

Derivative Usage, Risk Disclosure, and Firm Value

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Risk disclosure is generally regarded as crucial in order for investors to make informed decisions in the resource allocation process. Our study is the first to empirically investigate the value-relevance of corporate risk disclosure. We focus on the disclosure of foreign exchange (FX) risk, which is an activity notorious for its lack of transparency. Our empirical analysis involves a FX risk disclosure index for a sample of 114 Swedish derivative users. Contrary to expectations our results suggest that, holding the level of derivative usage constant, firm value decreases in the level of risk disclosure.

INTRODUCTION

In the wake of financial crises and corporate scandals in the past decades, the premise among regulators and policy-makers has been that more comprehensive and transparent financial reporting in companies will help prevent such crises from recurring in the future (Leuz and Wysocki, 2008). In this quest for transparency, disclosure about risk is viewed as crucial.¹ A report from 2011 by the CFA Institute shows that 90% of analysts find risk disclosures important and use them in company evaluations.² Solomon, Solomon, Norton, and Joseph (2000) also report a robust demand for risk disclosure among institutional investors. Concerning the theoretical basis for this demand the authors state that “modern portfolio theory would suggest that improving risk disclosure ... enable investors to deal more effectively with risk diversification”, a notion supported by theoretical work (Jorgensen and Kirschenheiter, 2003).

The previous paragraph suggests that information about risk is valuable to investors. In this research we investigate the value-relevance of financial risk disclosure closely following the Tobins Q framework in Allayannis and Weston (2001). While previous research has sought to measure the value-relevance of broad measures of disclosure (Cheung, Jiang, and Tan, 2010; Jiao, 2011), our study is the first to extend this research question to risk disclosure. To pursue this issue we analyze the annual reports from 2009 of 114 listed firms in Sweden identified as users of foreign exchange (FX) derivatives, and create a risk disclosure index that measures the amount of information a firm discloses about FX risk. Disclosure concerning FX exposures, and firms' strategies for managing them, is notoriously scarce and opaque, making it a suitable area of investigation for the purpose of this paper.³ Importantly, academic research

has shown that FX derivative usage typically is associated with a valuation premium (e.g. Allayannis and Weston, 2001; Jankensgård, 2014), suggesting that this is an economically significant activity. We benefit from access to unique survey data on FX derivative usage, which allows us to analyze the relation between derivative usage and the associated disclosure, as well as the value-relevance of these activities.

We find that the FX risk disclosure index is negatively related to firm value (measured as Tobins Q). That is to say, for any given level of FX derivative usage, the market appears to take a negative view of increased risk disclosure. The data indicates that, *ceteris paribus*, for a 10% increase in the disclosure index, Tobins Q decreases by approximately 1-3% depending on model specification. We also find that the type of disclosure seems to matter. When the disclosure index is decomposed into a derivative-related and non-derivative part, we find that the negative result is largely driven by the former. These findings are puzzling in light of the basic assumption of the literature on voluntary corporate disclosure, namely that increased disclosure reduce information asymmetries and therefore leads to a lower cost of capital (see, for example, Brown, 1979; Barry and Brown, 1984; Diamond and Verrecchia, 1991; Easley and O'Hara, 2004; Lambert, Leuz, and Verrecchia, 2007).

We offer three potential explanations. Firstly, our result could be reflective of the common wisdom that investors have a very strong focus on the current and future performance of the firm's core operations. If so, the main effect of FX derivative disclosure from their point of view may be to clutter the financial accounts with hard-to-interpret information that distract from the analysis of the firm's underlying business. This argument is related to growing concerns about 'information overload' in the financial reporting in Western economies. A string of recent reports has called for countermeasures to the exponential growth of financial information in annual reports, which has become 'a burden' for investors, who 'fail to see the wood for the trees'.⁴ Secondly, a high-disclosure strategy may also contribute negatively because of how it affects investor psychology. A large amount of disclosure on FX derivatives may, though intended to reassure investors by creating transparency, perversely lead them to revise their perception of the firm's risk profile upward if derivatives themselves are seen as inherently risky. This is not implausible given that several well-publicized corporate disasters can be traced back to inappropriate use of financial derivatives, such as the cases of Barings Bank in 1995 and Société Générale in 2008. Thirdly, we appeal to research highlighting the potential for agency costs of risk management (Smith and Stulz, 1985; Tufano, 1996; Jankensgård, 2014). Smith and Stulz (1985) argue in particular that hedging programs may cater primarily to the needs of risk-averse corporate managers. A high-disclosure strategy may have the unintended effect that it triggers investors' concern about this kind of agency problem.

The results in our paper contribute to the broad literature on voluntary disclosure, as well as to the literature on risk disclosure more specifically. While the empirical evidence in the former literature overall is rather mixed (see, for example, the review by Leuz and Wysocki, 2008) increased disclosure is generally viewed as a vehicle for reducing information asymmetries and therefore also the firm's cost of capital. Botosan (1997; 2006) is a good exponent of this view. The existing academic research in the area of risk disclosure is scarce, but overall supports the notion that risk disclosures are useful to investors (Rajgopal, 1999; Jorion, 2002; Emm, Gay, and Lin, 2007). The results in our paper, on the other hand, suggest that increased risk disclosure may in fact be liable to increase a firm's cost of capital. At least when it comes to FX risk disclosure managers need to apply caution with the common wisdom that more information is necessarily a good thing.

