control rights of the largest blockholder exceed its cash flow rights. LLSV (2002) also find higher valuations for firms with higher cash-flow ownership by controlling shareholders across 27 countries. We should expect risk management to be more valuable among firms with higher cash flow and lower voting rights by the largest blockholder.

#### *A.1.2.2 External Governance variables*

We use three main variables to examine the relationship between the effects of hedging on firm value, the external country-level governance mechanisms, and the interaction of firm-level internal governance structures with the external country-level governance mechanisms. The strength of shareholder rights is measured by the aggregate index of how well the shareholders' rights are protected under law (SHARERIGHTS). The strength of creditor rights is measured by the aggregate index of how well the creditor rights are favored under bankruptcy and reorganization laws (CREDRIGHTS). ENGLISH equals one if the country the firm is located in has an English legal origin, zero otherwise. Because strong investor protection laws may restrain corporate insiders' ability to expropriate wealth from outside investors, which may affect the role of hedging on firm value because of its impact on the degree of agency conflicts between corporate insiders and outside investors, we expect the positive effects of good internal firm governance measures on corporate hedging policy to be less pronounced in countries with weaker investor protection laws. (e.g., see LLSV 2000).

In addition to the above metrics we also use several other variables that have been suggested recently in the literature to characterize external governance such as the efficiency of the judicial system and the extent to which private or public enforcement exists (see LLSV 1998, LLSV 2003). Judicial efficiency is defined as the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" and is produced by the country risk rating agency Business International Corporation (with a scale from 0 to 10). Private enforcement of laws can benefit firms by reducing the costs of private contracting. This can be achieved, for example, by laws, which standardize security contracts (such as mandating disclosure in a report and explicitly articulating liability if the law is not obeyed). Public enforcement of laws, on the other hand, can take the form of the SEC, or a Central Bank who is an independent body and can regulate outside of political influences. Such an enforcer can have access to information through subpoena or other means, which can be more effective than a private enforcer. In theory, then, both public and private enforcement can work and are preferable to low or no

public or private enforcement. LLSV (2003) find significant evidence that private enforcement laws through disclosure and liability rules benefit stock markets, while very little evidence was found for the effectiveness of public enforcement. We should expect in countries with high private (and perhaps also high public) enforcement, managers to be more liable to laws, which reduce agency conflicts, and therefore expect a premium for hedging activities in such countries.

Finally, we use a measure of merger activity within the country (both the number as well as the dollar value) computed by Bris and Cabolis (2003), which includes all completed acquisitions of public companies available in Securities Data Corporation between 1985-2000, excluding among others, LBOs, spinoffs, repurchases, minority stake purchases, recapitalizations, and privatizations. Jensen (1986) argues that takeovers occur as a response to breakdowns of internal controls and inefficient use of resources by management. Take-over activity reduces agency costs by removing poor managers and streamlining operations (see, Jensen and Ruback (1983) for evidence that shareholders in successful takeover targets realize substantial wealth increases). Even the threat of a take-over can discipline management and focus them on value maximization. We should expect that in countries with a high number or dollar value of merger activity managers will more likely pursue value maximizing risk management objectives.

#### *A.2. Descriptive statistics*

Table 1 presents summary statistics for the full sample (panel A) as well as for the subsamples based on firms with and without foreign sales (panels B and C), and for the subsamples based on firms with and without currency derivatives (panel D). All the variables and the sources are defined in Appendix A. Similar to Allayannis and Weston (2001) we use the foreign sales ratio to classify firms into those with and without ex-ante exchange rate exposure (e.g., Geczy et al. (1997) and Allayannis and Ofek (2001)). Because firms with no exchange-rate exposure would not have any incentive to engage in currency hedging, we examine the effect of currency hedging on firm value separately for firms with and without exchange rate exposure. Thus, we report summary statistics for the subsamples based on foreign sales and currency derivative use separately.

Specifically, panel A presents summary statistics for the full sample. The mean value of assets for the firms in our sample is \$8765 and the mean value of sales is \$6953. On average, 72% of our sample observations have foreign sales, and the percentage of sales generated abroad is 46%. Panel A also reports that 61.5% of our sample firms use currency derivatives. This usage ratio is relatively higher than that reported for the U.S.-based studies but it is consistent with non-U.S. based surveys, such as the one by Bodnar (1999) who finds 78% of German firms using derivatives.

Panel B shows summary statistics for firms with positive foreign sales ( $FS > 0$ ), and panel C presents summary statistics for firms without any foreign sales ( $FS = 0$ ). These panels show that firms with exchange-rate exposure are larger (mean assets of \$10322 million vs. \$4754 million), are more likely to use currency derivatives (69% vs. 43%) and are more likely to be industry-wise diversified. Also, in almost all metrics of internal and external corporate governance, firms with positive foreign sales have higher values, indicating that there is fewer agency problems for the sample of firms with foreign sales than the one without (e.g., 38.4% of firms with foreign sales have the largest blockholder as an insider versus 61% for firms without foreign sales; and 44% reside in countries with an English legal origin versus 29% for firms without foreign sales). Given the less severe agency problems observed within the sample of firms with foreign sales, this should work against us finding extreme value-destroying hedging activities and make our tests more challenging. Panel D presents the mean and median values of the variables broken down into firms that use currency derivatives vs. those that do not use currency derivatives, based on positive foreign sales. It appears that the derivative users are larger and have lower capital expenditure and R&D ratios. Since previous studies indicate that larger firms and firms with lower capital expenditures have lower Tobin's  $Q$  values (e.g., Lang and Stulz 1994), controlling for these differences will be important in our tests.

Table 2 presents the Pearson correlation matrix for key variables in this paper. The pair-wise correlations are generally low, except for those within legal investor protection laws and within firm-level internal governance measures. Also, we note the positive correlations between measures of strong

governance (e.g., strong shareholder rights, English legal origin, largest blockholder is an outsider) and  $Q$ , consistent with prior work. Other correlations are less consistent with our expectations. For example, we observe a negative correlation between shareholder rights and the use of foreign currency derivatives, opposite from Le1 (2002) result. However, several confounding factors may be behind such association and the multivariate regressions that we perform subsequently should account for them. Although not reported, the correlations between firm-level internal governance measures and their interaction terms with the FCD dummy are very high and statistically significant. For example, the correlation between the ‘largest BH is an outsider’ and its interaction with the FCD dummy is 0.83 percent. Therefore, we analyze the impact of each of these firm-level internal governance measures on the relationship between hedging and firm value separately to avoid multicollinearity.

The results from the univariate analysis (untabulated) show that there is not a positive relationship between hedging and Tobin’s  $Q$ . While this would seem inconsistent with our hypothesis, it is important to note that many factors that affect  $Q$  differ substantially across subsamples. For example, the firms with no foreign operations in our sample have greater R&D expenses and higher capital expenditures than firms with foreign operations. Further, as Panel D in Table 1 shows, the currency derivative users are much larger firms than non-users, which can affect the univariate analysis of the relationship between hedging and Tobin’s  $Q$ , because these large firms arguably have fewer growth opportunities than smaller firms. This is also reflected in the capital expenditures, the R&D expenses and the dividends, as reported in panel D; more mature firms with fewer growth opportunities distribute more profits as dividends and have lower capital expenditure and R&D ratios.

## **II. Tests and Results**

### *A.1. Econometric Method*

To assess the effect of risk management on firm value, we examine differences in Tobin’s  $Q$  for our panel data set of foreign firms hedging activities. We face the following issues, which we

address econometrically in the paper. First, there is the possibility of lack of independence at the firm level since risk management policies are likely to be correlated from year to year. Second, Tobin's Q is known to vary substantially across countries, so controlling for unobserved country effects is important. However, many of our external governance variables are perfectly correlated across countries, which makes inference more challenging. Third, the decision to adopt risk management policies may be endogenously determined by issuer characteristics that are correlated with value.

The main results in this paper are reported using a model of country fixed effects, in which firms within a country share a common factor. In such a pooled time-series cross-section regression, the standard errors are likely to be inflated because of dependence at the firm level. To control for this, in all our analyses, we adopt a variation of the standard robust estimator of variance (Huber (1967), White (1980)), developed by Rogers (1993), to compute robust standard errors. This procedure takes into account the possibility that observations within clusters may not be independent. We specify that observations for each firm are part of the same cluster.

