

**THE IMPACT OF INSTITUTIONAL DIFFERENCES ON DERIVATIVES
USAGE: A COMPARATIVE STUDY OF US AND DUTCH FIRMS
GORDON M. BODNAR, ABE DE JONG AND VICTOR MACRAE**

ERIM REPORT SERIES <i>RESEARCH IN MANAGEMENT</i>	
ERIM Report Series reference number	ERS-2001-89-F&A
Publication	December 2001
Number of pages	39
Email address corresponding author	ajong@fbk.eur.nl
Address	Erasmus Research Institute of Management (ERIM) Rotterdam School of Management / Faculteit Bedrijfskunde Erasmus Universiteit Rotterdam P.O. Box 1738 3000 DR Rotterdam, The Netherlands Phone: + 31 10 408 1182 Fax: + 31 10 408 9640 Email: info@erim.eur.nl Internet: www.erim.eur.nl

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REPORT SERIES *RESEARCH IN MANAGEMENT*

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Library of Congress Classification (LCC)	5001-6182	Business
	4001-4280.7	Finance Management, Business Finance, Corporation Finance
	HD 61	Risk management
Journal of Economic Literature (JEL)	M	Business Administration and Business Economics
	G 3	Corporate Finance and Governance
	G 15	International financial markets
European Business Schools Library Group (EBSLG)	85 A	Business General
	220 A	Financial Management
	195 D	International monetary relations
Gemeenschappelijke Onderwerpsontsluiting (GOO)		
Classification GOO	85.00	Bedrijfskunde, Organisatiekunde: algemeen
	85.30	Financieel management, financiering
	83.44	Internationale monetaire economie
Keywords GOO	Bedrijfskunde / Bedrijfseconomie	
	Financieel management, bedrijfsfinanciering, beslissonderzoek	
	Risk management, effectenhandel, termijnhandel, instituties, verenigde staten en noordelijke nederlanden	
Free keywords	risk management; derivatives; hedging; international finance	

**The Impact of Institutional Differences on Derivatives Usage:
A Comparative Study of US and Dutch Firms**

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November 2001

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Abstract

This paper examines the influence of institutional differences on risk management practices in the US and the Netherlands. This comparison is interesting because the Dutch firms' institutional setting differs from the US setting with respect to shareholder orientation, international trade, disclosure regulation, and reliance on financial markets. In contrast with previous comparisons, we apply a matching and weighting strategy that corrects for differences over industry and size classes across the Dutch and US samples. After these corrections, the remaining results can be attributed more directly to institutional differences.

We find that due to the greater openness of the Netherlands, Dutch firms hedge more financial risk, especially more currency risk, than US firms. Dutch firms, however, show a lower level of concern over derivatives usage, which is consistent with having less active minority shareholders and less strict disclosure requirements than the US has. Dutch firms focus less on stabilizing accounting earnings with derivatives than US firms, which is likely attributable to the strong shareholder orientation in the US versus the stakeholder orientation in the Netherlands. Whereas Dutch firms tend to rely almost exclusively on OTC-transactions, US firms use exchange-traded derivatives and more counter-parties. This results in US firms imposing stricter requirements on counter-party rating for derivatives transactions. This distinction can be attributed to the differences in the financial environments between the US and the Netherlands. These, and other results, strongly suggest that institutional differences between the US and the Netherlands have an important impact on risk management practices and derivatives use across US and Dutch firms.

JEL classification: F30; G15; G32

Keywords: risk management; derivatives; hedging; international finance

I. Introduction

The use of derivative securities for risk management purposes has been a worldwide phenomenon for several decades. The growing use of these instruments is part of an increased awareness of risk management among corporate managers. Active risk management is now an important part of modern corporate financial culture. As a result of this phenomenon, the market for derivative instruments has expanded rapidly over the last 10 to 15 years. Despite the growth of these markets, relatively little is known about how firms actually use derivatives for risk management purposes. Several survey studies have investigated derivatives usage for risk management purposes in the United States (US). The often-cited Wharton Surveys (Bodnar, Hayt, Marston and Smithson (1995) and Bodnar, Hayt and Marston (1996, 1998)) provide detailed descriptions of derivatives usage among US non-financial firms.

A number of similar studies have examined derivatives usage in several countries. Recent studies include: New Zealand (Berkman, Bradbury and Magan, 1997), Sweden (Alkebäck and Hagelin, 1999), Germany (Gebhardt and Russ, 1999), Belgium (De Ceuster, Durinck, Laveren and Lodewyckx, 2000), UK (Mallin, Ow-Yong and Reynolds, 2001) and Switzerland (Loderer and Pichler, 2000). One purpose of this paper is to add to the countries in this list by investigating derivatives use among firms in the Netherlands. While understanding the nature of derivatives usage in various countries is an important issue, a more interesting economic question is whether carefully measured differences in behavior across countries can be reasonably related to differences in the environment. The second, and more important purpose of this paper is to compare the Dutch results with the established evidence from firms in the US in such a way that differences in derivatives usage can be attributed to the differences in the institutional and informational environments. While the aforementioned studies provide information about risk management practices in countries other than the US, most do not facilitate a direct comparison between US and non-US firms. Not only are the questions asked generally not directly comparable, but the samples studied are different with respect to their distributions over size and industry classes (characteristics that theory suggests should influence derivatives usage). Thus, simple comparisons across these studies do not allow clear conclusions to be drawn because differences may be attributed to either the institutional setting or differences in distributions across size and industries between countries. One exception to this problem is Bodnar and Gebhardt (1999) who use simple matched-industry samples in order to compare the risk management practices of US and German firms. In contrast with the Bodnar and Gebhardt paper, we facilitate a more direct comparison by applying a weighting strategy that corrects for differences in distributions over size and industry classes between the Dutch and US samples. As a

result of these corrections, we can have more confidence that results may be attributed to institutional differences.

The comparison of Dutch and US firms' derivatives practices is interesting because the institutional setting for Dutch firms differs from the US setting in four areas likely to influence risk management practices. First, shareholder orientation is a strong influence for US firms whereas Dutch firms are oriented more toward multiple stakeholders. In the Netherlands shareholders have limited influence on firms and thus their views on financial risk management receive less weight, while other stakeholders with less of a value interest in the firm may prefer to see more risk management. Second, the Dutch economy is much more open than the US economy, suggesting a greater risk exposure to international financial price fluctuations for Dutch firms. As Dutch firms experience more international trade flows than US firms do, a greater emphasis on currency exposure and foreign exchange risk hedging policies by Dutch firms is expected. Third, distinct differences in accounting regulations between the US and the Netherlands exist. While US firms are bound to disclosure requirements according to the FASB regulations, Dutch firms are not legally obliged to publish information on derivatives usage in their annual reports. As external reporting often drives internal accounting procedures, one would expect stricter internal control and reporting procedures in the US than in the Netherlands. Fourth, Dutch firms traditionally have close ties with commercial banks whereas US firms tend to rely on a broader array of financial institutions and exchanges. This difference in counter-parties for derivatives transactions may influence risk management practices. With these distinct differences in institutional background, we are interested to examine carefully the differences and similarities in derivatives usage and risk management practices between US and Dutch firms. The characteristics of Dutch firms are found in many other continental European countries. Therefore, our analysis also suggests a broader comparison between US and European firms.

For the US derivatives usage data we use survey data from the 1998 Wharton Survey of Financial Risk Management (Bodnar, Hayt and Marston, 1998). This data set contains responses of 399 (response rate of 20.7%) US firms from early 1998. For information on Dutch firms' derivatives usage, we conducted a survey among Dutch exchange-listed firms using questions similar to those in the US survey. The Dutch survey, carried out in 1998, was sent to 167 firms and produced 84 usable responses, yielding a response rate of 50.3%. All firms in both surveys are non-financial firms. In order to create similar size and industry distributions in the US and the Dutch samples, we attach a weight to each US firm. The weighting of the US firms is based on the relative presence of firms with a similar size and industry classification found in the Dutch sample.

Our results indicate that Dutch firms use derivatives more often to hedge financial risk than US firms for all size and industry classes. Notably, Dutch firms indicate a greater exposure to foreign exchange risk than US firms; a result that is undoubtedly driven by the fact that the Dutch economy is much more open than the US economy. We also find that Dutch firms show a lower level of concern with respect to a variety of derivatives usage issues than US firms. This result is consistent with more active minority shareholders monitoring the fiduciary responsibility of the management and stricter disclosure requirements in the US. Furthermore, Dutch firms are less likely to incorporate their own views or act opportunistically when engaging in derivatives transactions than are US firms. This may be related to the greater shareholder orientation of US firms and the increased pressure that exists to contribute to the bottom line on a quarterly basis. Dutch firms are less worried about counter-party risk than US firms and demonstrate this by being almost twice as likely to not have a policy regarding counter-party rating than US firms. This result is consistent with Dutch firms relying on tight relations with a few highly rated banks for their derivatives transactions ensuring that counter-party risk is not a troubling issue. Of firms that do not use derivatives, the Dutch firms are much less likely than the US firms to link this to accounting treatment of derivatives, concerns about perceptions of derivatives usage by outsiders, or a view that the cost of hedging exceeds the benefit, but more likely to link non-usage to derivatives pricing and valuing difficulties or other reasons. These results again are consistent with a Dutch environment that is less concerned about outside perceptions of firm decisions and value generation.