The paper proceeds as follows. In Section 2 we review the relevant literature and clarify our empirical predictions. Section 3 reports the data used in the study. Section 4 contains our empirical analysis. Section 5 discusses the main results. Section 6 concludes the paper.

LITERATURE REVIEW AND PREDICTIONS

Corporate Disclosure and the Cost of Capital

In this section we review the theoretical arguments and empirical evidence concerning the impact of voluntary disclosure on a firm's cost of capital (and consequently firm value). As mentioned in the introduction, the basic prediction of the theoretical literature on voluntary corporate disclosure is that

more disclosure generally leads to a lower cost of capital. Researchers have identified several explanations why cost of capital should be a decreasing function of the level of disclosure. One argument is that disclosure by firms decreases the information asymmetry between well-informed and less well-informed investors. Less informed investors will demand higher returns to hold stocks for which private information is more unevenly spread, which lowers the amount of trading in a firm's securities (Diamond, 1985; Diamond and Verrecchia, 1991; Easley and O'Hara, 2004). A second line of argument focuses instead on the information asymmetry between a firm and its investors. Some researchers have relaxed the perfect foresight-assumption in capital asset pricing models and allowed so-called 'estimation risk' to affect a firm's cost of capital (Brown, 1979; Barry and Brown, 1984; Lambert et al, 2007). Estimation risk is construed as the increase in cost of capital that arises because investors cannot be sure about the true parameters of the security's payoff distribution. Again, additional disclosure, since it allows investors be more confident in their forecasts, should have a beneficial effect resulting from the fact that it lowers the estimation risk component of the cost of capital. Jorgensen and Kirschenheiter (2003) show that this beneficial impact of disclosure extends to disclosures about the firm's risks. A third argument for a negative relationship between disclosure and cost of capital is that increased disclosure reduces agency costs. According to Leuz and Wyzocki (2008), disclosure can have first-order effects on agency problems and investment efficiency. The idea is that disclosure facilitates monitoring of managerial decision-making and reduces management's possibilities for pursuing pet projects or otherwise appropriate wealth from shareholders.

The empirical literature investigating the predictions of the theoretical models of voluntary disclosure originally focused on its effect on directly observable outcomes in the stock market, such as bid-ask spreads and trading volume (e.g. Welker, 1995). Botosan (1997) introduced a new research design that aimed to measure the impact of corporate disclosure on cost of capital in a direct way. Using a discounted dividends formula, one is able to solve for the discount rate that equates the prevailing dividend forecast with the current market price. In a second step, a cross-sectional analysis of the cost of capital estimates is carried out with a disclosure index as an independent variable. A more recent strand of papers have used firm value as the dependent variable to study the value-impact of disclosure (Cheung, Jiang, and Tan, 2010; Jiao, 2011). While the findings of the empirical literature is generally described as 'mixed', on balance the literature has found the expected positive relationship between voluntary disclosure and cost-of-capital (Leuz and Wysocki, 2008).

Regarding disclosure of risk the extant literature has thus far not investigated its relationship with cost or capital or firm value but rather their usefulness to investors for predicting future risk. Two papers have looked into the informativeness of market risk disclosures following the implementation of the Securities and Exchange Commission's new market risk disclosure rules in 1997. Jorion (2002) concludes that banks' disclosure of Value-at-Risk measures improves investors' ability to predict future levels of volatility in banks' trading portfolios. Rajgopal (1999) finds that the risk disclosures of firms in the oil industry are significantly associated with the stock return sensitivities to changes in the price of oil. Emm, Gay, and Lin (2007), on the other hand, analyze firms' choice of market risk disclosure *type* and relate this choice to various firm characteristics. They find that the more transparent type of risk disclosure is associated with a higher reliance on external funding.

Corporate risk and the management thereof are inherently complex issues. Without proper guidance, in the form of disclosure, investors are unlikely to be able to adequately assess the risk related to their cash flow forecasts, or assess the consequences of the firm's risk management strategy. We would therefore expect the standard prediction of the voluntary disclosure literature to hold for risk disclosure as well: more disclosure reduces information asymmetry, reduces cost of capital, and increases firm value. Furthermore, we predict that the value-impact of risk disclosure is conditional on the size of the firm's analyst coverage, as previous research has shown that analysts are important intermediaries in the investor communication process, with a relatively higher financial literacy, (e.g. Botosan, 1997).

DATA

Eligible firms for inclusion are those listed on the Small, Medium and Large-Cap lists on the Stockholm Stock Exchange as of 2009-12-31 (257 firms). Financial firms and firms domiciled in other countries were excluded to maximize comparability. Out of the remaining firms, a subsample of derivative users was identified through a key-word search (more on this below). To be included, full availability of data was required, including participation in a survey carried out to collect information about FX hedging practices (see Jankensgård, 2014, for details about this survey). A full dataset could be assembled for 114 derivative users, out of 121 firms initially identified as such. The industry composition for the final sample is as follows: Telecom 1%, Property 4%, Materials 11%, Industry 30%, Healthcare 6%, IT 17%, Energy 1%, Discretionary 15%, Services 10%, Staples 4%, and Investment companies 1%.