The formula for the standard robust estimator of variance is

$$\hat{Z} = \hat{V} \left( \sum_{j=1}^N u_j' u_j \right) \hat{V} \quad (1)$$

where  $\hat{V} = (\partial^2 \ln L / \partial \beta^2)^{-1}$  is the conventional estimator of variance and  $u_j$  is the contribution from the  $j$ th observations to the scores  $\partial \ln L / \partial \beta$ .

In the above formula, observations are assumed to be independent. If however, observations denoted by  $j$  are not independent but they can be divided into  $M$  groups  $G_1, G_2, \dots, G_M$  that are independent, then the robust estimator of variance is

$$\hat{Z} = \hat{V} \left( \sum_{k=1}^M u_k^{(G)}, u_k^{(G)} \right) \hat{V} \quad (2)$$

where  $u_k^{(G)}$  is the contribution of the kth group to the scores  $\partial \ln L / \partial \beta$ .

Hence, for the case where observations within clusters are not independent, the application of the robust variance formula involves using a different decomposition of  $\partial \ln L / \partial \beta$ , namely  $u_k^{(G)}$ ,  $k=1, \dots, M$  rather than  $u_j$ ,  $j=1, \dots, N$ . In this way, our model controls for known determinants of Tobin's Q within as well as across countries. In addition, it adjusts standard errors for the potential lack of independence.

We estimate our models using fixed effects because in our models, random country effects are rejected by the Hausman specification test. Therefore, to test the differential impacts of risk management on firm value across internal/external governance mechanism while controlling for country, we will follow previous research (Lins 2003, Lang, Lins, and Miller 2003) and split the sample by our variables of interest.

A natural alternative to this model is that of firm fixed (or random) effects. However, since in our data there is much less time series variation in the risk management policies of foreign firms than in the cross-section, a firm fixed effects specification is likely mis-specified.<sup>15</sup> For example, Zhou (2001) shows that by relying on the within variation, fixed effects estimators lack the power to detect significant relationships if the time series displays relatively little variation.

Finally, one potential concern regarding our tests is endogeneity. Suppose that firms with high value tend to use currency derivatives for reasons unrelated to risk management and that our controls for firm and country characteristics do not capture this information. Then, we might infer a link between FCD use and the value when none exists. For example, suppose that

$$Y = \beta x + \delta C + \varepsilon, \quad (9)$$

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<sup>15</sup> Specifically, out of 1174 firm-year observations we have 44 firms initiating a hedging program (i.e., switching from nonhedgers to hedgers) and 23 firms stopping one (i.e., switching from hedgers to nonhedgers).

where  $C$  is the indicator variable which takes on the value one if the firm uses a FCD and zero otherwise.

Since firms choose to use FCD based on various factors, we can model this decision as

$$\begin{aligned} C^* &= \gamma' w + u \\ C &= 1 \quad \text{if } C^* > 0, \quad 0 \quad \text{otherwise} \end{aligned} \tag{10}$$

If the typical firm selects their derivative use because of some expected benefit in  $Y$ , then OLS estimates of  $\delta$  will not correctly measure the effect of risk management. This problem of self-selection is often handled empirically with a treatment effects model (see e.g., Greene (1990)).

To mitigate this potential endogeneity issue, we employ a treatment effects model that controls for this bias. We model the hedging decision as a function of firm-specific variables that have been shown to be important factors in previous work, such as size, leverage, and research and development intensity (see e.g., Graham and Rogers (2002), Geczy, Minton, and Schrand (1997), etc.). We obtain consistent estimates via full Maximum Likelihood estimation.<sup>16</sup>

## *A.2. Corporate Governance and Risk Management Effectiveness*

In this section we present the results of the hypothesis of whether risk management adds value around the world and whether corporate governance affects its effectiveness. Following Allayannis and Weston (2001), in Table 3 we present results of the hedging premium for the sample of firms with exposure to exchange rates (foreign sales  $> 0$ ) and the sample of firms with no exposure (foreign sales = 0). We expect that only firms with exposure, which have therefore an incentive to hedge, are rewarded in the marketplace with a higher valuation. Panel 3A shows results from a model of country fixed effects, in which firms within a country share a common factor. To control for potential lack of independence over time, the standard errors are corrected for within-firm correlation. We chose to estimate such a model as a random country effects alternative was rejected by the Hausman test and there was simply not enough firm-level variation on the hedging decision to warrant a firm fixed-effects model. The rejection of the random

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<sup>16</sup> A Heckman [1979] two-step estimation procedure produces similar results.

effects model also has implications on the way we have further tested for the corporate governance effects in this paper, which we will address below. We also include year dummies to account for any time trends and more importantly, years in which crises occur, as well industry controls at the 2-digit SIC. We also include firm-specific factors described earlier in the data section, such as size, profitability, leverage, etc., which have been commonly used in prior work as controls in firm-value regressions.

Consistent with our hypothesis, as the coefficient of the FCD dummy indicates, we find a positive and significant hedging premium for firms with exposure and a positive but insignificant exposure for firms without exposure. This suggests that, on average, hedging adds value around the world. The magnitude of the hedging premium is substantial: we find that on average, firms, which manage risk are valued about 11.8% higher than similar firms, which do not manage risk. Although at first glance, this premium seems very large, it is broadly in line with Allayannis and Weston's (2001) premium of 4.8% for a sample of U.S. firms, considering that foreign firms face a significantly higher exchange rate volatility of their local currency than firms in the U.S. and also have higher exposures through foreign sales and/or foreign debt. Several of the control variables are also significant and with the appropriate sign. For example, similar to previous work, we find that small and low-levered firms are associated with higher value. In addition, financially constrained firms are also associated with higher Qs, as indicated by the negative coefficient in the dividend yield dummy and also found by Allayannis and Weston.

To control for potential endogeneity we estimate a treatments effects model described in detail in the econometrics section. In the first stage we model the decision to use currency derivatives using variables that have been shown previously to be important such as size, leverage, research and development (Geczy et al (1997), Graham and Rogers (2002)), while in the second stage using the predicted values for the decision to use derivatives, we estimate its impact on firm value. Panel B of Table 3 shows results of the value regression for the subsamples of firms with and without foreign sales. Similar to our previous results, we find a positive and significant relationship between the use of foreign currency derivatives and firm value for firms with foreign sales and no significant relationship for firms without

foreign sales. These results suggest that endogeneity does not affect our result that, on average, risk management is beneficial for foreign firms with foreign exchange exposure.

So far, we have established that on average, hedging adds value. In the subsequent tests, we examine further the impact of corporate governance on the hedging effectiveness. Several theories suggest that strong (weak) internal corporate governance, which reduces agency costs, should be linked to valuable (non-valuable) risk management activities (e.g., Smith and Stulz (1985)). Following Lins (2003) we proxy for quality of internal, firm-specific corporate governance using two variables: a dummy variable, which equals 1 if the largest blockholder is an insider and 0 otherwise; and a dummy variable, which equals 1 if the largest blockholder is an outsider. We expect that large inside blockholders would engage in less valuable risk management activities, primarily for their own benefit, while large outside blockholders would ensure through monitoring that insiders undertake risk management activities that are in shareholders' interest. Table 4, panel A, columns 1 and 2, present results of the impact of hedging for samples of high and low inside ownership respectively, where we classify a firm as a high inside ownership one if it has an insider as the largest blockholder and a low inside ownership one if it does not have an insider as the largest blockholder. Consistent with our hypothesis, we find that firms with low inside ownership have a positive and significant hedging premium (coefficient of 0.173) whereas firms with high inside ownership show a positive but insignificant premium. Although the coefficients on the significant control variables are consistent with prior findings, different factors appear to be important for the two samples (leverage and dividend dummy for the low inside ownership sample and size, capital expenditures, and dividend dummy for the high ownership sample) suggesting that performing regressions in two separate samples has merit.

Our second set of tests focuses on the presence of an outsider as the largest blockholder. Again, we separate the sample in high and low outside ownership, where a firm is assigned to the former sample if the largest blockholder is an outsider and to the latter if it does not. Consistent with our hypothesis, we find a positive and significant hedging premium for firms with high outside ownership and a positive but

insignificant coefficient for firms with low outside ownership (Table 4, panel A, columns 3 and 4). These results add to previous results on the monitoring ability of large outside shareholders and suggest a channel (risk management) through which these activities improve firm value.