The paper is organized as follows. In section II, we discuss recent work on derivatives surveys and some of the theoretical issues relating to cross sectional differences in usage. Section III presents our data sets and explains the matching and weighting procedures. In section IV, we investigate the similarities and differences between the overall derivatives usage and risk management practices of Dutch and US firms. In section V currency risk is examined and in section VI control and reporting procedures are investigated. Section VII concludes.

II. The impact of the institutional setting on risk management

Several survey studies have investigated derivatives usage for risk management purposes in the US. Early studies include Block and Gallagher (1986) and Dolde (1993). More recently, Philips (1995) and a series of Wharton Surveys (Bodnar, Hayt, Marston and Smithson (1995) and Bodnar, Hayt and Marston (1996, 1998)) have described risk management practices of US firms. The aim of the Wharton Surveys was to provide a detailed description of risk management practices, such as derivatives usage, motives for usage and non-usage, exposures, concerns, reporting and control policies for a large scale random cross-

section of US non-financial firms. Together these studies have produced a reasonable picture of derivatives use among US firms. Roughly speaking only one out of two US firms uses derivatives, with usage heavily tilted toward large firms. US firms indicate that their key motive behind financial hedging is to decrease the volatility of the cash flows. Stabilizing accounting earnings is a close second. Foreign exchange risk is the most commonly hedged risk using derivatives, followed by interest rate risk. Additionally, the studies find that risk management activities are largely centralized and the hedging horizon is often limited to one year or less.

The results of the US studies suggest that risk management practices are influenced by firms' shareholder wealth maximization objectives. This objective also underlies the justification for risk management in the theoretical literature, i.e. risk management with derivative instruments can increase shareholder value (see Stulz (1984) Smith and Stulz (1985) and Froot, Scharfstein and Stein (1993)). Firms can decrease cash flow volatility by hedging financial risks such as currency, interest rate and commodity risk. By reducing the volatility of cash flows, firms decrease expected taxes, agency costs and costs of financial distress, thus enhancing future expected cash flows. In addition, hedging can improve the probability of sufficient internal funds being available for planned investments, eliminating the need to either cut profitable projects or bear the extra costs of obtaining external funding. If the costs of using financial derivatives, such as employee salaries, computers, training and facilities, and transaction costs, are less than the benefits provided via the avenues mentioned above, or any other benefit perceived by the market, then derivatives use will be a shareholder-value enhancing activity.

The empirical literature on risk management initially focused exclusively on US firms. Of course, derivative instruments are used worldwide for risk management purposes. Additional countries have been investigated in a number of studies. Berkman, Bradbury and Magan (1997) study derivatives usage in New Zealand. They find that, in comparison with US firms, New Zealand firms hedge more financial risk across all size categories. They attribute this finding to a higher currency risk exposure in New Zealand. Alkeback and Hagelin (1999) study derivatives usage in Sweden. They used a questionnaire to gather data from all exchange listed non-financial firms with headquarters in Sweden. The responses are directly compared with the results of the surveys of Bodnar, Hayt, Marston and Smithson (1995) and Bodnar, Hayt and Marston (1996) without controlling for differences in size or industry classification. The Swedish survey finds that the lack of knowledge about derivatives within the firm is the main concern of Swedish firms. In contrast, this issue is of least concern to US firms. De Ceuster, Durinck, Laveren and Lodewyckx (2000) sent a questionnaire to coordination centers (which are often used as financial vehicles) and to the largest firms in Belgium. Their survey does not discriminate between financial and non-financial firms. They notice that, opposed to empirical findings in the US, Belgian firms focus their

hedging strategies more on reducing earnings volatility than on reducing cash flow volatility. Mallin, Ow-Yong and Reynolds (2001) sent a questionnaire to the financial directors of 800 UK non-financial listed firms. They find that the primary objective cited by the firms for using derivatives is to manage fluctuations in accounting earnings, a view that is inconsistent with theoretical arguments on risk management. Loderer and Pichler (2000) have a slightly different approach compared to the previously mentioned surveys. They examine the currency risk management practices of Swiss exchange-listed firms. They find that these firms are unable to quantify their exposure to currency risk. All studies above focus their empirical analysis on a single country and make comparisons only indirectly without insuring similarity of questions or responding samples. This makes it difficult to draw meaningful comparisons, especially if one is interested in examining whether differences in usage are related in logical ways to differences in the institutional and informational environments. An example of a study that tries to do this is Bodnar and Gebhardt (1999). They compare derivatives usage between US and German firms using the responses from the 1995 Wharton Survey and an identical survey of German public firms (Gebhardt and Russ, 1999). Their results indicate that more German firms than US firms use derivatives. The primary goal of hedging differs as German firms focus more on managing accounting results whereas US firms tend to focus on managing cash flows. Furthermore, German firms appear less concerned about all issues with respect to derivatives usage than US firms. Although this study provides comparative information on risk management practices inside and outside the US setting, it is not a very sophisticated comparison between US and non-US firms. The two samples are matched across industries, but they are different with respect to size and industry distribution. Therefore, the Bodnar and Gebhardt approach is not ideal for trying to isolate the impact of the institutional environment as observed differences might be attributed to differences in the institutional settings as well as differences in firm size and industry classification between countries.

In this paper, we survey the risk management activities of firms in the Netherlands using a survey identical to that used in the 1998 Wharton Survey (Bodnar, Hayt and Marston 1998). We then compare these results with the results from US firms. The unique feature of this study is that the results are compared in a more precise way using a weighting scheme for the US results across firm size and industry classification that produces a US sample with the same size and industry characteristics as the Dutch sample. Thus, we can make comparisons where the primary factor is the influence of institutional differences. The Netherlands is a suitable choice for this sort of investigation because in terms of corporate setting, it is distinctly different than the US, but resembles other continental European countries.

The US and the Dutch corporate environments differ in four major areas. First, shareholder orientation is a common characteristic for US firms, whereas Dutch firms are oriented toward multiple stakeholders meaning shareholders have less influence on firm's decisions. This issue is demonstrated by the fact that the results of La Porta, Lopez-de-Silanes and Shleifer (1999) place the Netherlands and the US in groups with respectively low and high shareholder rights. Furthermore, in the Netherlands listed firms have a two-tier board structure consisting of an Executive Board and a Supervisory Board. The Supervisory Board members have the legal obligation to consider the interests of the firm as a whole, limiting shareholder orientation. This difference in shareholder-stakeholder orientation could lead to some interesting differences in the area of the hedging horizon. For example, US firms might be expected to be more short term oriented, focused on hedging transaction risk and anticipated transactions within a period of one year (or the budget period), whereas Dutch firms might be expected to focus on a longer time span.

Second, the Dutch economy is much more open to international influences than the US economy. In 1998, Dutch exports were 50.4% of GDP, while imports were 46.7% of GDP. In contrast, US exports were only 9.2% of GDP while imports were only 12.8% of GDP (United Nations, 1999). As Dutch firms experience proportionally larger international trade and capital flows than US firms do, a greater emphasis on currency exposure and foreign exchange risk hedging policies by Dutch firms is expected.

Third, distinct differences in accounting regulations between the US and the Netherlands exist. While US firms are bound to disclosure requirements according to the FASB regulations (see FASB, SFAS No 115, 119 and 133), Dutch firms are not legally obliged to publish information on derivatives usage in their annual reports (see Blij et al., 1997). As annual reports originate from internal accounting procedures, one can expect that internal control and reporting procedures are stricter in the US than in the Netherlands. We also predict that the level of concern regarding derivatives transactions will be higher at US firms due to the distinct differences in disclosure requirements.

Fourth, Dutch firms traditionally have close ties with commercial banks (see Boersma and Veld, 1995) as counter-parties for derivatives transactions. While US firms also rely on commercial banks for derivatives, they have a much wider array of counter-parties for derivatives transactions, such as investment banks, special purpose vehicles, insurance companies or exchanges (see Bodnar and Gebhardt, 1999). This difference may influence risk management practices. We expect that the difference between counter-parties in both countries will be most pronounced in the area of counter-party rating. US firms will require higher counter-party ratings, for both short and long term derivatives transactions. Furthermore, because of the linkage with commercial banks, we expect Dutch firms to use OTC derivatives more frequently than US firms.