FX Risk Disclosure Index

As our empirical measure of risk disclosure we choose an index targeting FX risk disclosure. As noted in the introduction, FX risk management is an area that previous research has identified as relevant to firm value, and it also suits our purposes well because FX reporting is notoriously opaque due to significant discretion on part of managers in choosing what to disclose (as will be further discussed below).

Since the authors are not aware of any previous research that has constructed a financial risk disclosure index we create our own, which we label *RDISC*.⁵ Our definition of risk disclosure encompasses both information about FX risk exposures and the management of these risks on an aggregated, enterprise-wide level. That is, we do not view disclosures about financial instruments per se as the ultimate goal of risk reporting. Dobler (2008) defines risk reporting as providing ‘information on the distribution of future cash flows’, not just those related to financial instruments. Consistent with this, the main guiding principle has been that ultimately FX risk disclosure must be useful input in the process of constructing cash flow-scenarios for the entity as a whole. When one constructs a disclosure index it is also important to consider the problems that could arise when firms do not have equal disclosure opportunity (Marston and Shrives, 1991). For example, allowing a point to be scored by reporting the type of hedge accounting (cash flow hedge or fair value hedge) that the company has adopted would mean unequal disclosure opportunities because it presumes that the company has opted for hedge accounting in the first place. The criteria are therefore selected on the basis that they are relevant to all companies in the sample (Buzby, 1974). To validate the list of components in the index, we have discussed them with, and sought the opinion of, two stock market analysts and one accountant specializing in the reporting of financial derivatives at one of the “big four” accounting firms.

Out of an initial pool of over twenty possible dimensions of FX risk disclosure, we create a checklist based on eight dimensions targeting different elements of firms’ FX risk disclosure. The following eight met our criteria concerning equal disclosure opportunity and relevance for constructing cash flow-scenarios: 1) qualitative description of exposures, 2) quantitative description of exposures, 3) derivative policy, 4) quantitative description of FX derivatives, 5) type of derivative, 6) maturity of derivatives, 7) net FX exposure, and 8) accessibility of information. A detailed description of each these components can be found in the appendix.

For each criterion that is met, a firm is given one point. *RDISC* is defined as the sum of these points and the maximum (minimum) value for this variable is therefore 8 (0). The criteria are assessed based on the firm’s annual reports for 2009 and thus ignore other potential ways of communicating equivalent information, such as press releases or quarterly reports.⁶ Following the standard procedure in the disclosure-literature, *RDISC* is unweighted and additive in order to minimize subjectivity (Courtis, 1996).

The definition of FX risk disclosure used in this paper should be seen against the backdrop of the mandatory reporting requirements as outlined in the International Financial Reporting Standards (IFRS). Since 2005 listed companies in the European Union are required to prepare their accounts according to IFRS. From a qualitative perspective, the standard calls on firms to provide a description of the risks related to each type of financial instrument as well as management’s policy for managing these risks

(IFRS 7.33). With respect to market risk the standard also requires that firms disclose quantitative information in the form of a sensitivity analysis or Value-at-Risk-estimates (IFRS 7.40-42). It should be noted, however, that IFRS 7 is narrow in that it covers disclosure about the risks related to the financial instruments as such, not the firms aggregated exposures, which would include the underlying operating exposures. Indeed market risk is defined as the “the risk that the fair value or cash flows of a *financial instrument* will fluctuate due to changes in market prices” (italics added). This leaves disclosures about firm-wide, FX specific exposures largely voluntary (our empirical analysis shows that there is indeed a great deal of dispersion in firms’ FX risk reporting).

Measuring Derivative Usage

FX derivatives users were identified through a key word search in annual reports.⁷ To measure the intensity of hedging we define *NETPOSITION* as the sum of the absolute value of the net derivative position in each currency (expressed in units of home currency, translated using end-of-year exchange rates) scaled by sales. Data was obtained through a survey on firms FX exposure management practices carried out during the first half of 2010 (see Jankensgård, 2014, where a full description of the variable *NETPOSITION* is available).

Measuring Firm Value

To estimate firm value most researchers in the literature use some version of Tobins Q. We compute *TOBINS Q* as Total Book Value of Assets minus Book Value of Equity plus Market Value of Assets divided by Total Book Value of Assets. Since *TOBINS Q* exhibits a skewed distribution we follow the practice in the literature of taking the natural log, which also has the advantage of allowing interpretations of regression coefficients in percentage terms. Data for *TOBINS Q* was obtained from Datastream.

Other Determinants of Firm Value

To measure the marginal impact of incremental FX risk disclosure as accurately as possible it is important to control for other factors that research has shown to be relevant for firm value. In this section we introduce these controls. To preserve space, we keep the introduction brief. The selection of variables closely follows Allayannis and Weston (2001), where a more detailed discussion of the theoretical background of each variable is available. Unless otherwise stated, the data for calculating the variables is obtained from Datastream.