We performed several other tests that yield supportive evidence regarding firm-level internal corporate governance and the impact on risk management activities using alternative measures of internal corporate governance that have been suggested in the literature and described earlier. Table 4, panel B presents the results from these tests. Specifically, we separate according to the presence of an institutional investor as an outside blockholder and find significant evidence that firms with an institutional investor as an outside blockholder engage in valuable risk management activities, consistent with theoretical arguments by Coffee (1991) and Shleifer and Vishny (1997) and empirical evidence in McConnel and Servaes (1990), Gillan and Starks (2000), and Hartzell and Starks (2003), among others, suggesting the effectiveness of institutions as outside monitors. Consistent with Claessens and Djankov (1999), Dewenter and Malatesta (2001), and Shleifer and Vishny (1997) we find evidence that risk management activities of firms, which are state-owned are not rewarded by the market with a premium, while those of firms which are not state-owned are rewarded with a premium. Finally, a similar result is also obtained when we separate firms according to family or non-family ownership, which is consistent with Faccio et al. (2001) finding that family ownership and control among East Asian firms is associated with wealth expropriation. We should expect (and find) that the use of derivatives by such family-owned firms would only serve families to speculate on future output or to allow them to pursue their “pet” projects. Interestingly, the coefficient on the derivatives dummy in that sample is negative (although not significant). In addition, in tests in which we separate firms according to the existence of a CEO who also holds the position of the chairman of the board, a situation which is associated with more severe agency costs (see e.g., Jensen (1993) and Yermack (1996)), we find that the absence of such CEO from a firm positively impacts its risk management activities and firms without such CEO show a positive hedging premium, while the presence of such CEO does not yield a premium from risk management activities.

The last set of tests separates firms according to managerial cash flow and managerial voting rights. Consistent with Claessens et al. (2002) we find significant evidence that firms with high managerial cash flow rights are rewarded with a premium by the market for their risk management activities, while those with low managerial cash flow rights are not. However, we do not find any difference in the hedging premiums among firms with low versus high managerial voting rights; in fact, both samples exhibit insignificant premiums. Taken together these results suggest that agency costs reduce the effectiveness of risk management activities and that mitigating them allows firms to improve firm value through value-increasing risk management activities.

While the previous tests focus on firm-level internal corporate governance and its impact on risk management value, our next tests examine the impact of external, country-level governance. In particular, we perform tests based on samples that are separated according to the strength of shareholder rights, the strength of creditor rights, and legal origin. The importance of these variables was shown in La Porta et al. (1998) and here we are employing them in the context of risk management. Table 5, columns 1 and 2 present results of tests for a hedging premium for firms, which reside in a country with strong and weak shareholder rights respectively. A country is included in the sample of strong shareholder rights, if it has anti-director rights above the sample median value of 4, otherwise it is classified as a country with weak shareholder rights. Given that, as mentioned earlier, a random effects specification was rejected by the Hausman test, we cannot include in the same regression country dummy variables as well as country variables (such as shareholder rights). Therefore, we resort to splitting the sample according to the country-specific variable and perform two separate regressions in which we include country dummies. We then compare the coefficients on the currency derivatives dummy across the two samples. A similar approach was also pursued in Lins (2003) and Lang et al. (2003).

We find a positive and significant hedging premium for firms, which reside in countries with strong shareholder rights and a positive but insignificant premium for firms, which reside in countries with weak shareholder rights. The difference between the two coefficients is statistically significant at the 5

percent level. A similar result is also obtained when we split up the sample according to strong and weak creditor rights countries. This is consistent with our hypothesis that in countries with strong creditor rights, bankruptcy costs are expected to be large, and therefore hedging more valuable (see e.g., Smith and Stulz (1985), and Claessens et al. (2003)). Finally, we split our sample based on legal origin and in particular based on whether a firm resides in a country with an English legal origin or not (columns 5 and 6). Legal origin has been consistently found to be an important factor associated with firm value and financial development (e.g., LLSV (2002)). We find strong evidence that firms, which reside in a country with English legal origin engage in significantly more valuable risk management activities than firms, which reside in a country with a non-English legal origin. In fact, the economic value (and statistical significance) of risk management is the highest for such firms (even higher than for firms which reside in countries with strong shareholder or creditor rights). Again, as before, several control variables are significant and have the appropriate sign (for example, size, capital expenditures, and dividend yield), but they may not be common across samples. Also note that these regressions have relatively high explanatory power as suggested by the adjusted- $R^2$ , which range between 38% and 54% (and generally higher than those reported in fixed-effects regressions in Allayannis and Weston (2001) for US firms).

We also use a variety of alternative measures proposed in the literature to reflect the quality of country-level external governance such as the efficiency of the judicial system (LLSV (1998)), public and private enforcement (LLSV (2003)) and the number and dollar amount of merger activity within a country (Bris and Cabolis (2003)). Consistent with our hypothesis we find that in high quality external governance countries, firms engage in valuable risk management activities, while in low quality external governance countries firms are not rewarded with a premium (Table 5, panel B). The hedging premium ranges in those specifications between 0.151 and 0.213 for firms residing in high quality external governance countries and is almost always significantly different from the hedging premium of firms residing in low quality external governance countries.

Our main result so far is that quality internal and external governance play an important role in risk management and its value by ensuring that risk management activities are taken for the benefit of shareholders; conversely, lack of quality in corporate governance is associated with non-valuable risk management activities. Our final tests in this section examine the interaction between firm-specific internal corporate governance and country-specific external governance and their impact on the value of risk management. In these tests we want to explicitly focus on situations where internal governance is weak and external is strong or vice-versa, and see whether such interaction has positive implications for risk management.

Table 6 presents the results of these tests. For brevity, we only report results on the currency derivatives dummy. We split the sample in finer categories than in our previous tests holding one category (internal or external) fixed while varying the other. For example, the first set of tests is for the sample of firms with weak internal governance (when the largest blockholder is an insider), which also reside in countries with strong shareholder rights versus the sample of firms with weak internal governance, which reside in countries with weak external shareholder rights. The second and third set of tests holds fixed internal corporate governance (weak) and uses alternative measures of external corporate governance such as creditor rights and legal origin, to differentiate between strong and weak external corporate governance. Specifically, we examine whether firms with weak internal corporate governance, which on average do not engage in value-increasing risk management activities (as our previous tests suggest), differ in their risk management activities depending on the quality of the external environment. In other words, does a strong external corporate governance system mitigate agency costs and improve on the value of risk management? We find significant evidence that strong external corporate governance has a positive impact on internal governance and yields valuable risk management activities. We obtain the strongest results when we use English origin as the criterion of external governance to classify firms (set 3), although our results are broadly consistent when using the strength of shareholder rights as a criterion. Specifically, firms with weak internal corporate governance show a positive and significant hedging premium when

they reside in countries with an English legal origin, while those with weak internal corporate governance, which reside in countries with a non-English legal origin do not have a positive premium on their risk management activities. This suggests that a strong legal environment reduces the ability of insiders to engage in risk management activities for their benefit only.

We next examine whether strong internal corporate governance, which is associated on average with value-increasing risk management activities may be affected by the external corporate governance. Specifically, is the value of risk management brought about by monitoring by outsiders, such as institutions tempered by weak external governance? Sets 4-6 of regressions show significant evidence on the importance of external governance and how a weak external governance can reduce the effectiveness of strong internal governance. We find that firms with strong internal governance (when an institution is the largest blockholder) have a significant hedging premium when they reside in countries with strong shareholder rights, creditor rights, or an English legal origin, whereas similar firms with strong internal governance which reside in countries with weak shareholder rights, creditor rights or a non-English legal origin do not show a significant hedging premium (and the Chow test shows that the two premia are significantly different at the 5 percent level). Similar results are obtained using several other measures of external governance, such as the efficiency of the judicial system, private and public enforcement, and the number of the mergers within the country (results not reported).

### *A.3. Macro Factors and Risk Management Value*

While our previous tests examined the impact of internal and external corporate governance on the value of risk management, other external factors such as the exchange-rate regime (given that we examine currency hedging), or the appreciation or depreciation of the currency may have an effect on the value of risk management and will be interesting to explore. In addition, given that East Asia experienced a

currency crisis during 1997, it will be interesting to examine whether the value of risk management has increased in the during and post-crisis.<sup>17</sup>

Table 7 presents results of the tests for samples based on the following external factors: whether the exchange-rate regime is floating or fixed (columns 1 and 2), whether the US dollar depreciated or appreciated (columns 3 and 4) and for firms before and after the crisis (columns 5 and 6). We find significant evidence that hedging is more valuable under a floating regime (the coefficient is positive (0.123) and significant) than under a fixed regime. In fact, we find no hedging premium under a fixed regime. Although currency volatility is higher under a floating regime (in fact, there is little, if at all, volatility under the fixed regime), this does not necessarily mean that exchange rate risk is higher under floating, since the possibility of a large devaluation under fixed regime is real, as evidenced in East Asia in 1997.