Considering these distinct differences between the US and Dutch institutional backgrounds, we are interested to examine the differences and similarities in derivatives usage and risk management practices between US and Dutch firms. Moreover, the characteristics of Dutch firms are representative of other continental European countries and may act as a baseline from which to generalize.

III. Comparative sample selection and weighting procedures

The US survey data we use is from the 1998 Wharton Survey of Financial Risk Management by Non-Financial Firms (Bodnar, Hayt and Marston, 1998). The questionnaire was mailed to just under 2000 US exchange-listed non-financial firms in October 1997. A second mailing was done in March 1998. 399 firms responded generating a response rate of 20.7%. The majority of the US sample was randomly selected; however, it also contained the additional (non-financial) Fortune 500 firms not already part of the random sample. Responses from these additional firms are excluded from the comparison in this paper.¹ This questionnaire was translated into Dutch and sent to all listed non-financial Dutch firms in November 1998. A follow-up was mailed in December 1998. Of the total of 167 Dutch listed non-financial firms, 84 returned a usable response, which corresponds with a response rate of 50.3%.

In order to generate comparable samples from the US and Dutch questionnaires we both *match* and *weigh* the responses based on industry classification and firm size. We match in order to remove firms in one country for which no comparables exist in the other country. We weigh the remaining firms because previous studies have shown that hedging practices are influenced by a firm's industry classification and by a firm's size. Therefore, we weigh observations in order to correct for differences in the distribution over size and industry classes between the US and the Netherlands.

We first *match* the samples on industry classification by using the two-digit SIC-codes of US and Dutch firms. In total 102 US firms had SIC-codes that were not present among the Dutch firms that received a questionnaire. These 102 firms were removed from the sample. No Dutch firm had a SIC-code that was not represented in the US sample. Finally, we matched the two samples on firm size by eliminating two US firms with a turnover of more than US\$ 63 billion, which is the turnover of the largest Dutch non-financial listed firm. We also eliminated three US firms with zero or unknown turnover. After this matching procedure, 267 US and 84 Dutch firms remained for further analyses. In Table 1, we present the matched distributions in the US and the Netherlands over size and industry classes.

¹ The inclusion of these responses would have biased the sample towards the larger Fortune 500 firms.

[Insert Table 1 here]

The results in Table 1 clearly illustrate that the composition of the US sample differs from the Dutch sample. For example, 27% of the US firms are large manufacturers, while only 15% of the Dutch firms are in this class. On the other hand, 12% of the Dutch firms are small trading firms, in comparison with only 3% of the US firms. Because these differences between the US and the Dutch samples are likely to influence our findings, we apply a weighting scheme to the US firms, based on the relative presence of similar firms in the Dutch data set. The weights are applied in order to more accurately compare the samples. The number of US firms in a particular group is compared to the number Dutch firms in that same group. If there are relatively more (less) US firms than Dutch firms in a specific group, then the US firms in that class receive a weight of less than one (more than one). Groups are defined based upon two criteria. The first criterion is firm size (i.e., large, medium and small). Large firms have total sales of more than US\$ 800 million, medium firms have total sales between US\$ 250 million and US\$ 800 million and small firms have total sales of less than US\$ 250 million (we use US\$ 1= DFL 1.90 for comparison). The second criterion is sector (i.e., manufacturing, trade or services).

We calculate separate weights for three specific sub-samples of firms: firms that indicate using derivatives to hedge financial risk in general, firms that indicate hedging currency risk and firms that indicate that they do not hedge financial risk.² The purpose of our weighting schemes is to adjust the results, removing size and sector effects to increase the likelihood that the explanation for any remaining differences is confined to the institutional setting. In our discussion of the results, we always mention in the tables and figures whether weighting (and if so which weighting) is applied.

IV. Overall derivatives usage

A. Derivatives Users

In this section we compare the responses on derivatives usage of the US and Dutch firms and also look into the reasons firms put forward for not using derivatives. We start this section using unweighted

² Alternatively, a weighting based on nine classes (three size classes times three industry classes) may be used. For example, there are 73 US and 13 Dutch firms that are part of the class large and manufacturers. In this particular class the proportion of US versus Dutch firms is 5.62 (73 US firms against 13 Dutch firms). The total US sample outnumbers the Dutch sample by a multiple of 3.18 (267 US firms versus 84 Dutch firms). Therefore, the relative weight of the US firms in this group is 0.57 ($=3.18/5.62$). This result closely resembles our procedure. However, sub-sampling into hedgers, non-hedgers and currency hedgers leads to smaller sample sizes and in some of the nine classes no firms are included. Because the use of nine classes is not possible in these cases, we did not use this method.

samples. We first examine the overall derivatives usage of US and Dutch firms discriminating between size and industry classification. We then examine the types of financial risk US and Dutch firms hedge, the motivation firms put forward for managing financial risk and the types of derivatives firms use. Furthermore, the risks US and Dutch firms perceive with respect to derivatives usage are evaluated. The section concludes with an investigation into the reasons firms do not use derivatives.

We begin by examining the differences in derivatives usage between US and Dutch firms. Because derivatives use is influenced, often considerably, by the size of the firm and the sector in which it operates, we distinguish between size and sector classification. Tables 2 and 3 provide an overview of the (unweighted) US and Dutch derivatives use by size and sector classification respectively.

[Insert Table 2 here]

Table 2 shows that 60% of the Dutch firms use derivatives against 44% of the US firms. The derivatives usage of Dutch firms is higher for all size groups. The difference in derivatives usage between US and Dutch firms decreases as firm size increases. The large US and Dutch firms have similar usage rates (82% against 88%). For the medium size group the difference is 11% (46% for US firms against 57% for Dutch firms) and for small firms the difference is 30% (12% for US firms versus 42% for Dutch firms). The fact that the usage rate of derivatives drops significantly when firm size decreases may be explained by decreasing economies of scale regarding the investment in employees, training, computers, facilities, etc. Notwithstanding the economies of scale argument, the large difference between small US and Dutch firms' derivatives usage remains apparent and may be due to differences in the degree of openness between the US and Dutch economy.

[Insert Table 3 here]

Table 3 indicates that the derivatives usage of Dutch firms is larger across all sectors. The difference in derivatives use is small in the services sector (7%), but more notable in the manufacturing sector (20%). The difference in the trade sector is most pronounced (31%). As mentioned above, a possible explanation for this across the board difference is the openness of the Dutch market, which exhibits more international trade compared to more national trade in the US. Table 3 also indicates that in the US, manufacturing firms (75% of all respondents) are more heavily represented than in the Netherlands (52% of all respondents). Table 2 already demonstrated that in the Netherlands medium firms (27% of all respondents) are more represented than in the US (18% of all respondents). These differences, combined

with the fact that both sector and size are found to influence derivatives usage, stress the added value of our weighting system.

Next to measuring the usage rate of derivatives, it is also important to know which financial risks, such as foreign exchange, interest rate and commodity risk, US and Dutch firms hedge with derivatives.³ Table 4 shows the respondents' answers to our query. For this question, we apply weights to the US firms that indicate using derivatives.

[Insert Table 4 here]

The results of the comparison indicate that of the US firms hedging financial risk with derivatives, 79% hedge currency risk. In contrast, nearly all the Dutch firms that hedge financial risk, 96%, hedge currency risk. The higher level of openness of the Dutch economy likely explains this difference. With interest rate risk, which is not as affected by openness, but where firms in the two countries are more likely to face similar levels of risk, we find little difference in the percentage of use. A slightly higher percentage of Dutch derivatives users, 81%, use interest rate derivatives compared to 73% of the US firms. A far lower percentage of Dutch derivatives users hedge commodity risk, 20% , compared to 44% of US firms. This could be due to the greater development and longer history of exchange-traded derivatives in the US combined with the fact that most commodity derivatives are exchange traded.

As derivatives are purportedly used to hedge financial risk, we are interested to compare the motives behind the risk management practices of the US and Dutch firms. According to theory, firms benefit from hedging by reducing the volatility in the firm's cash flows. By reducing the volatility of cash flows specific costs can be decreased (such as the bankruptcy costs, expected taxes, and agency costs) which in turn increases firm value. Table 5 shows the results of a question asking firms what volatility they are trying to manage by hedging. Firms could choose from the following three answers: volatility in accounting earnings, volatility in cash flows or balance sheet accounts or ratios.⁴

[Insert Table 5 here]

Table 5 reveals that slightly more Dutch (60%) than US firms (50%) indicate that managing the volatility of their cash flows is the most important focus. More US firms (44%) than Dutch firms (33%) indicate managing the volatility in accounting earnings as being most important. This difference appears consistent with the fact that shareholder concerns are more important in the US than they are in the

³ As no Dutch firm indicates hedging equity risk we will not examine this type of financial risk in detail.