The degree of debt financing in a firm’s balance sheet may impact firm value because of its influence on managerial incentives as well as the risk of financial distress. *LEVERAGE* is defined as Total Interest-bearing Debt/Total Assets. A firm’s size may impact firm value positively because of economies of scale and synergies, but negatively because the company becomes more difficult to manage. We define *SIZE* as the log of the firm’s Total Assets. We would expect a profitable firm to, all else equal, have a higher market valuation than a less profitable one. We define *PROFITABILITY* as Net Income/Total Assets. Similarly, we would expect that higher expected growth rates would translate into a higher firm value. *CAPEX* is defined as Additions to Fixed Assets/Total Sales. To control for the degree of alignment between the incentives of management and the firm’s owners we define *MGTOWN* as shares owned by the firm’s CEO plus CFO divided by Total Shares. Data on managerial ownership is obtained from annual reports. We also use *BLOCKOWN*, computed as the number of shares owned by non-managerial blockholders divided by the total number of shares, where a blockholder is defined as a shareholder owning more than 10% of the firm’s total number of shares. Data on block holdings is obtained from annual reports. Access to capital markets is proxied by the dummy variable *DIVIDEND*, which takes the value one if the firm paid a common dividend during the year, the argument being that financially constrained firms would normally not choose to pay out dividends. Diversification is considered to impact firm value negatively, since diversified companies are more difficult to manage and may also reflect agency problems since managers have personal incentives to increase firm size. We define *DIVERSIFIED* as a dummy with value = 1 if the company operates in two or more product segments. Geographical diversification is also value-relevant since international growth enables a firm to leverage their

comparative advantages across more markets. To proxy for the degree of internationalization we define *FOREIGN* as the ratio of Foreign Sales to Total Sales. To control for industry effects, I define a dummy for each industry following the Global Industry Classification Standard (GICS).

In addition to the variables in Allayannis and Weston (2001), we consider analyst coverage and the firm's overall disclosure level. We define *ANALYST* as the log of the number of stock market analysts following a firm plus one. The data for this variable is obtained from Bloomberg and annual reports. To capture general disclosure, we use the score assigned to annual reports by Aktiespararna (an association representing the interests of small shareholders in Sweden) in collaboration with the Swedish financial advisory company Kanton. Aktiespararna has carried out this review of annual reports since 1980. Our variable *GDISC* is thus the score obtained in Aktiespararnas and Kantons annual ranking minus the points awarded for risk-related information in this ranking (to avoid overlap with our FX risk disclosure index).

The variables used in the study are summed up in Table 1.

TABLE I
DESCRIPTION OF KEY VARIABLES

Variables	Definition	Data source
TOBINSQ	(Total book value of assets less Book value of equity plus Market value of equity) / Total book value of assets	Datastream
RDISC	Sum of points obtained on eight criteria related to disclosure of FX hedging	Annual reports
GDISC	Disclosure index concerning Swedish listed firms' annual reports	Aktiespararna, Kanton
ANALYST	The number of stock market analysts following the firm	Bloombergs, Annual reports
LEVERAGE	Total book value of debt / Total book value of assets	Datastream
CAPEX	Additions to fixed assets / Total sales	Datastream
PROFITABILITY	Net income / Total assets	Datastream
MGTOWN	Number of shares held by CEO and CFO / Total number of shares	Annual reports
BLOCKOWN	A dummy with value = 1 if the firm has a non-executive shareholder holding more than 10% of the firm's shares	Annual reports
SIZE	The log of the firms total assets	Datastream
DIVIDEND	A dummy with value = 1 if the firm has paid a dividend in the year	Datastream
FOREIGN	Foreign sales / Total sales	Datastream
DIVERSIFIED	A dummy with value = 1 if the company operates in two or more product segments	Datastream
NETPOSITION	The sum of absolute values of the net position in FX derivatives for each currency / Total book value of assets	Annual reports + survey

RESULTS

Descriptive Statistics

Table 2 reports the descriptive statistics. Table 3 reports the scoring on each of the eight dimensions of the FX risk disclosure index RDISC. Figure 1 shows the distribution for RDISC.

TABLE 2
DESCRIPTIVE STATISTICS

	Number	Mean	Median	Max	Min	St. dev.
TOBINSQ	114	0.364	0.296	2.464	-0.370	0.492
RDISC	114	5.377	5.000	8.000	2.000	1.553
GDISC	108	0.636	31.000	0.000	7.500	5.099
ANALYST	114	1.771	1.791	3.784	0.000	1.137
LEVERAGE	114	0.215	0.215	0.723	0.000	0.163
CAPEX	114	0.043	0.019	1.094	0.000	0.122
PROFITABILITY	114	0.025	0.027	0.240	-0.198	0.063
MGTOWN	114	0.027	0.000	0.852	0.000	0.100
BLOCKOWN	114	0.270	0.223	0.810	0.000	0.206
SIZE	114	6.592	6.521	8.504	4.772	0.833
DIVIDEND	114	0.675	1.000	1.000	0.000	0.470
FOREIGN	114	0.624	0.659	1.000	0.000	0.279
DIVERSIFIED	114	0.631	1.000	1.000	0.000	0.484
NETPOSITION	114	0.133	0.066	0.661	0.000	0.162