Regarding the appreciation or depreciation of the dollar, hedging is presumably more valuable when the exposure is higher and may result in a loss, such as when the dollar appreciates and firms are exposed to foreign currencies through foreign sales or exports. Allayannis and Weston (2001) find evidence that hedging is valuable under both appreciations and depreciations, but more significantly valuable when the dollar appreciated, consistent with hedging protecting firms from potential losses through foreign sales. Since our sample here involves firms from around the world, a similar story would suggest that risk management would be valuable when the dollar depreciates (hence the local currency appreciates). Interestingly, we find that hedging is more valuable when the dollar appreciates (i.e., the local currency depreciates). This evidence is consistent with recent evidence in Allayannis et al. (2003) for East Asian firms, which face large exposures through foreign debt (as opposed to foreign sales). A depreciating local currency is devastating in the presence of large foreign debt, so hedging can be valuable in such a situation. Finally, examining the time-series of the hedging premium, we find that hedging is more

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<sup>17</sup> We include 1996 as part of the crisis years given that in some countries the impact was already visible by then.

valuable during and post crisis, perhaps when the world also noted the catastrophic consequences on firms around the world that a crisis can bring upon.

### **III. Conclusions**

In this paper we examine the impact of corporate governance on the value of risk management around the world. Corporate governance plays an important role and risk management serves as a way by which quality corporate governance improves firm value. We find that on average, hedging is valuable around the world, adding to existing evidence by Allayannis and Weston (2001) on US firms. Furthermore, firms with weak internal corporate governance do not engage in valuable risk management activities while firms with strong internal corporate governance do. External corporate governance is very important for risk management effectiveness. Firms that reside in countries with strong external governance (such as countries with strong shareholder rights protection or an English legal origin) show a positive hedging premium. Most interestingly, strong external corporate governance can mitigate agency costs and increase risk management value even when internal corporate governance is poor. Finally, other external factors besides corporate governance affect the hedging premium around the world. Hedging is more valuable under floating exchange-rate regimes, when the dollar appreciates, and in the post-crisis period. While we have identified here the factors that affect the hedging premium around the world, an interesting question that remains is how *changes* in corporate governance and external factors impact the premium. We leave this for future work.

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**Table 1**  
**Summary statistics**

This table provides the descriptive statistics for the sample used throughout the regressions. Panel A displays the mean, median and the standard deviation values for the variables. Panel B reports these values only for firms with positive foreign sales and panel C reports the results only for the firms with no foreign sales. All the dollar amounts are measured in million USD. Finally, panel D reports firm and country-level characteristics for currency derivative users and nonusers. The dollar figures are reported in absolute terms, although we use them in logs throughout the regressions. Tobin's  $Q$  is calculated as total assets less the book value of equity plus the market value of equity in the numerator and book value of assets in the denominator. Foreign sales dummy is a dummy variable that is equal to one if the firm has foreign sales greater than zero, zero otherwise. FCD dummy is a dummy variable that is equal to one if the firm has used currency derivatives such as currency forwards, currency futures, currency options or currency swaps for hedging purposes, zero otherwise. 'Largest BH is an insider' is a dummy variable that takes on the value of 1 if the largest blockholder (holding 10% or greater percentage of outstanding shares) is in firm management, zero otherwise. 'Largest BH is an outsider' is a dummy variable that takes on the value of one if the largest blockholder (holding 10% or greater percentage of outstanding shares) is not in firm management, zero otherwise. 'Institutional investor as BH' is a dummy variable that equals one if the firm has an institutional investor as a blockholder (holding 10% or greater percentage of outstanding shares), zero otherwise. State ownership dummy equals one if the firm has the government as a shareholder, zero otherwise. Family ownership dummy equals one if the firm is a family firm, defined as a firm managed and/or owned by the members of a family, zero otherwise. Dual CEO dummy equals one if the firm's CEO is also the chairman of the board, zero otherwise. Shareholder (antidirector) and creditor rights are index variables and higher values of these variables correspond to better investor protection. English legal origin is a dummy variable that equals one if the country's legal origin is English. Efficiency of judicial system is an assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms". These variables are from LLSV (1998). Public enforcement index equals the arithmetic mean of supervisor characteristics, investigative powers, orders, and criminal indices. Private enforcement index equals the arithmetic mean of disclosure and burden of proof indices. Both variables are from La Porta et al (2003). Country-level merger activity (dollar-wise) is the ratio of the dollar value of mergers to the total market capitalization in a given country and year. Country-level merger activity (number-wise) is the ratio of the number of mergers to the total number of firms in a given country and year. Both variables are from Bris and Cabolis (2003). Floating currency regime is a dummy variable that takes on the value of one if the home country has a floating or soft pegged currency regime, zero otherwise. Total assets refer to firm total assets. Sales is annual sales. Return on assets is the ratio of net income divided to total assets. Leverage is the debt-to-equity ratio, calculated as the ratio of total debt to shareholder equity. Capex/total sales is the capital expenditures divided by total sales. Diversification dummy takes on the value of one if firm has at least one other business segment with a different (four-digit) SIC code, zero otherwise. R&D/sales is the research and development expenses scaled by sales. Advertising/sales is the ratio of advertising expenses to total sales. Missing values for these two variables are set to zero. Dividend dummy takes on the value of 1 if the firm's dividend yield is greater than the median dividend yield for the sample, zero otherwise. Foreign sales/total sales is the ratio of foreign sales to total sales.

<b>Variable name</b>	<b>No. obs.</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>
<b>Panel A. All firms</b>				
Tobin's $Q$	1630	2.197	1.485	2.294
Foreign sales dummy	1630	0.720	1.000	0.449
FCD dummy	1630	0.615	1.000	0.487
Largest BH is an insider	1630	0.447	0.000	0.497
Largest BH is an outsider	1630	0.164	0.000	0.371
Institutional investor as a BH	1630	0.148	0.000	0.355
State ownership dummy	1630	0.117	0.000	0.322
Family ownership dummy	1630	0.279	0.000	0.449
Dual CEO	1598	0.266	0.000	0.460
Shareholder rights	1582	3.505	4.000	1.406
Creditor rights	1568	2.198	2.000	1.432
English legal origin	1591	0.400	0.000	0.490
Efficiency of judicial system	1582	8.696	10.000	1.786
Public enforcement	1582	0.467	0.560	0.271
Private enforcement	1582	0.598	0.670	0.189
Country-level dollar-wise merger activity	1555	22.452	2.380	125.317
Country-level number-wise merger activity	1555	9.123	6.797	7.228
Floating currency regime	1630	0.896	1.000	0.305
Total assets	1630	8764.546	1978.175	16901.27
Sales	1630	6953	1182	14651
Return on assets	1630	0.009	0.041	0.167
Leverage	1630	0.555	0.367	0.900
Capex/total sales	1630	0.214	0.082	0.410

Diversification dummy	1630	0.529	1.000	0.499
R&D/sales	1630	0.092	0.000	0.408
Advertising/sales	1630	0.008	0.000	0.021
Dividend dummy	1630	0.514	1.000	0.500
Foreign sales/total sales	1630	0.461	0.430	0.430

**Panel B. Foreign Sales>0**

Tobin's $Q$	1174	2.155	1.470	2.186
FCD dummy	1174	0.686	1.000	0.464
Largest BH is insider	1174	0.384	0.000	0.487
Largest BH is outsider	1174	0.181	0.000	0.386
Institutional investor as a BH	1174	0.154	0.000	0.361
State ownership dummy	1174	0.097	0.000	0.296
Family ownership dummy	1174	0.272	0.000	0.445
Dual CEO	1151	0.257	0.000	0.437
Shareholder rights	1154	3.580	4.000	1.374
Creditor rights	1146	2.318	2.000	1.411
English legal origin	1160	0.441	0.000	0.497
Efficiency of judicial system	1154	9.189	10.000	1.379
Public enforcement	1154	0.471	0.670	0.280
Private enforcement	1154	0.622	0.710	0.178
Country-level dollar-wise merger activity	1127	22.475	2.380	133.871
Country-level number-wise merger activity	1127	9.853	8.656	7.370
Floating currency regime	1174	0.916	1.000	0.278
Total assets	1174	10322.35	2738.118	18207.9
Sales	1174	8688	1718	16156
Return on assets	1174	0.008	0.040	0.168
Leverage	1174	0.572	0.386	0.942
Capex/total sales	1174	0.146	0.067	0.283
Diversification dummy	1174	0.604	1.000	0.489
R&D/sales	1174	0.087	0.008	0.343
Advertising/sales	1174	0.009	0.000	0.021
Dividend dummy	1174	0.520	1.000	0.500
Foreign sales/total sales	1174	0.641	0.628	0.377