Netherlands. Further, notice the difference in the percentage of US and Dutch firms indicating that managing the volatility in accounting earnings is “not at all important” or “not a consideration”, 7% versus 23%. This is also consistent with the view that US firms are more shareholder-oriented while Dutch firms are more stakeholder-oriented. This is the case because shareholders generally define good performance in terms of accounting earnings rather than in terms of cash flow. For both US and Dutch firms managing balance sheet accounts or ratios is obviously not an important reason for their hedging programs as respectively 88% and 66% indicate this as being not at all important or not a consideration or being least important.

The US and Dutch financial environments differ regarding counter-parties for derivatives transactions. In the US, firms have a broader choice of counter-parties. Not only do exchanges offer a more extensive range of derivatives, but a large number of banks and other financial institutions offer over-the-counter (OTC) products as well. In the Netherlands, firms have close relations with banks who are in turn their primary providers of derivatives instruments. We are interested in whether this institutional difference influences the preferences among the types of derivatives US and Dutch firms use.⁵ Table 6 shows which derivatives the firms consider most important for hedging their currency, interest rate and commodity risk.

[Insert Table 6 here]

Regarding types of derivatives for hedging currency risk, the majority of US firms, 56%, and Dutch firms, 77%, prefer OTC forward contracts, with OTC options the next most preferred instrument for both countries. In contrast to US firms, no Dutch firm used either futures or exchange-traded options. Regarding types of derivatives for managing interest rate risk, swaps are the most preferred instrument, but are more strongly preferred by US firms, 78%, than Dutch firms, 52%. Dutch firms are more likely, 28% against 4%, to favor OTC interest rate forward contracts while US firms indicate a greater preference, 12% vs. 0%, for structured (multi-component) derivatives and hybrid debt (debt with imbedded options). Regarding types of derivatives for managing commodity risk, US firms preferred futures contracts (40%), whereas most Dutch firms (35%) indicated preference for OTC options. In contrast to exchange rate and interest rate risk, Dutch firms are more likely than US firms to prefer exchange traded options and structured derivatives for managing commodity risk. Despite this small

⁴ This question was not included in the survey of Bodnar, Hayt and Marston (1998). Therefore, we use the results of the previous questionnaire (Bodnar, Hayt and Marston, 1996). Consequently, the results are unmatched and unweighted.

⁵ This question was part of the 1995 Wharton survey (Bodnar, Hayt and Marston, 1996), but not included in the 1998 Wharton survey (Bodnar, Hayt and Marston (1998)). Therefore, we use the US results from the 1995 Wharton survey in comparison to the Dutch responses. Consequently, the results to this specific question are unmatched and unweighted.

difference, the results suggest a general pattern of Dutch firms showing a stronger preference than US firms for over-the-counter instruments that come from banks.

While derivatives usage can be beneficial in that it can lower financial risks, the relative newness of widespread derivatives use and the possibility of incomplete user and stakeholder understanding raise concerns as new risks associated with the use of derivatives arise. We next compare the degree to which US and Dutch firms indicate concern about a range of issues related to derivatives use. For this question, we apply a set of weights based on the sample of US firms indicating derivatives usage.

[Insert Figure 1 here]

Figure 1 demonstrates that the level of concern about derivatives issues is higher among US firms than among Dutch firms. This is in line with our expectation due to the stricter external accounting and disclosure regulations and the greater risk of corporate litigation for insufficient fiduciary care in the US. Of the US firms, 76% have a high or moderate level of concern regarding external disclosure requirements against only 12% of the Dutch firms. This corresponds with the stricter disclosure requirements in the US and recent changes in the disclosure rules. Again supporting the accounting earnings issues from above, internal accounting treatment is of high or moderate concern to 75% of US hedgers, while only one quarter of hedgers in the Netherlands indicate a similar level of concern and 48% indicate that it is no concern at all. Monitoring and evaluating hedge results and market risk of hedges are the issues that concern the most Dutch firms with 26% and 27%, respectively, indicating high or moderate concern. Nevertheless, the concern of Dutch firms on these issues is well below that of US firms at 63% and 64%, respectively.

B. Derivatives Non-Users

In addition to examining the reasons for using derivatives, it is also interesting to investigate the reasons firms put forward for not using them. Both US and Dutch firms not using derivatives were asked to indicate the three most important reasons for their decision. For this question, we use a set of weights based on the sample of respondents that indicate not using derivatives. Figure 2 below presents an overview of the answers to this question.

[Insert Figure 2 here]

Figure 2 points out that the common reason in both countries for not using derivatives is insufficient exposure to financial risk. Of the American respondents that report not using derivatives, 58% indicate insufficient exposure as being the most important reason and 16% indicate it as the second most important

reason. Insufficient exposure is the most important reason for not using derivatives for 67% of the Dutch firms and is the second most important reason for another 15%. To see whether the argument of insufficient exposure is valid, we examine the responses to the questions about the percentage of operating revenues and costs in foreign currency. The responses from the questionnaires show that 59% of the US non-hedgers have no operating revenues in foreign currencies and 52% have no operating costs in foreign currencies. Thus, it appears consistent that around 58% of US non-users may have insufficient exposure to use derivatives. For the Dutch firms the picture is different. Of the Dutch non-users, only 19% indicate no operating revenues in foreign currencies and a mere 15% indicate no operating costs in foreign currency. Moreover, 29% of the Dutch firms not using derivatives indicate having at least 50% of their total operating revenues in foreign currencies and 24% indicate that at least 50% of their total operating costs are in foreign currencies. Therefore, the fact that 67% and 15% of the Dutch firms indicate that their most important and second most important reason for not hedging is based on insufficient exposure, suggests that these firms must be naturally hedged in that their revenues and costs in foreign currency are reasonably balanced.

Additionally, as 6% of the US firms and 4% of the Dutch firms indicate that exposures are more effectively managed by other means, some of the foreign exchange exposure may be shed by means other than by using derivatives. Operational hedging, for instance, by moving factories to countries where foreign currency revenues are incurred, or financing in the foreign currency, may be alternative strategies to using derivatives. Also, part of operating revenues and costs may be in the same foreign currency, thereby reducing the total foreign currency exposure to a tolerable level without using derivatives.

Only 3% of the US firms indicate that external disclosure requirements are the most important reason for not using derivatives against 0% of the Dutch firms. The US result is striking given the fact that 22% of the US firms indicate being highly concerned about external disclosure requirements (see Figure 1). As there were no disclosure requirements on derivatives usage in the Netherlands during the time of the questionnaire, the Dutch result is fully in line with our expectations. While accounting treatment is a minor reason for US firms for not using derivatives, for Dutch firms it is not important at all.

V. Currency exposure

In this section, we investigate foreign currency risk management practices. In order to facilitate a comparison between the US and Dutch results, we apply weights in this section based on the sample of US firms that specifically indicate using currency derivatives. We first compare the differences in foreign

currency operating revenues and costs between US and Dutch firms, as a basis for measuring the size of the exposure. Next, as the effectiveness of a hedging program requires using a benchmark, we examine the use of a benchmark for hedging currency risk. Then, we compare the types of foreign currency exposure that the US and Dutch firms claim to be hedging and the horizon over which they are hedging. Finally, we look into whether managers are willing to incorporate their personal views when making derivatives transaction decisions.

Because the Netherlands has a much more open economy than the US, we expect foreign exchange exposure of Dutch firms, as measured by the foreign currency revenues and expenses, to be higher than that of US firms. We asked the firms to indicate their foreign currency operating revenues and costs. The tables below show the results from these questions.

[Insert Table 7 here]

The results affirm our hypothesis: whereas all Dutch firms have at least 10% of operating revenues and costs in foreign currency, a full 26% of US firms have foreign currency operating revenues less than 10% and 33% have foreign currency operating costs less than 10%. Not surprisingly, Dutch firms display substantially more foreign currency activity than do US firms.⁶ If firms use derivatives in order to hedge currency risk, it seems quite natural to expect those firms to use a benchmark for the evaluation of their risk management practices. When questioned about this, only 40% of the Dutch firms versus 57% of the US firms that hedge currency risk indicated having or using a benchmark to evaluate their hedging strategy. The greater use of a benchmark for evaluating currency risk management practices in the US is consistent with a greater formality of hedging programs and concern over demonstrating sufficient fiduciary responsibility.

[Insert Table 8 here]

We are also interested to know whether US and Dutch firms differ with respect to the types of foreign currency exposures they hedge. Firms can hedge various exposures, such as translation exposure that arises from consolidating foreign currency operations, on-balance sheet commitments that arise from contracts and which are already recorded in their internal accounting system, or anticipated future foreign currency cash flows that are hedged in advance. On a strategic level firms may hedge long term economic exposure, which originates from changes in the competitive position of the firm resulting from

exchange rate changes. Figure 3 displays the responses to questions about the kind of currency risks that firms in the two countries hedge.