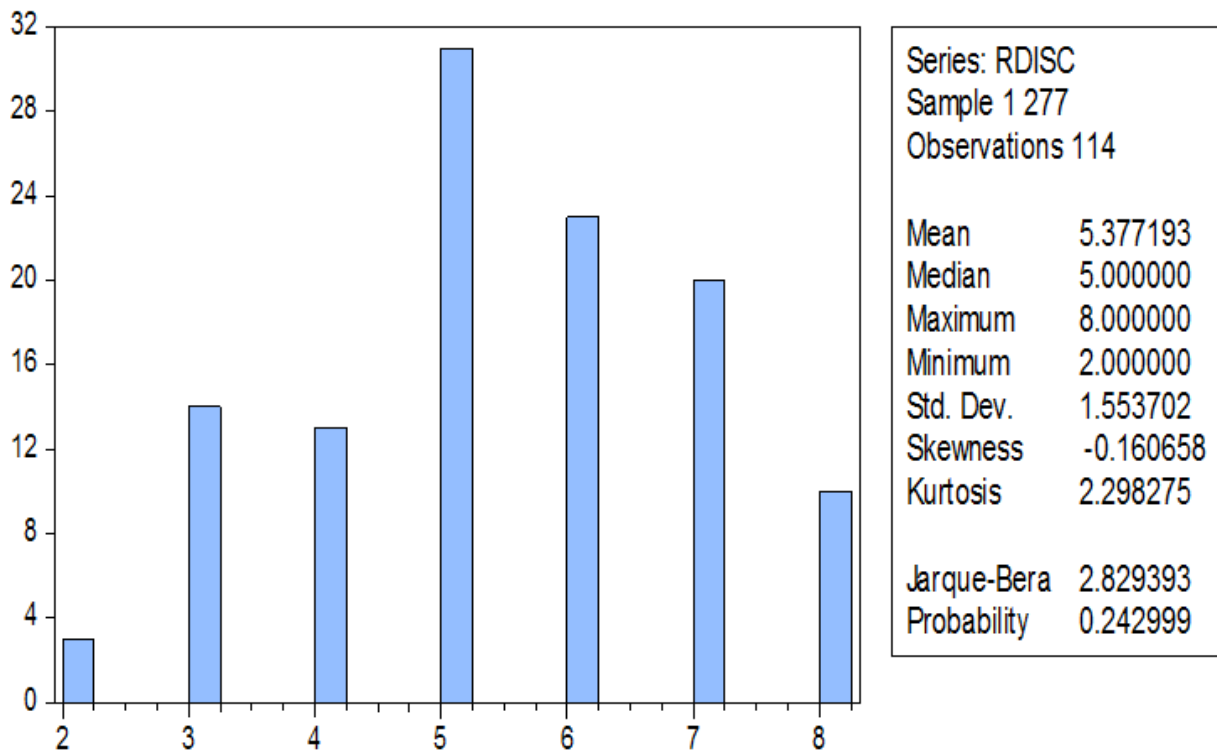
Untabulated Pearson correlations indicate that, as expected, FX risk disclosure (RDISC) is positively correlated with the continuous measure of hedging (NETPOSITION) and exposure to foreign exchange risk (as measured by FOREIGN). These correlations are significant at the 1% and 5%-levels respectively. This implies that the more a firm uses derivatives, the more forthcoming it will tend to be in terms of disclosing information about this activity. Our disclosure measures RDISC and GDISC show a positive, but insignificant, correlation (p-value=0.20). In a negative binomial estimation⁸ with RDISC as dependent variable (results not reported here, but available from the authors upon request), we find that SIZE and NETPOSITION are significant determinants of the level of FX risk disclosure, both with the expected positive sign. NETPOSITION is significant at the 1%-level. These results are consistent with our expectations, and we believe that they validate our measure of FX risk disclosure.

TABLE 3
DECOMPOSITION OF SCORES IN FX RISK DISCLOSURE INDEX

	NUMBER OF SCORES (max = 114)	SCORES AS % OF MAXIMUM
Qualitative description of exposure	113	99%
Quantitative description of exposure	74	65%
Derivative policy	90	79%
Quantitative description of derivatives	49	43%
Type of derivatives	90	79%
Maturity of derivatives	58	51%
Net FX exposure	44	39%
Accessibility of information	97	85%

Note: The 'Number of scores'-column indicates the sum of scores by the firms in the sample for each dimension in the FX risk disclosure index (RDISC). The 'Scores as % of maximum'-column restates this information as a percentage of the maximum (114, which is the sample size in this study). The dimensions of the index are explained in detail in the appendix.

FIGURE 1
HISTOGRAM FOR RISK DISCLOSURE INDEX



Does FX Risk Disclosure Impact Firm Value?

In this section we report the results from a multivariate analysis in which the dependent variable is firm value, measured as TOBINS Q. The general model we are interested in is as follows:

$$\text{Tobins Q} = b_0 + b_1\text{Risk Disclosure} + b_2\text{Derivative Usage} + b_3\text{Controls} + e \quad (1)$$

The coefficient b_1 measures if FX risk disclosure impacts TOBINS Q, holding the level of derivative usage (and other controls) constant. Conversely, b_2 measures if derivative usage is associated with a valuation premium, as suggested by previous research, when disclosure levels and other factors impacting firm value are held constant.

We create four specifications. In our base specification (Model 1) we use RDISC together with the variables included in the original Tobins Q framework in Allayannis and Weston (2001). In Model 2 we re-estimate the model without industry dummies. In Model 3 we add the broad disclosure index, GDISC, as a control to make sure that RDISC does not incidentally measure an effect that is really due to the firm's overall level of disclosure. In Model 4 we add ANALYST and also interact this variable with RDISC to test the proposition that analysts are important intermediaries in making sense of financial risk disclosure. The results are reported in Table 4.