**Panel C. Foreign Sales=0**

Tobin's $Q$	456	2.306	1.512	2.551
FCD dummy	456	0.434	0.000	0.496
Largest BH is insider	456	0.610	1.000	0.488
Largest BH is outsider	456	0.121	0.000	0.326
Institutional investor as a BH	456	0.132	0.000	0.338
State ownership dummy	456	0.169	0.000	0.375
Family ownership dummy	456	0.298	0.000	0.458
Dual CEO	447	0.289	0.000	0.514
Shareholder rights	428	3.304	4.000	1.470
Creditor rights	422	1.872	2.000	1.440
English legal origin	431	0.290	0.000	0.454
Efficiency of judicial system	428	7.366	6.500	2.061
Public enforcement	428	0.457	0.500	0.245
Private enforcement	428	0.535	0.460	0.205

Country-level dollar-wise merger activity	428	22.391	2.150	99.475
Country-level number-wise merger activity	428	7.199	5.176	6.467
Floating currency regime	456	0.846	1.000	0.361
Total assets	456	4753.877	1111.552	12067.82
Sales	456	2487	529	8238
Return on assets	456	0.012	0.043	0.164
Leverage	456	0.511	0.308	0.781
Capex/total sales	456	0.388	0.199	0.595
Diversification dummy	456	0.336	0.000	0.473
R&D/sales	456	0.107	0.000	0.542
Advertising/sales	456	0.006	0.000	0.021
Dividend dummy	456	0.500	0.500	0.501
Foreign sales/total sales	456	0.000	0.000	0.000

**Panel D. Currency derivative users vs. non-users for firms with foreign sales>0**

Variable name	Currency derivative users (805 observations)				Currency derivative non-users (369 observations)			
	No. obs.	Mean	Median	Std. Dev.	No. obs.	Mean	Median	Std. Dev.
Tobin's $Q$	805	0.469	0.355	0.550	369	0.636	0.577	0.751
FCD dummy	805	1.000	1.000	0.000	369	0.000	0.000	0.000
Largest BH is an insider	805	0.313	0.000	0.464	369	0.539	1.000	0.499
Largest BH is an outsider	805	0.175	0.000	0.380	369	0.195	0.000	0.397
Institutional investor as a BH	805	0.159	0.000	0.366	369	0.144	0.000	0.351
State ownership dummy	805	0.124	0.000	0.330	369	0.038	0.000	0.191
Family ownership dummy	805	0.198	0.000	0.398	369	0.434	0.000	0.496
Dual CEO	786	0.244	0.000	0.430	365	0.285	0.000	0.452
Shareholder rights	802	3.507	4.000	1.306	352	3.744	4.000	1.507
Creditor rights	801	2.256	2.000	1.287	345	2.464	3.000	1.656
English legal origin	801	0.382	0.000	0.486	359	0.574	1.000	0.495
Efficiency of judicial system	802	9.353	10.000	1.192	352	8.816	10.000	1.675
Public enforcement	802	0.457	0.600	0.287	352	0.504	0.670	0.261
Private enforcement	802	0.614	0.710	0.172	352	0.640	0.750	0.189
Country-level dollar-wise merger activity	782	26.495	2.380	146.508	345	13.363	2.010	99.042
Country-level number-wise merger activity	782	9.578	8.240	7.359	345	10.477	9.280	7.366
Floating currency regime	805	0.922	1.000	0.269	369	0.902	1.000	0.297
Total assets	805	14024	5093	20001	369	2247	306	9349
Sales	805	11797	4248	17958	369	1904	154	7755
Return on assets	805	0.045	0.045	0.073	369	-0.072	0.021	0.262
Leverage	805	0.641	0.434	0.898	369	0.423	0.158	1.016
Capex/total sales	805	0.129	0.068	0.237	369	0.185	0.066	0.360
Diversification dummy	805	0.688	1.000	0.464	369	0.420	0.000	0.494
R&D/sales	805	0.041	0.011	0.140	369	0.187	0.000	0.563
Advertising/sales	805	0.010	0.000	0.021	369	0.007	0.000	0.023
Dividend dummy	805	0.629	1.000	0.483	369	0.282	0.000	0.451
Foreign sales/total sales	805	0.641	0.630	0.363	369	0.639	0.619	0.405

**Table 2**  
**Correlation matrix**

This table provides the Pearson correlation matrix for the variables and the associated significance levels. Tobin's  $Q$  is calculated as total assets less the book value of equity plus the market value of equity in the numerator and book value of assets in the denominator. FCD dummy is a dummy variable that is equal to one if the firm has used currency derivatives such as currency forwards, currency futures, currency options or currency swaps for hedging purposes, zero otherwise. Shareholder (antidirector) and creditor rights are index variables and higher values of these variables correspond to better shareholder protection. English legal origin is a dummy variable that equals one if the country's legal origin is English. These variables are from LLSV (1998). 'Largest BH is an insider' is a dummy variable that takes on the value of one if the largest blockholder (holding 10% or greater percentage of outstanding shares) is in firm management, zero otherwise. 'Largest BH is an outsider' is a dummy variable that takes on the value of one if the largest blockholder (holding 10% or greater percentage of outstanding shares) is not in firm management, zero otherwise. 'Institutional investor as BH' is a dummy variable that equals one if the firm has an institutional investor as a blockholder (holding 10% or greater percentage of outstanding shares), zero otherwise. Return on assets is the ratio of net income by total assets. Leverage is the debt-to-equity ratio, calculated as the ratio of total debt to shareholder equity. Capex/total sales is the capital expenditures divided by total sales. The stars \*\*\*, \*\*, and \* indicate significance at the 1-percent, 5-percent, and 10-percent level, respectively.

	Tobin's $Q$	FCD dummy	Strong shareholder rights	Strong creditor rights	English legal origin	Largest BH is an insider	Largest BH is an outsider	Largest BH is an institution	Return on assets	Leverage
Tobin's $Q$	1									
FCD dummy	-0.081***	1								
Strong shareholder rights	0.094***	-0.137***	1							
Strong creditor rights	0.113***	0.018	0.729***	1						
English legal origin	0.144***	-0.097***	0.670***	0.688***	1					
Largest BH is an insider	-0.008	-0.220***	-0.131***	-0.178***	-0.210***	1				
Largest BH is an outsider	0.003**	0.195***	0.119***	0.094***	0.214***	-0.596***	1			
Institutional investor as BH	-0.0399	0.042*	0.051**	0.084***	0.065***	-0.086***	-0.272***	1		
Return on assets	-0.088***	0.256***	-0.103***	-0.112***	-0.136***	0.019	0.016	-0.095***	1	
Leverage	-0.176***	0.133***	-0.047***	-0.074***	-0.073***	-0.009	-0.000	-0.001	0.007	1
Capex / sales	0.062**	-0.135***	0.064***	0.103***	0.070***	0.073***	-0.109***	-0.009	-0.182***	0.127***

**Table 3**  
**Hedging premium for the full sample**

This table displays the country fixed effects results of hedging premium for the full sample split up with respect to firm foreign sales, proxying for exchange rate risk. The standard errors are corrected for within-firm correlation. The dependent variable is the Ln (Tobin's  $Q$ ), which is calculated as the log of total assets less the book value of equity plus the market value of equity in the numerator and book value of assets in the denominator. Foreign sales is the firm's annual foreign sales. FCD dummy is equal to one if the firm has used currency derivatives such as currency forwards, currency futures, currency options or currency swaps for hedging purposes, zero otherwise. Ln (Total assets) is the log of firm total assets. Return on assets is the ratio of income to total assets. Leverage is the debt-to-equity ratio, calculated as the ratio of total debt to shareholder equity. Capex/total sales is the capital expenditures divided by total sales. Diversification dummy takes on the value of one if firm has at least one other business segment with a different (four-digit) SIC code, zero otherwise. R&D/sales is the research and development expenses scaled by sales. Advertising/sales is the ratio of advertising expenses to total sales. Missing values for these two variables are set to zero. Dividend dummy takes on the value of one if the firm's dividend yield is greater than the median dividend yield for the sample, zero otherwise. The stars \*\*\*, \*\*, and \* indicate significance at the 1-percent, 5-percent, and 10-percent level, respectively.