[Insert Figure 3 here]

Figure 3 demonstrates that a higher percentage of Dutch firms frequently hedge short term currency exposures, such as repatriations, on- and off-balance sheet commitments and anticipated transactions shorter than one year, than do US firms. The picture reverses when considering longer-term exposures such as anticipated transactions over one year and economic/competitive exposure. A slightly higher percentage of US firms hedge these types of foreign exchange exposures frequently in comparison with Dutch firms. The fact that only a small percentage of US and Dutch firms frequently hedge anticipated transactions over a year and economic/competitive exposure is surprising given predictions of financial theory that suggests that firms can increase their value when hedging financial risk. In this regard, generally economic/competitive exposure is the most important type of exposure for firms to hedge.

As for hedging translation exposure, compared with Dutch firms a higher percentage of US firms report hedging translation exposure frequently. Hedging translation exposure, which implies hedging balance sheet accounts, smoothes the balance sheet but is technically less likely to increase shareholder value as it does not necessarily stabilize the firm's cash flows. The fact that more US firms hedge translation exposure could be correlated with the shareholder and market orientation of US firms as outside investors are more likely to provide capital to firms with more stable balance sheets.

In addition to the types of currency exposure they hedge, we also asked the US and Dutch firms to comment on their hedging horizon for foreign exchange risk management. Table 9 below shows that for all types of foreign exchange risk classes, hedging the maturity of the exposure is most common for both US and Dutch firms.

[Insert Table 9 here]

Both US and Dutch firms are likely to hedge contractual commitments and anticipated transactions to the maturity of the exposure, with a slight bias toward under hedging the maturity as opposed to over hedging it. The tendency to under hedge the maturity of the exposure increases with economic/competitive exposure. While no US firm hedges economic/competitive exposure for longer than the maturity of the exposure, to our surprise, in the Netherlands 15% of the firms hedging economic/competitive exposure

⁶ At the time of the questionnaire (1998), the Euro was not yet introduced. Even though exchange rate movements between prospective Euro participants were already limited in 1998, the current foreign exchange exposure for Dutch firms may be lower

indicate doing so. Respectively 19% and 15% of the US and Dutch firms hedge economic/competitive exposure to the end of the budget/fiscal year which contradicts economic theory as the horizon of economic exposure reaches beyond a budget or fiscal year. This suggests an earnings management focus to hedging. The fact that 26% of US firms and 40% of Dutch firms hedge translation risk to the end of the budget/fiscal year is not as surprising as this is an exposure defined by accounting cycles and can be successfully controlled in annual increments.

When hedging foreign currency exposure, managers may also be tempted to incorporate their views on foreign exchange rate changes in order to try to outperform the market and make a profit. We asked the US and Dutch firms whether their views on exchange rate movements influenced their behavior with respect to foreign currency derivatives transactions.

[Insert Table 10 here]

Table 10 illustrates that US firms are more willing to incorporate their views on foreign exchange rate changes than are Dutch firms. Eight percent of the US firms versus 5% of the Dutch firms frequently alter the timing of hedges based on market view. A similar pattern is found for altering the size of hedges based upon a specific view, with 9% of US firms frequently incorporating their market view against 7% of the Dutch firms. As for actively taking outright positions based upon a view, more than one third of the US firms indicate that they sometimes or frequently do so, while less than one quarter of the Dutch firms indicate doing so. As it is very difficult to outperform the market consistently, this behavior, under the guise of hedging, may lead to increased rather than less financial risk. The conclusion drawn is that US firms are willing to take more risk than Dutch firms and therefore behave more speculatively when foreign exchange rate movements are viewed as likely to be favorable. This behavior is consistent with the shareholder orientation in the US as US firms have more pressure to consistently show a good quarterly performance.

VI. Control and reporting procedures

In this section, we investigate issues regarding control and reporting procedures. Again, we apply a set of weights based on the sample of US respondents that indicate using derivatives. The use of derivatives incorporates specific risks as derivatives positions can reach a magnitude far beyond the value of positions arising from normal business activities. Therefore, it is apparent that good control measures and

than during the pre-Euro era.

reporting procedures should be in place. Because US accounting rules (FASB) regarding external disclosure requirements in annual reports on derivatives activities are stricter than those in the Netherlands, we are interested to find out whether these differences are confirmed when investigating the internal control and reporting systems of US and Dutch firms. We examine the usage rate of a documented policy and the frequency of reporting on derivatives activities. We also investigate the preference for a centralized versus a decentralized approach to risk management activities, look into the minimum counter-party rating firms require, and examine how frequently the firms evaluate (re-value) their derivatives portfolios. We conclude this section by examining which benchmark the firms prefer for evaluating their risk management function.

A basic control tool for derivatives usage is the use of a documented policy. Considering the stricter derivatives disclosure requirements in the US, the more litigious nature of the stakeholders, and the prevalence of recent corporate “train wrecks” with respect to derivatives, we expect a higher percentage of US firms to have a documented derivatives usage policy than Dutch firms. Indeed, 73% of the US firms compared to 66% of the Dutch firms indicate they have a documented policy. However, considering the risks associated with derivatives usage, such as market, counter-party and liquidity risks, it is remarkable that the percentage of both US and Dutch firms that report having a documented policy is not higher.

Whereas a documented policy defines the boundaries for derivatives usage, the frequency of reporting to the Board of Directors (US) or the Executive Board (Netherlands) forms the active control of top management on the compliance of the derivatives usage (to the documented policy). Furthermore, it provides the management with insight as to the actual level of financial risk the firm has to bear. Because of the stricter external disclosure requirements and the legal liability of the directors, we expect US firms to report on derivatives usage to the board more frequently than do Dutch firms.

[Insert Figure 4 here]

In contrast to these priors, we find that 47% of Dutch firms report to the Executive Board on either a monthly (27%) or quarterly (20%) basis, whereas only 21% of US firms report to the Board of Directors on either a monthly (6%) or on a quarterly (15%) basis. While 18% of the US firms report only annually, none of the Dutch firms indicated this frequency. Most US firms, 56%, indicate that they report “as needed” or “have no set schedule” against 39% of Dutch firms in these categories. Although Dutch firms are by law not required to provide extensive information on derivatives usage in annual reports, these figures suggest that Dutch boards demand more frequent insight into derivatives positions than do US

boards. For the US firms it seems that the stricter external reporting requirements on derivatives usage do not lead to stricter internal reporting measures by the board. This may be because sufficient firm policies are in place to allow for relatively more self-management.

We also investigate the approach firms take to risk management activities, in terms of a centralized or decentralized decision structure for risk management decisions. The firms could choose from three risk management approaches: primarily centralized, primarily decentralized or primarily decentralized with centralized coordination. Table 11 presents the responses of the US and Dutch firms to this question for each separate form of risk; currency, interest rate and commodity.

[Insert Table 11 here]

Table 11 shows that for all three types of financial risk a centralized approach is preferred by both US and Dutch firms. This strong preference for a centralized approach suggests that economies of scale in risk management activities, such as the number of employees, knowledge, training, computers and facilities, are involved. With regard to currency risk management in particular, there is some bias toward Dutch firms allowing more decentralization, with 21% of the Dutch firms having decentralized activities versus 12% for the US.

One important aspect of derivatives control is counter-party risk (the possibility that the other party will not deliver on their side of the transaction). The financial environment in the US and the Netherlands regarding counter-parties for derivatives is quite different. In the Netherlands, counter-parties for derivatives contracts are more likely to be banks (see section IV on the types of derivatives used), while in the US there are a wider variety and larger number of financial institutions and exchanges able to act as counter-parties. One way to measure the risk of a counter-party is via its credit rating (AAA, AA, A, BBB, etc.). Because rating agencies in the US have more influence than in the Netherlands, we expect US firms to be generally more aware of the differences in ratings and to require a higher counter-party rating than do Dutch firms. We asked the US and Dutch firms about the lowest rated counter-party with which they would enter a derivatives transaction. As counter-party risk increases with the lengthening of the derivative maturity, we distinguish between maturities shorter than one year and maturities longer than one year. The responses are shown in Table 12.

[Insert Table 12 here]

The first point to note is that between a fifth and a quarter of US firms and nearly 40% of Dutch firms have either no set policy on counter-party rating or the respondent doesn't know of one. While not that surprising for Dutch firms dealing mainly with banks, it is surprising for US firms. For maturities of less than one year, all US and Dutch firms report that they do not engage in derivatives transactions with counter-parties rated below "BBB". Forty-seven percent of US firms and 33% of Dutch firms indicate a minimum counter-party rating of "A". For derivatives maturities of more than one year, 78% of US firms require a counter-party rating of "AAA, AA or A" against 61% of the Dutch firms. These figures indicate that US firms are more likely to have credit rating policies and impose more strict credit rating limits on counter-parties do Dutch firms. This is in line with our view that counter-party ratings are more important in the US than in the Netherlands. Nonetheless, it is striking that in both countries a large percentage of firms does not explicitly consider counter-party risk.