The most salient result in Table 4 is that RDISC is significant in all specifications except when ANALYST and the interaction term are included in the model. The sign of the coefficients on RDISC, however, contradicts our prediction. When we re-estimate the model with the log of RDISC replacing RDISC, we find that TOBINS Q drops 1-3% for a 10% increase in the FX risk disclosure index depending on model specification. For any given level of derivative usage, it appears that a firm will be rewarded for being forthcoming about its FX risk with a lower valuation. In an untabulated regression in which all controls are excluded, RDISC is still negative with approximately the same magnitude.

To gain further insights about what drives this result, we carry out an analysis where RDISC is split into one part that uses derivative-related criteria, and one that is based on the remaining ones. The derivative index consists of the sum of the points obtained on the following criteria: Quantitative description of FX derivatives; Maturity; Instrument; and Derivative policy. In untabulated regressions, we find that the negative result is entirely driven by the derivative index. When a similar split is made based on whether the disclosure item is quantitative or not, the index targeting quantitative information fully captures the negative result.

Our conjecture that analyst coverage would impact the relationship between risk disclosure and firm value finds no support in the data, as evidenced by the insignificant interaction term between RDISC and ANALYST in Model 4. The signs on the control variables are largely consistent with previous research in the hedging premium-literature. Contrary to the common finding in this literature, however, NETPOSITION fails to significantly impact firm value in any of the specifications.⁹

Restricting the sample to derivative users has the drawback of introducing a sample selection bias, in that the firms that use derivatives are likely to be different from the non-users in the first place. To account for this *IMILLS* is defined as the inverted Mills-ratio, calculated based on a probit-model for estimating the probability of being classified as a derivative user. All model specifications presented in this section are run both with and without *IMILLS* (though only those without are reported). None of the conclusions of the paper is affected by the inclusion of *IMILLS*, which itself is statistically insignificant.

TABLE 4
AN OLS MODEL OF FIRM VALUE

	Model 1 (n=114)	Model 2 (n=114)	Model 3 (n=108)	Model 4 (n=108)
C	1.460	1.481	1.728	3.919
RDISC	-0.054**	-0.054**	-0.053*	-0.060
	(-2.0)	(-2.1)	(-1.9)	(-1.4)
GDISC			-0.016*	-0.013
			(-1.7)	(-1.6)
ANALYST				0.029**
				(2.1)
ANALYST * RDISC				0.016
				(0.7)
LEVERAGE	-0.421	-0.352	-0.488	-0.241
	(-1.5)	(-1.3)	(-1.6)	(-0.9)
CAPEX	0.100	-0.524	0.179	-0.174
	(0.2)	(-1.6)	(0.3)	(-0.3)
PROFITABILITY	3.678***	3.824***	3.948***	3.142***
	(5.2)	(5.5)	(5.2)	(4.8)
MGTOWN	-0.304	-0.222	-0.403	-0.368
	(-0.8)	(-0.6)	(-1.0)	(-1.1)
BLOCKOWN	-0.451**	-0.463**	-0.415**	-0.180
	(-2.4)	(-2.5)	(-2.1)	(-1.0)
SIZE	-0.136**	-0.121**	-0.096	-0.559***
	(-2.3)	(-2.2)	(-1.5)	(-5.9)
DIVIDEND	-0.003	-0.011	-0.035	-0.008
	(-0.0)	(-0.1)	(-0.3)	(-0.1)
FOREIGN	0.393**	0.339**	0.376**	0.353**
	(2.4)	(2.3)	(2.2)	(2.5)
DIVERSIFIED	-0.052	-0.120	-0.052	-0.012
	(-0.6)	(-1.5)	(-0.6)	(-0.2)
NETPOSITION	-0.138	-0.163	-0.132	-0.042
	(-0.5)	(-0.6)	(-0.4)	(-0.2)
Industry fixed effects	YES	NO	YES	YES
Prob(F-Statistic)	0.000	0.000	0.000	0.000
Adjusted R-SQR	0.389	0.368	0.408	0.573

Note: This table reports the results from an OLS-model in which the dependent variable is the log of Tobins Q, defined as (Total book value of assets less book value of equity plus market value of equity)/Total book value of assets. The sample is a sub-sample of 114 firms classified as derivative users (out of an original sample of 257 Swedish listed firms). T-statistics are reported within parenthesis. Statistical significance at the 10%-level is denoted by *, while ** and *** denote the 5- and 1%-levels respectively.

DISCUSSION OF RESULTS

Taken together, the findings that firm value, as measured by TOBINS Q, decreases in the level of FX risk disclosure and is unrelated to the level of derivative usage suggests that the market's view of derivative usage is at best neutral at low- to medium levels of disclosure, but negative at higher levels of disclosure. We will now discuss various interpretations of these results. Which of the below outlined explanations carry most weight unfortunately cannot be pursued with the available data and is left for future research.

First we address the issue of endogeneity. Previous research has indeed argued that risk disclosure should be viewed as an endogenous variable (Dobler, 2008; Jorgensen and Kirschenheiter, 2003). One very straightforward source of endogeneity in our case would be that firms that have profitable derivative positions choose to be more forthcoming with disclosure because it signals their ability. However, this is directly contradicted by the fact the coefficient on RDISC is negative. A second possibility is that the result on RDISC is affected by omitted variable bias, say if low-Q firms are associated with a high-disclosure strategy through some third variable not included in the model. High agency costs of risk management could in principle drive both these variables, for example if a firm has an oversized finance department that pursue financial risk management for reasons unrelated to maximization of firm value. In our sample larger firms are indeed associated with higher levels of risk disclosure, but this variable is included as a control in the model. Older firms can also be argued to be associated with larger and more professionalized finance departments. However, when the base model is augmented with the variables *AGE* (defined as the log of the number of years since the company was founded) and *MATURITY* (defined as retained earnings divided by total equity) the main results are unaffected.