**Panel A. Hedging premium with country fixed effects estimation with correction for within firm correlation**

Variable name	Foreign sales >0		Foreign sales = 0	
	Coefficient	t-statistics	Coefficient	t-statistics
<i>FCD dummy</i>	0.118*	1.670	0.043	0.580
Ln (Total assets)	-0.065***	-3.080	-0.023	-0.770
Return on assets	0.179	0.830	-1.051**	-2.250
Leverage	-0.048**	-2.100	-0.105*	-1.670
Capex/total sales	0.119	1.210	-0.013	-0.150
Diversification dummy	0.002	0.030	-0.014	-0.150
R&D/sales	-0.044	-0.450	0.086	0.730
Advertising/sales	1.099	1.264	3.416*	1.730
Dividend dummy	-0.206***	-3.820	-0.155*	-1.880
Intercept	0.317*	1.770	1.442***	3.210
Country dummies	Yes		Yes	
Industry dummies at 2-digit SIC	Yes		Yes	
Year dummies	Yes		Yes	
No. of observations	1175		455	
R square	0.406		0.51	

**Panel B. Hedging premium with treatment effects model with full ML estimation**

Variable name	Foreign sales >0		Foreign sales = 0	
	Coefficient	t-statistics	Coefficient	t-statistics
<i>FCD dummy</i>	0.229**	1.970	0.016	0.040
Ln (Total assets)	-0.074***	-3.280	-0.017	-0.300
Return on assets	0.233	1.050	-1.036**	-2.430
Leverage	-0.048**	-2.200	-0.103*	-1.710
Capex/total sales	0.097	1.000	-0.012	-0.150
Diversification dummy	0.009	0.130	-0.007	-0.080
R&D/sales	-0.015	-0.150	0.091	0.850
Advertising/sales	0.988	0.800	3.474*	1.940
Dividend dummy	-0.209***	-3.930	-0.156**	-2.050
Intercept	-0.704***	-2.870	0.864	1.200
Country dummies	Yes		Yes	
Industry dummies at 2-digit SIC	Yes		Yes	
Year dummies	Yes		Yes	
No. of observations	1150		445	

**Table 4**  
**Hedging premium under different firm-level internal governance mechanisms**

This table displays the country fixed effects results of hedging premium for the full sample split up with respect to different firm-level internal governance mechanisms. The standard errors are corrected for within-firm correlation. The sample for each column is restricted to firms with positive foreign sales. The dependent variable is the Ln (Tobin's  $Q$ ). Ln (Tobin's  $Q$ ) is calculated as the log of total assets less the book value of equity plus the market value of equity in the numerator and book value of assets in the denominator. Foreign sales/total sales is the ratio of foreign sales to total sales. High insider ownership refers to firms where the largest blockholder is an insider and low insider ownership refers to firms where the largest blockholder is not an insider. High outsider ownership refers to firms for which the largest blockholder is an outsider and low outsider ownership refers to firms for which the largest blockholder is not an outsider. 'Institutional investor as BH' is a dummy variable that equals one if the firm has an institutional investor as a blockholder (holding 10% or greater percentage of outstanding shares), zero otherwise. State ownership dummy equals one if the firm has the government as a shareholder, zero otherwise. Family ownership dummy equals one if the firm is a family firm, defined as a firm managed and/or owned by the members of a family, zero otherwise. Dual CEO dummy equals one if the firm's CEO is also the chairman of the board, zero otherwise. 'Cash flow (voting) rights of the largest managerial BH' is a dummy variable that equals one if the percentage of ownership of cash flow (voting) rights by the largest managerial blockholder is greater than its sample mean, zero otherwise. FCD dummy is equal to one if the firm has used currency derivatives such as currency forwards, currency futures, currency options or currency swaps for hedging purposes, zero otherwise. Ln (Total assets) is the log of firm total assets. Return on assets is the ratio of net income to total assets. Leverage is the debt-to-equity ratio, calculated as the ratio of total debt to shareholder equity. Capex/total sales is the capital expenditures divided by total sales. R&D/sales is the research and development expenses scaled by sales. Advertising/sales is the ratio of advertising expenses to total sales. Missing values for these two variables are set to zero. Diversification dummy takes on the value of one if firm has at least one other business segment with a different (four-digit) SIC code, zero otherwise. Dividend dummy takes on the value of one if the firm's dividend yield is greater than the median dividend yield for the sample, zero otherwise. The stars \*\*\*, \*\*, and \* indicate significance at the 1-percent, 5-percent, and 10-percent level, respectively. ^^, ^, and ^ indicate that the variable of interest is statistically different between two groups at the 1-percent, 5-percent, and 10-percent level, respectively.

**Panel A. Hedging premium and inside/outside cash flow ownership**

Variable name	All firms with foreign sales > 0							
	<u>High inside ownership</u>		<u>Low inside ownership</u>		<u>High outside ownership</u>		<u>Low outside ownership</u>	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
<i>FCD dummy</i>	0.056	0.480	0.173*	1.770	0.222*	1.730	0.128	1.620
Ln (Total assets)	0.009	0.250	-0.093***	-3.650	-0.109**	-2.310	-0.049**	-2.070
Return on assets	0.160	0.610	0.096	0.340	0.021	0.080	0.247	0.810
Leverage	-0.105**	-2.560	-0.018	-0.570	-0.046	-1.000	-0.053**	-2.090
Capex/total sales	0.094	0.660	0.194	1.430	0.411	1.280	0.084	0.800
Diversification dummy	-0.164	-1.440	0.044	0.420	-0.153	-0.930	0.013	0.170
R&D/sales	-0.124	-0.570	-0.098	-1.220	-0.124	-0.800	-0.018	-0.160
Advertising/sales	1.679	1.240	0.365	0.120	3.287	0.260	0.417	0.380
Dividend dummy	-0.221***	-2.890	-0.247***	-3.050	-0.204	-1.150	-0.270***	-4.520
Intercept	0.827***	3.420	0.201	0.880	0.384	0.980	0.940***	5.340
Country dummies	Yes		Yes		Yes		Yes	
Industry dummies at 2-digit SIC	Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes	
No. of observations	451		724		213		962	
R-square	0.462		0.435		0.616		0.399	

**Panel B. Hedging premium and alternative measures of internal firm-level governance**

<b>All firms with foreign sales &gt; 0</b>						
<b>Governance measure</b>	<b>FCD dummy (strong governance)</b>	<b>t-statistics</b>	<b># of firms</b>	<b>FCD dummy (weak governance)</b>	<b>t-statistics</b>	<b># of firms</b>
Institutional vs. non-institutional ownership	0.406**	2.39	181	0.114	1.43	994
Non-state vs. state ownership	0.116*	1.67	1061	0.174	0.87	114
Non-family vs. family ownership	0.164**	2.02	856	-0.007	-0.06	319
Non-dual CEO vs. dual CEO	0.174**^^^	2.540	856	0.040^^^	0.200	296
High vs. low managerial cash flow rights (largest BH)	0.249*	1.650	227	0.084	0.50	224
Low vs. high managerial block voting rights (largest BH)	0.089	0.630	224	0.183	1.05	227