Another control mechanism for derivatives is the regular valuation of the portfolio. We were interested in comparing how often firms value their derivatives portfolio. Because of the stricter external disclosure requirements in the US, we expect a higher frequency of re-valuation activity in the US than in the Netherlands. Most US firms report a monthly (28%) or quarterly (31%) re-valuation frequency. The same holds for Dutch firms, but with slightly lower percentages, 25% and 15% respectively. More remarkable is that 22% of the US firms and 44% of the Dutch firms re-value their derivatives portfolio only when needed or have no set schedule for re-valuation.

A final control issue is the measurement and evaluation of the effects of the risk management program. In order for firms to determine whether their risk management program has been effective, it must be evaluated in some meaningful way. Table 13 compares the responses of firms when asked to indicate the basic approach they use evaluate the success of their currency risk management program.

[Insert Table13 here]

Interestingly, while financial theory suggests the goal of financial hedging should be to reduce the volatility of cash flows, Table 13 indicates that only 42% of US firms and 23% of Dutch firms indicate using this as a benchmark for evaluating their risk management function. Instead, 37% of Dutch firms and 26% of US firms indicate they use an absolute profit or loss approach to evaluating the risk management function. A simple profit or loss approach to the derivative activities was often at the root of many of the US corporate derivatives train wrecks in the mid 1990s (e.g., Proctor and Gamble, Gibson Greeting cards, Mead, the US trading arm of Metallgesellschaft).

VII. Conclusions

This paper examines the impact of institutional differences between the US and the Netherlands on the financial risk management practices of US and Dutch firms. Matching the results of a US survey (Bodnar, Marston and Hayt (1998)) and an identical Dutch survey creates a truly comparable sample. Firms are matched on the basis of sector classification and firm size. After the matching procedure, 267 US and 84 Dutch survey respondents remain. In the second step, we apply weights to the US firms to make the sample proportionally look like that of the Dutch firms. The result of this weighting scheme removes the influences of firm size and sector on derivatives usage. After the weighting, the results should more purely reflect institutional differences such as economic and regulatory environment. Differences between the US and the Netherlands in four main areas: level of international involvement, different financial market structures, the level of focus on shareholder value creation, and the different external disclosure requirements, lead us to expect distinct differences in derivatives usage and risk management practices. While differences do exist, except in a few cases, they are not overwhelming. This suggests that the primary reasons behind derivatives use are broad economic phenomena rather than institutional differences. However, many of the differences in responses do seem consistent with institutional differences between the two countries. First, we find that Dutch firms (for all industry and size classes) hedge more financial risk. This is consistent with the fact that because of the more open economy of the Netherlands, Dutch firms experience far more foreign exchange exposure than US firms. Furthermore, we find that US firms are more concerned regarding derivatives usage. We also find that Dutch firms generally use banks for derivatives transactions, while US firms use a broader variety of counter-parties for derivatives transactions. Because of the broader array, US firms require higher counter-party ratings. Additionally, the results show that US firms focus more on accounting earnings than Dutch firms and are more willing to incorporate their views on foreign exchange rate movements when engaging in derivatives transactions. This type of behavior can be linked to the fact that US firms are shareholder oriented, whereas Dutch firms are stakeholder oriented. The aforementioned results indicate that the institutional differences between the US and the Netherlands have a significant effect on the risk management practices and derivatives use of US and Dutch firms.

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Table 1: Samples of US and Dutch respondents

	US firms					Dutch firms			
	Manufac- turing	Trade	Services	Total		Manufac- turing	Trade	Services	Total
Large (% of total)	73 (27%)	9 (3%)	17 (6%)	99	Large (% of total)	13 (15%)	3 (4%)	9 (11%)	25
Medium (% of total)	35 (13%)	5 (2%)	7 (3%)	47	Medium (% of total)	8 (9%)	6 (7%)	9 (11%)	23
Small (% of total)	93 (35%)	8 (3%)	20 (8%)	121	Small (% of total)	23 (27%)	10 (12%)	3 (4%)	36
Total	201	22	44	267	Total	44	19	21	84

The results are matched and unweighted.

Table 2: Derivatives usage by size

	US firms				Dutch firms		
	Yes (% of num)	No (% of num)	Total (% of total)		Yes (% of num)	No (% of num)	Total (% of total)
Large	81 (82%)	18 (18%)	99 (37%)	Large	22 (88%)	3 (12%)	25 (30%)
Medium	22 (46%)	26 (54%)	48 (18%)	Medium	13 (57%)	10 (43%)	23 (27%)
Small	14 (12%)	106 (88%)	120 (45%)	Small	15 (42%)	21 (58%)	36 (43%)
Total (% of total)	117 (44%)	150 (56%)	267	Total (% of total)	50 (60%)	34 (40%)	84

Answers to the question: Does your firm use derivatives (forwards, futures, options or swaps)? Large firms have total sales of more than DFL 1.5 billion (circa US\$ 800 million), medium firms have total sales between DFL 500 million and DFL 1.5 billion (between circa US\$ 250 million and circa US\$ 800 million) and small firms have total sales of less than DFL 500 million (circa US\$ 250 million). The responses are matched and unweighted.

Table 3: Derivatives usage by industry

	US firms				Dutch firms		
	Yes (% of num)	No (% of num)	Total (% of total)		Yes (% of num)	No (% of num)	Total (% of total)
Manufacturing	93 (46%)	108 (54%)	201 (75%)	Manufacturing	29 (66%)	15 (34%)	44 (52%)
Trade	6 (27%)	16 (73%)	22 (8%)	Trade	11 (58%)	8 (42%)	19 (23%)
Services	18 (41%)	26 (59%)	44 (17%)	Services	10 (48%)	11 (52%)	21 (25%)
Total (% of total)	117 (44%)	150 (56%)	267	Total (% of total)	50 (60%)	34 (40%)	84

Answers to the question: What is the main activity of your firm? The responses are matched and unweighted.

Table 4: Type of financial risk hedged

	Currency risk	Interest rate risk	Commodity risk
US firms	79%	73%	44%
Dutch firms	96%	81%	20%

Answers to the question: Which of the following statements best describes your organization's approach to the use of derivatives to manage each of the following forms of risk? Only for those respondents who answered negative on the choice: exposure not managed with derivatives. The responses are matched and weighted for hedgers.

Table 5: What do firms try to manage with hedging

	most important	second most important	least important	not at all important/ not a consideration
US firms				
Volatility in accounting earnings	44%	37%	13%	7%
Volatility in cash flows	50%	29%	16%	4%
Balance sheet accounts or ratios	1%	11%	65%	23%
Dutch firms				
Volatility in accounting earnings	33%	31%	13%	23%
Volatility in cash flows	60%	21%	10%	10%
Balance sheet accounts or ratios	8%	26%	45%	21%

Answers to the question: If you use derivatives to hedge, please indicate what the firm is trying to manage with the hedge. The responses are unmatched and unweighted.

Table 6: Types of derivatives used

Currency risk		
	US firms	Dutch firms
OTC forwards	56%	77%
Futures	12%	0%
Exchange-traded options	1%	0%
Swaps	8%	2%
OTC options	16%	12%
Structured derivatives	6%	7%
Hybrid debt	2%	2%
Interest rate risk		
	US firms	Dutch firms
OTC forwards	4%	28%
Futures	4%	3%
Swaps	78%	52%
OTC options	3%	17%
Exchange-traded options	0%	0%
Structured derivatives	7%	0%
Hybrid debt	5%	0%
Commodity risk		
	US firms	Dutch firms
OTC forwards	15%	0%
Futures	40%	6%
Swaps	27%	18%
OTC options	7%	35%
Exchange-traded options	7%	12%
Structured derivatives	4%	24%
Hybrid debt	0%	6%

This question was part of the Dutch survey but not part of the 1998 US survey. The US answers to this question come from the 1995 Wharton survey (Bodnar, Hayt and Marston (1996)). The question was “For each source of exposure that you manage, rank the seven types of derivatives by order of importance in your firm’s management of that exposure.” The table displays the percentage of firms ranking each item as the most important. Because the US answers come from a different response sample (from the same overall sample) the responses are unmatched and unweighted.

Table 7: Foreign currency operating costs and revenues

Foreign currency operating revenues hedgers: US firms								
0%	5%	10%	15%	20%	25%	30%	40%	50+%
16%	10%	19%	4%	7%	5%	11%	7%	21%
Foreign currency operating costs hedgers: US firms								
0%	5%	10%	15%	20%	25%	30%	40%	50+%
12%	21%	16%	7%	7%	6%	13%	4%	14%
Foreign currency operating revenues hedgers: Dutch firms								
0%	5%	10%	15%	20%	25%	30%	40%	50+%
0%	0%	23%	4%	23%	8%	8%	19%	15%
Foreign currency operating costs hedgers: Dutch firms								
0%	5%	10%	15%	20%	25%	30%	40%	50+%
0%	0%	25%	7%	25%	18%	0%	14%	11%

Answer to the question: What percentage of your consolidated operating revenues and costs is in foreign currencies (currencies other than the one used for reporting purposes)? The responses are matched and weighted for currency hedgers.