In the absence of econometric misspecifications, what could explain the negative association between RDISC and TOBINSQ? One possibility is that the relationship is driven by costs related to disclosure. Direct costs arise in the production and dissemination of the relevant risk disclosure. Competitive costs arise because competitors can make decisions based on publicly available information about risk. Theoretical work has shown that the optimal hedge ratio is determined in industry equilibrium, considering competitors' risk exposures and hedge ratios (Adam, Disgupta, and Titman, 2007). Anecdotal evidence in Emm, Gay, and Lin (2007), who observe that General Motors at one time was reluctant to disclose information about their hedging with reference to competitors, lends some support for this view.

Another line of explanation is based on the notion that investor sentiment towards FX risk disclosure is in fact fundamentally negative. This interpretation is broadly consistent with the business folklore that investors have a very strong focus on the bottom line of core operations, in which case FX risk disclosure may simply be a nuisance that unduly complicates the task of valuing a firm. In other words, due to its inherent complexity, risk disclosure may amplify estimation risk rather than decrease it (despite presumably good intentions). The argument that risk disclosure might increase estimation risk should be viewed against the backdrop of a broader debate about excessive financial reporting, or 'clutter', in annual reports (European Financial Reporting Advisory Group, 2012; The Financial Reporting Council, 2011). The upshot of this debate is that investors suffer from 'information overload', which is compounded by a generally low ability of investors to make sense of financial risk disclosure (CFA Institute, 2011).

We also need to consider the possibility that the mere mentioning of risks and derivatives, even when intended to give reassurances about management's oversight and control, may be associated with a heightened risk perception. Derivatives have indeed acquired something of a bad name. The investor Warren Buffett has famously likened them to 'financial weapons of mass destructions'. Several high-profile corporate disasters involving derivatives have contributed to this negative association, including the fabled misfortunes of companies like Barings Bank, Metallgesellschaft, China Aviation, and Société Générale. Increased risk disclosure may amplify this tendency through a "salience effect". According to Taylor and Thompson (1982): "Salience refers to the phenomenon that when one's attention is differentially directed to one portion of the environment rather than to others, the information contained in that portion will receive disproportionate weighting in subsequent judgments."

Finally, we consider agency costs of risk management as a potential explanation. Several academic papers have addressed the agency dimension of corporate hedging (Smith and Stulz, 1985; Tufano, 1996; Jankensgård, 2014). These arguments suggest that derivative usage may have more to do with catering to the demands of management at various levels in the organization rather than value-maximizing behavior. This offers another potential explanation for the negative result on RDISC: high levels of FX risk disclosure may trigger investor concern about the existence of such an agency problem. That is, investors faced with voluminous amounts of information about derivatives may become alerted to this potential problem, and thus worry about the amount of resources devoted to risk management as well as about whose best interest such derivatives actually serve.

CONCLUSIONS

In this article we have explored the hypothesis that firms are rewarded for increased risk disclosure with a lower cost of capital and a higher firm value. We find, however, that holding FX derivative usage constant Tobins Q decreases in the level of our FX risk disclosure index. Further analysis shows that the negative result is largely driven by disclosure of quantitative information related to the derivatives as such, as opposed to the qualitative and narrative aspects of risk disclosure. This presents managers with something of a dilemma. On the one hand, a desire to comply with regulations and to claim transparency speaks for a high level of disclosure. On the other hand, fears that such risk disclosure will a) clutter financial reports, b) trigger investor concerns about the amount of resources devoted to financial risk management, and c) raise investors' concerns about potential 'blow-ups' related to such derivatives speak in the opposite direction.

ENDNOTES

1. The European Financial Reporting Advisory Group (EFRAG), for example, writes in a report from 2012 that "it is generally accepted that information about risk is critical to understanding the financial performance and position of an entity... [and] ...predicting about [its] future cash-flows."
2. CFA is a non-for-profit organization representing over 100 000 finance professionals world-wide in 2011.
3. Clark and Judge (2009), for example, rely on qualitative information about foreign exchange hedging found in various sections of annual reports (quantitative information is not systematically reported in their sample of UK firms). Other researchers (e.g. Haushalter, 2000) have used a survey approach for obtaining data on corporate hedging as a means to overcome weak risk disclosure.
4. Two examples are the report by the Financial Reporting Council in the UK in 2011 entitled 'Cutting Clutter: Combating the Clutter in Annual Reports' and another by the European Financial Reporting Advisory Group (EFRAG) in 2012 entitled 'Towards a Disclosure Framework for the Notes'.
5. Self-constructed indexes are common in the literature on voluntary disclosure. For example, the seminal paper by Botosan (1997) is based on a self-constructed index.
6. According to Lang and Lundholm (1993) the amount of information in annual reports is positively correlated with the level of disclosure through alternative ways of communication, so we do not expect this to be causing any substantial bias
7. The keywords used were: derivative, hedge, financial risk, and currency risk.
8. RDISC is a count variable that takes values between 0 and 8. We estimate it with Negative Binomial since OLS can lead to predicted negative values.
9. It should be noted that this analysis uses a continuous measure of hedging (NETPOSITION). The traditional approach in the hedging-premium literature is to use the full sample of firms and measure derivative usage with a dummy variable. For such an approach, see Jankensgård (2014).