**Table 5**  
**Hedging premium under different country-level external governance mechanisms**

This table displays the country fixed effects results of hedging premium for the full sample split up with respect to different country-level external governance mechanisms. The standard errors are corrected for within-firm correlation. The sample for each column is restricted to firms with positive foreign sales. The dependent variable is the Ln (Tobin's  $Q$ ), which is calculated as the log of total assets less the book value of equity plus the market value of equity in the numerator and book value of assets in the denominator. Foreign sales is the firm's annual foreign sales. Strong shareholder (creditor) protection rights takes on the value of one if the home country of the firm has antidirector (creditor) rights above the sample median value 4 (2), zero otherwise. English legal origin is a dummy variable that equals one if home country of the firm has the English legal origin. High efficiency of judicial system takes on the value of one if the home country has the efficiency of judicial system score of 10 (median), zero otherwise. These variables are from LLSV (1998). High public (private) enforcement index takes on the value of one if the home country has a public (private) enforcement index above the sample median of 0.56 (0.67), zero otherwise. Both variables are from La Porta et al (2003). Similarly, the high country-level merger activity (dollar-wise and number-wise) equals one if the home country has a higher than median (2.38 and 6.47, respectively) of merger activity, zero otherwise. Both variables are from Bris and Cabolis (2003). FCD dummy is equal to one if the firm has used currency derivatives such as currency forwards, currency futures, currency options or currency swaps for hedging purposes, zero otherwise. Ln (Total assets) is the log of firm total assets. Return on assets is the ratio of net income to total assets. Leverage is the debt-to-equity ratio, calculated as the ratio of total debt to shareholder equity. Capex/total sales is the capital expenditures divided by total assets. Diversification is a dummy, which takes on the value of one if firm has at least one other business segment with a different (four-digit) SIC code, zero otherwise. R&D/sales is the research and development expenses scaled by sales. Advertising/sales is the ratio of advertising expenses to total sales. Missing values for these two variables are set to zero. Dividend dummy takes on the value of one if the firm's dividend yield is greater than the median dividend yield for the sample, zero otherwise. The stars \*\*\*, \*\*, and \* indicate significance at the 1-percent, 5-percent, and 10-percent level, respectively. ^^^, ^^, and ^ indicate that the variable of interest is statistically different between two groups at the 1-percent, 5-percent, and 10-percent level, respectively.

**Panel A. Hedging premium and investor protection rights**

All firms with foreign sales > 0												
Variable name	Strong shareholder rights		Weak shareholder rights		Strong creditor rights		Weak creditor rights		English legal origin		Non-English legal origin	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
<i>FCD dummy</i>	0.211 <sup>^^</sup>	1.820	0.084 <sup>^^</sup>	1.010	0.189 <sup>^^</sup>	1.690	0.079 <sup>^^</sup>	0.920	0.239 <sup>^^^</sup>	2.180	-0.001 <sup>^^</sup>	-0.010
Ln (Total assets)	-0.088 <sup>**</sup>	-2.280	-0.023	-0.930	-0.090 <sup>***</sup>	-2.740	-0.015	-0.550	-0.070 <sup>**</sup>	-2.030	-0.042	-1.590
Return on assets	-0.061	-0.240	0.429	1.410	-0.028	-0.120	0.469	1.270	-0.052	-0.210	0.800 <sup>***</sup>	2.630
Leverage	-0.030	-1.160	-0.081 <sup>**</sup>	-2.230	-0.032	-1.160	-0.084 <sup>**</sup>	-2.310	-0.041	-1.540	-0.064 <sup>**</sup>	-1.770
Capex/total sales	0.356 <sup>**</sup>	2.170	-0.017	-0.140	0.301 <sup>**</sup>	1.990	0.020	0.150	0.317 <sup>**</sup>	2.210	-0.023	-0.170
Diversification dummy	0.206 <sup>*</sup>	1.700	-0.117	-1.430	0.116	1.040	-0.060	-0.710	0.114	0.980	-0.005	-0.070
R&D/sales	-0.233 <sup>**</sup>	-2.320	1.146 <sup>***</sup>	5.460	-0.228 <sup>**</sup>	-2.340	1.157 <sup>***</sup>	5.090	-0.196 <sup>**</sup>	-2.040	1.918 <sup>**</sup>	2.210
Advertising/sales	-1.597	-1.160	3.258 <sup>**</sup>	2.050	-0.021	-0.010	1.954	1.330	0.975	0.550	2.223	1.410
Dividend dummy	-0.276 <sup>**</sup>	-1.980	-0.221 <sup>***</sup>	-4.220	-0.239 <sup>*</sup>	-1.960	-0.218 <sup>***</sup>	-4.270	-0.271 <sup>**</sup>	-2.080	-0.200 <sup>***</sup>	-4.260
Intercept	1.161 <sup>***</sup>	4.400	0.292	1.480	0.767 <sup>**</sup>	2.500	0.216	1.100	0.165	0.750	-0.963	-0.720
Country dummies	Yes		Yes		Yes		Yes		Yes		Yes	
Industry dummies at 2-digit SIC	Yes		Yes		Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes		Yes		Yes	
No. of observations	422		753		469		706		513		648	
R-square	0.402		0.525		0.387		0.535		0.377		0.534	

**Panel B. Hedging premium and alternative measures of external country-level governance**

<b>All firms with foreign sales &gt; 0</b>						
<b>Governance measure</b>	<b>FCD dummy (strong governance)</b>	<b>t-statistics</b>	<b># of firms</b>	<b>FCD dummy (weak governance)</b>	<b>t-statistics</b>	<b># of firms</b>
High vs. low efficiency of judicial system	0.151*^	1.740	803	0.159^	1.390	351
High vs. low public enforcement (La Porta et al (2003))	0.213*^	1.950	642	0.063^	0.770	532
High vs. low private enforcement (La Porta et al (2003))	0.169*	1.790	695	0.053	0.490	479
High vs. low number-wise merger activity (Bris and Cabolis (2003))	0.184*^^	1.720	625	0.091^^	0.930	549
High vs. low dollar-wise merger activity (Bris and Cabolis (2003))	0.159	1.590	637	0.091	0.930	537

**Table 6**  
**Hedging premium under different country-level external and firm-level internal governance mechanisms**

This table displays the country fixed effects results of hedging premium for the full sample split up with respect to different country-level external and firm-level internal governance mechanisms. The sample for each column is restricted to firms with positive foreign sales. The chow test p-value is reported below each sample breakdown, and indicates whether the variable of interest is statistically different between two groups. The standard errors in each regression are corrected for within-firm correlation. The dependent variable is the Ln (Tobin's  $Q$ ), which is calculated as the log of total assets less the book value of equity plus the market value of equity in the numerator and book value of assets in the denominator. Foreign sales is the firm's annual foreign sales. Strong shareholder (creditor) rights takes on the value of one if the home country of the firm has antidirector (creditor) rights above the sample median value 4 (2), zero otherwise. English legal origin is a dummy variable that equals one if a firm's home country has English legal origin. 'Largest BH is an insider' is a dummy variable that takes on the value of one if the largest blockholder (holding 10% or greater percentage of outstanding shares) is in firm management, zero otherwise. Institutional investor as BH' is a dummy variable that equals one if the firm has an institutional investor as a blockholder (holding 10% or greater percentage of outstanding shares), zero otherwise. FCD dummy is equal to one if the firm has used currency derivatives such as currency forwards, currency futures, currency options or currency swaps for hedging purposes, zero otherwise. The stars \*\*\*, \*\*, and \* indicate significance at the 1-percent, 5-percent, and 10-percent level, respectively.

Pair classification	Sample	No. obs.	Coefficient on the FCD dummy variable	t-statistic
1	Largest BH is an insider and strong shareholder rights	122	0.183	0.73
1	Largest BH is an insider and weak shareholder rights	329	-0.008	-0.06
	<i>Chow test p-value</i>			<i>0.057</i>
2	Largest BH is an insider and strong creditor rights	138	-0.083	-0.33
2	Largest BH is an insider and weak creditor rights	313	0.019	0.16
	<i>Chow test p-value</i>			<i>0.539</i>
3	Largest BH is an insider and English legal origin	137	0.494**	2.42
3	Largest BH is an insider and non-English legal origin	309	-0.082	-0.69
	<i>Chow test p-value</i>			<i>0.097</i>
4	Largest BH is an institutional investor and strong shareholder rights	90	0.435***	2.76
4	Largest BH is an institutional investor and weak shareholder rights	91	0.281	0.82
	<i>Chow test p-value</i>			<i>0.017</i>
5	Largest BH is an institutional investor and strong creditor rights	101	0.395*	1.96
5	Largest BH is an institutional investor and weak creditor rights	80	0.497	0.88
	<i>Chow test p-value</i>			<i>0.044</i>
6	Largest BH is an institutional investor and English legal origin	98	0.323**	1.96
6	Largest BH is an institutional investor and non-English legal origin	80	0.152	0.60
	<i>Chow test p-value</i>			<i>0.041</i>