Table 8: Benchmark for currency hedgers

	US firms	Dutch firms
Our firm does not use a benchmark	43%	60%
Forward rates available at the beginning of the period	21%	19%
Spot rates at the beginning of the period	20%	8%
Baseline percent hedged strategy (i.e. X% hedged)	9%	4%
Other benchmark (give a brief explanation)	7%	8%

Answer to the question: Which benchmark does your firm use for evaluating foreign currency risk management over the budget/planning period? The responses are matched and weighted for currency hedgers.

Table 9: Hedging horizon

US firms	Contractual commitments	Anticipated transactions	Economic/competitive exposure	Foreign repatriations	Translation of foreign accounts
Hedge shorter than the maturity of the exposure	5%	15%	31%	19%	19%
Hedge the maturity of the exposure	88%	78%	50%	74%	52%
Hedge longer than the maturity of the exposure	5%	3%	0%	0%	3%
Hedge to the end of the budget/fiscal year	2%	4%	19%	7%	26%
Dutch firms	Contractual commitments	Anticipated transactions	Economic/competitive exposure	Foreign repatriations	Translation of foreign accounts
Hedge shorter than the maturity of the exposure	3%	13%	31%	19%	30%
Hedge the maturity of the exposure	94%	73%	38%	71%	30%
Hedge longer than the maturity of the exposure	3%	10%	15%	0%	0%
Hedge to the end of the budget/fiscal year	0%	3%	15%	10%	40%

Answer to the question: For each of the following exposures, which best describes your typical hedging horizon? The responses are matched and weighted for currency hedgers.

Table 10: Market view on exchange rates

US firms	never	sometimes	frequently
Alter the timing of hedges	51%	41%	8%
Alter the size of hedges	50%	41%	9%
Actively take positions in currency derivatives	63%	33%	4%
Dutch firms	never	sometimes	frequently
Alter the timing of hedges	50%	45%	5%
Alter the size of hedges	57%	36%	7%
Actively take positions in currency derivatives	77%	18%	5%

Answer to the question: How often does your market view of exchange rates cause you to... The responses are matched and weighted for currency hedgers.

Table 11: Approach to risk management activities

US firms	Currency risk	Interest risk	Commodity risk
Exposure not managed with derivatives	22%	28%	62%
Risk management activities primarily centralized	65%	69%	28%
Risk management decisions primarily decentralized with centralized coordination	9%	2%	5%
Risk management activities primarily decentralized	3%	1%	4%
Dutch firms	Currency risk	Interest risk	Commodity risk
Exposure not managed with derivatives	4%	19%	80%
Risk management activities primarily centralized	75%	81%	12%
Risk management decisions primarily decentralized with centralized coordination	17%	0%	4%
Risk management activities primarily decentralized	4%	0%	4%

Answers to the question: Which of the following statements best describes your organization's approach to the use of derivatives to manage each of the following forms of risk? The responses are matched and weighted for hedgers.

Table 12: Counter-party rating

	Maturities 12 months or less		Maturities more than 12 months	
	US firms	Dutch firms	US firms	Dutch firms
AAA	7%	6%	8%	11%
AA	18%	20%	27%	33%
A	47%	33%	43%	17%
BBB	4%	2%	1%	0%
Less than BBB	0%	0%	0%	0%
No set policy/don't know	24%	39%	21%	39%

Answers to the question: What is the lowest counter-party rating with which you will enter a derivatives transaction? The responses are matched and weighted for hedgers.

Table 13: Evaluation of the risk management function

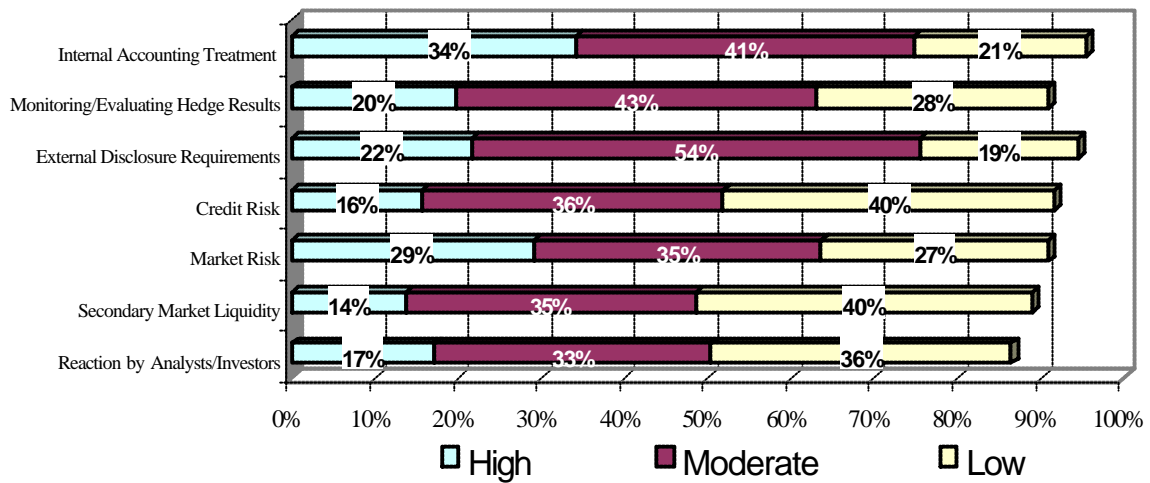
	US firms	Dutch firms
Reduced volatility relative to a benchmark	42%	23%
Increased profit relative to a benchmark	16%	20%
Absolute profit/loss	26%	37%
Risk adjusted performance	16%	20%

Answer to the question: How do you evaluate the risk management function? The responses are matched and weighted for hedgers.

Figure 1: Concerns regarding derivatives

Answer to the question: Indicate your degree of concern about the following issues with respect to derivatives. The responses are matched and weighted for hedgers.

Concerns Regarding Derivatives: US Firms



Concerns Regarding Derivatives: Dutch Firms

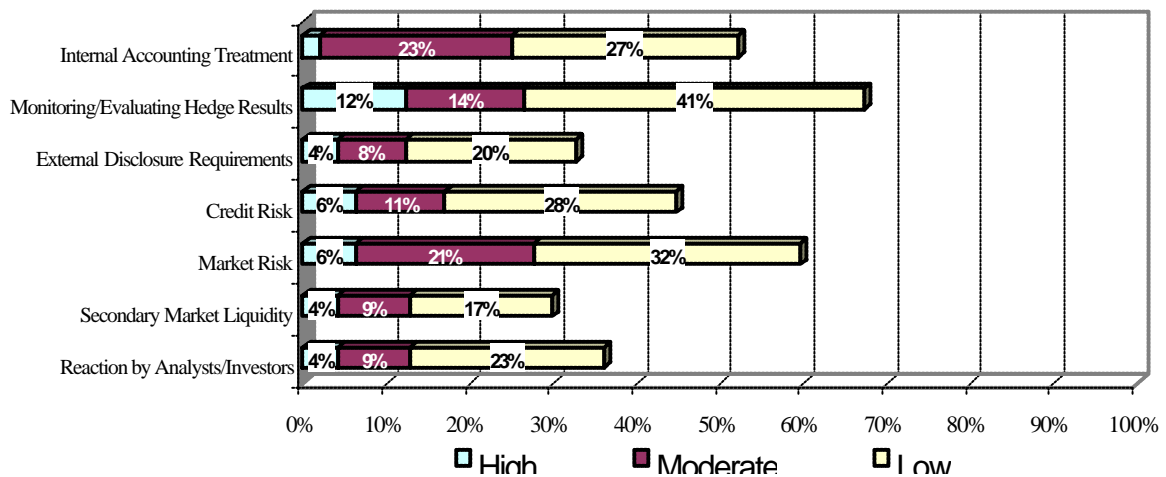


Figure 2: Reasons for not using derivatives

Answers to the question: Please indicate the three most important factors in your decision not to use derivatives. The responses are matched and weighted for non-hedgers.