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APPENDIX

COMPONENTS OF RISK DISCLOSURE INDEX

Qualitative Description of Exposures

A point is given if the firm lists the exchange rates to which it is exposed and a verbal description of the “why are we exposed”-type, i.e. the mechanisms that give rise to the exposures. For example, a company may state that it is exposed to the US dollar because it exports a large share of its products to the US, and to the EUR because some of the components it purchases are denominated in this currency. IFRS 7 requires firms to disclose a qualitative description of risks concerning ‘the nature and extent of exposure to risks arising from financial instruments’, which does not cover FX exposures as they arise in operations. However, under IAS 1 (Presentation of Financial Statements), firms are called on to list and discuss the entity’s principal risks and uncertainties for the business as a whole. Swedish firms are also required by law (‘Årsredovisningslagen’) to disclose information about material risks regardless of the type of risk.

Quantitative Description of Exposures

A point is given if the firm discloses the magnitudes of its exposures to foreign exchange risks as it relates to its underlying business. The requirement is that this information is pre-hedging and per currency. This criterion can be met by a) showing exposures per currency in a table-format or b) a sensitivity indicating the expected change in one of the firm’s financial performance indicators (sales, gross profit, earnings before taxes, etc) as a result of a change in a given exchange rate. For example, a company may state that it has annual sales of approximately 200mn EUR. Equivalently, they may state that “sales change by X% when the EUR changes by Y%”. IFRS has no specific requirement to disclose quantitative estimates related to its principal risks and uncertainties.

Derivative Policy

A point is given if the firm explains the basis for its decisions concerning FX derivative usage. We have searched for statements clarifying the policy, or decision rule, the company adheres to in its FX hedging. As examples, a company may state that it: routinely hedges X% of expected sales in foreign currency; it hedges all of its exposures when a sale exceeds a certain size but not otherwise; it hedges the profit margin in large sales orders; and so on. IFRS 7 does require a description of 'management's objectives, policies and processes for managing those risks'. As previously mentioned, though, the standard narrowly refers to the policy concerning the management of exposure to risks arising from financial instruments.

Quantitative Description of FX Derivatives

A point is given if the firm discloses a) the notional amount of its outstanding FX derivatives *per currency* or b) the sensitivity of the firm's portfolio of FX derivatives to changes in exchange rates (again, conditional on this being reported per currency). As an example of the former, a company may report that it has sold forward SEK 300 million against the US and bought 200 million against EUR. Simply presenting the gross notional amount for all FX-exposed derivatives as a lump sum is not considered enough to score on this criterion. It should also be noted that we do not consider a disclosure of a Value-at-Risk-estimate sufficient to meet this criterion either. Although this is one of the accepted types of disclosure under IFRS 7, Emm, Gay, and Lin (2007) argue that it is not a transparent measure in that an investor cannot reverse the estimate to obtain the underlying exposures for use in cash flow-scenarios.

Type of Derivative

A point is given if the firm is explicit about the type of financial instrument (forward contracts, options, currency swaps, etc) it deploys. The requirement is that there is no ambiguity whatsoever concerning which instrument(s) the firm uses. This can be achieved a) by a table that shows its FX derivatives positions split per instrument type, or b) a statement that it uses a certain type of instrument(s) on a routine basis. IFRS 7 does not specifically mandate that the type of financial instrument used is disclosed.

Maturity of Derivatives

A point is given if the time-dimension of the firm's FX hedging is clearly stated. This means that the company discloses a table that shows the maturity profile of each FX derivative or, more commonly, the net of several of several such instruments that mature in the same time period. IFRS 7 does not specifically mandate that the time dimension is disclosed for market risk exposures.

Net FX Exposures

A point is given if the firm discloses its net exposure to FX (post-hedging). A firm obtains a point a) automatically if it has already scored on both criteria 2 and 4, b) it presents the net figure per currency directly, but skips one or both of criteria 2 and 4, or c) when this information is expressed in terms of an X% change in the home currency relative all the exchange rates to which the firm has an exposure. IFRS 7 does not specifically mandate that net FX exposures be disclosed. Net exposures are a key input for creating scenarios for the firm as a whole. The report by the CFA Institute (2011) singles out sensitivities as the single most useful piece of disclosure when it comes to market risk.

Accessibility of Information

A point is given if the information concerning its FX risk management is concentrated to the same footnote in the annual report (we have required this to be at least approximately 75% of the total information). In some annual reports the information concerning FX exposure management is spread out in different places, which makes it more difficult to develop a coherent picture of this activity. Indeed, according to EFRAG (2012) the boundary between primary information and other information has been blurring in recent years, citing risk disclosure in IFRS 7 as an example where this has tended to occur.

The importance of readability and narrative aspect of accounting information is supported by academic research (e.g. Curtis, 1995) as well as reports by practitioners (CFA Institute, 2011). The CFA report states that there is a low degree of satisfaction with the understandability of risk disclosures, and that fragmentary and inconsistent presentation is one of the key reasons for this.