**Table 7**  
**Hedging premium across currency regimes and currency depreciation**

This table displays the country fixed effects results of hedging premium for the full sample split up with respect to different foreign exchange exposures. The standard errors are corrected for within-firm correlation. The sample for each column is restricted to firms with positive foreign sales. The dependent variable is the Ln (Tobin's  $Q$ ), which is calculated as the log of total assets less the book value of equity plus the market value of equity in the numerator and book value of assets in the denominator. Foreign sales is the firm's annual foreign sales. Floating currency regime is a dummy variable that takes on the value of one if the home country has a floating or soft pegged currency regime, zero otherwise. USD depreciation (appreciation) refers to years where the portfolio of trade-weighted US\$ vs. broad index currencies that circulate widely outside the country of issue incurred a negative (positive) return. Pre-crisis refers to the period between 1990 and 1995 and post-crisis refers to the period between 1996 and 1999 (which also includes the crisis year). FCD dummy is equal to one if the firm has used currency derivatives such as currency forwards, currency futures, currency options or currency swaps for hedging purposes, 0 otherwise. Ln (Total assets) is the log of firm total assets. Return on assets is the ratio of net income to total assets. Leverage is the debt-to-equity ratio, calculated as the ratio of total debt to shareholder equity. Capex/total sales is the capital expenditures divided by total assets. Diversification dummy takes on the value of one if firm has at least one other business segment with a different (four-digit) SIC code, zero otherwise. R&D/sales is the research and development expenses scaled by sales. Advertising/sales is the ratio of advertising expenses to total sales. Missing values for these two variables are set to zero. Dividend dummy takes on the value of one if the firm's dividend yield is greater than the median dividend yield for the sample, zero otherwise. The stars \*\*\*, \*\*, and \* indicate significance at the 1-percent, 5-percent, and 10-percent level, respectively.

All firms with foreign sales > 0												
Variable name	Floating currency regime		Fixed currency regime		USD depreciation		USD appreciation		Pre-crisis		Post-crisis	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
<i>FCD dummy</i>	0.123 <sup>^</sup>	1.820	-0.233 <sup>^</sup>	-0.600	0.094	1.060	0.156*	1.860	0.015	0.14	0.185*	1.94
Ln (Total assets)	-0.063 <sup>***</sup>	-3.040	-0.046	-0.430	-0.086 <sup>***</sup>	-3.280	-0.051 <sup>**</sup>	-2.150	-0.095 <sup>***</sup>	-3.48	-0.053 <sup>**</sup>	-2.14
Return on assets	0.127	0.570	1.282	1.590	0.234	0.870	0.108	0.400	0.491	1.06	0.068	0.27
Leverage	-0.050 <sup>**</sup>	-2.150	-0.091	-0.600	-0.019	-0.500	-0.070 <sup>**</sup>	-2.540	0.006	0.09	-0.047*	-1.79
Capex/total sales	0.124	1.030	-0.164	-0.360	0.201	0.830	0.091	0.760	0.452*	1.8	0.019	0.17
Diversification dummy	0.008	0.110	0.131	0.390	0.074	0.830	-0.059	-0.740	0.126	1.07	-0.038	-0.49
R&D/sales	-0.070	-0.690	1.560 <sup>**</sup>	2.590	-0.151	-0.970	0.076	0.710	-0.256	-1.47	0.050	0.39
Advertising/sales	0.601	0.490	5.952	0.760	1.386	1.020	0.919	0.580	0.856	0.69	2.029	1.2
Dividend dummy	-0.183 <sup>***</sup>	-3.140	-0.594 <sup>**</sup>	-2.150	-0.152 <sup>**</sup>	-2.220	-0.238 <sup>***</sup>	-3.420	-0.166 <sup>**</sup>	-2.52	-0.285 <sup>***</sup>	-3.87
Intercept	0.308	1.640	0.747	0.780	-0.294	-0.570	0.382 <sup>**</sup>	2.020	1.388 <sup>***</sup>	5.95	0.255	1.12
Country dummies	Yes		Yes		Yes		Yes		Yes		Yes	
Industry dummies at 2-digit SIC	Yes		Yes		Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes		Yes		Yes	
No. of observations	1076		99		524		651		412		757	
R-square	0.414		0.757		0.466		0.441		0.512		0.414	

## Appendix A Description of Variables

This table provides the source and the definitions of the variables used throughout the regressions. All variables are measured at the end of each fiscal year.

Variable Name	Definition
<b><u>A. Firm-specific variables</u></b>	
Tobin's $Q$	Total assets less the book value of equity plus the market value of equity in the numerator and book value of assets in the denominator. Obtained from Compustat.
FCD dummy	Equals one if the firm reported that it used currency derivative contracts for hedging purposes in its 20-F form/annual report, zero otherwise.
Largest BH is an insider	Equals one if the largest blockholder (holding 10% or greater percentage of outstanding shares) is in firm management, zero otherwise. Collected from the 20-F forms and proxy statements.
Largest BH is an outsider	Equals one if the largest blockholder (holding 10% or greater percentage of outstanding shares) is not in firm management, zero otherwise. Collected from the 20-F forms and proxy statements.
Institutional investor as BH	Equals one if the firm has an institutional investor as a blockholder (holding 10% or greater percentage of outstanding shares), zero otherwise. Collected from the 20-F forms and proxy statements.
Family ownership	Equals one if the firm is a family firm, defined as a firm managed and/or owned by the members of a family, zero otherwise. Collected from the 20-F forms and proxy statements.
State ownership	Equals one if the firm has the government as a shareholder, zero otherwise. Collected from the 20-F forms and proxy statements.
Cash flow rights of the largest managerial BH	The percentage of ownership of cash flow rights by the largest managerial blockholder.
Voting rights of the largest managerial BH	The percentage of ownership of cash flow rights by the largest managerial blockholder.
Dual CEO	Equals one if the firm's CEO is also the chairman of the board, zero otherwise. Collected from the 20-F forms and proxy statements.
Foreign sales/total sales	The ratio of foreign sales to total net sales as of fiscal year end. Obtained from the Segment file of Compustat.
Foreign sales dummy	Equals one if the firm has foreign sales greater than zero, zero otherwise.
Total assets	Firm total assets. Obtained from Compustat.
Leverage	The debt-to-sales ratio, calculated as the ratio of total debt to shareholder equity. Obtained from Compustat.
Return on assets	The ratio of net income to total assets. Obtained from Compustat.
Capex/sales	The capital expenditures divided by total sales. Obtained from Compustat.
Advertising/sales	The ratio of advertising expenses to total sales. Obtained from Compustat.
R&D/sales	The ratio of research and development expenses to sales. Obtained from Compustat.
Dividend dummy	Equals one if the firm's dividend yield is greater than the median dividend yield for the sample, zero otherwise. Obtained from Compustat.
Diversification dummy	Equals one if firm has at least one other business segment with a different (four-digit) SIC code, zero otherwise. Obtained from the Segment file of Compustat.
<b><u>B. Country-specific variables</u></b>	
Shareholder rights	An aggregate measure of antidirector rights. Obtained from La Porta, Silanes, Shleifer and Vishny (1998). Higher values refer to stronger shareholder protection.
Creditor rights	An aggregate measure of creditor rights. Obtained from La Porta, Silanes, Shleifer and Vishny (1998). Higher values refer to stronger creditor protection.
English legal origin	Equals one if the country that the firm is located in is of English origin, zero otherwise. Obtained from LLSV (1998).
Public enforcement	The index of public enforcement equals the arithmetic mean of: (1) Supervisor characteristics index; (2) Investigative powers index; (3) Orders index; and (4) Criminal index. Obtained from La Porta, Lopez-de-

Silanes, and Shleifer (2003).

Private enforcement	The index of private enforcement equals the arithmetic mean of: (1) Disclosure Index; and (2) Burden of proof index. Obtained from La Porta, Lopez-de-Silanes, and Shleifer (2003).
Efficiency of judicial system	Assessment of the “efficiency and integrity of the legal environment as it affects business, particularly foreign firms” produced by the country risk rating agency International Country Risk (ICR) and obtained from LLSV (1998). High scores represent higher efficiency levels.
Country-level merger activity (dollar-wise)	The ratio of the dollar value of mergers to the total market capitalization in a given country and year. Obtained from Bris and Cabolis (2003).
Country-level merger activity (number-wise)	The ratio of the number of mergers to the total number of firms in a given country and year. Obtained from Bris and Cabolis (2003).
Floating currency regime	Equals one if the country that the firm is located in has a floating currency regime, zero otherwise. Constructed from Item 6 (Exchange Controls) as reported in 20-F forms, and from several IMF publications.
US\$ appreciation (depreciation)	Equals one if the return on the trade-weighted US\$ measured against the broad index currencies that circulate widely outside the country of issue appreciated (depreciated) during a specific year, zero otherwise. Obtained from the Wharton Research Data Services.

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