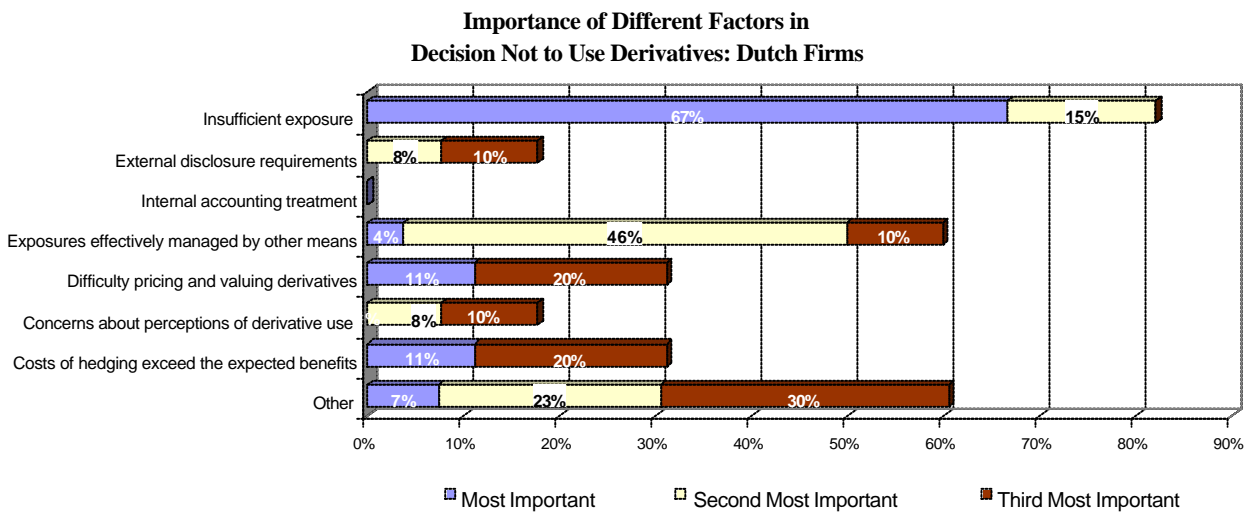
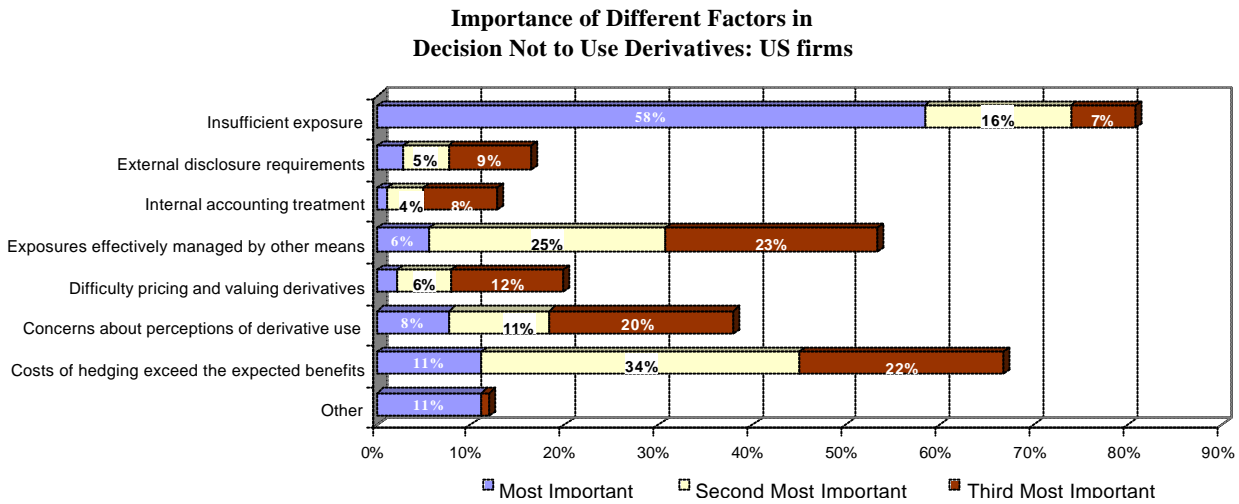
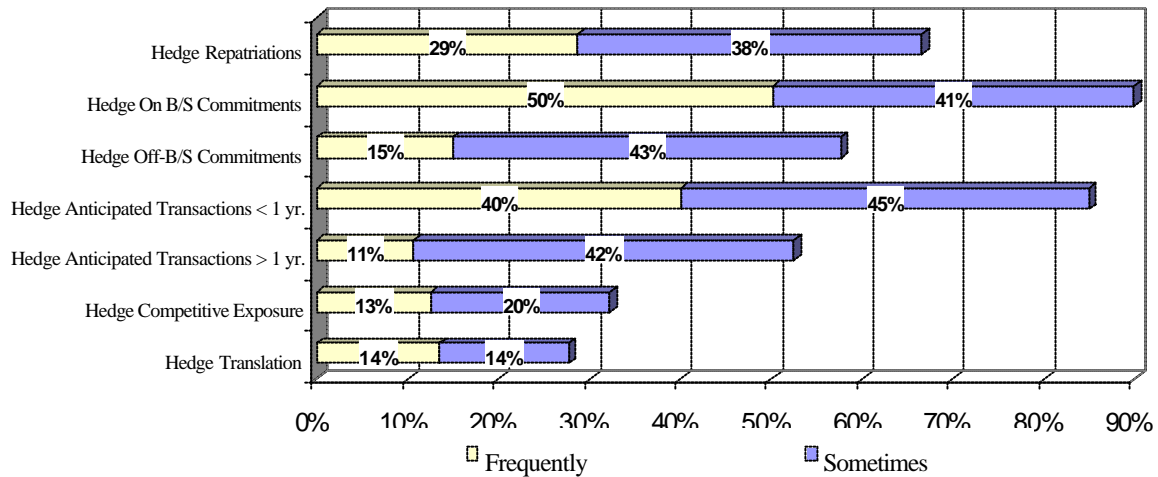


Figure 3: Reasons for currency derivatives transactions

Answers to the question: How often does your firm transact in the currency derivatives markets to hedge the currency exposures mentioned below? The responses are matched and weighted for currency hedgers.

Reasons for FX Derivatives Use: US Firms



Reasons for FX Derivatives Use: Dutch firms

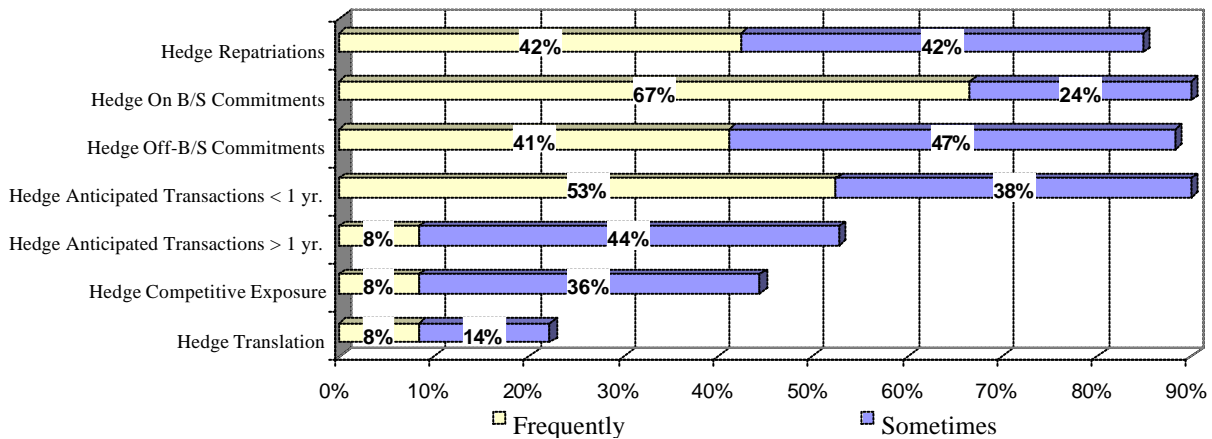
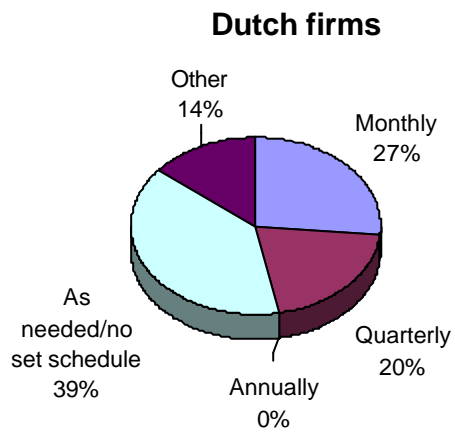
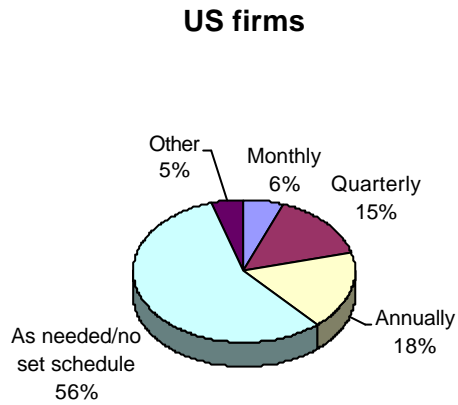


Figure 4: Reporting of derivatives activity

Answers to the question: How frequently is derivatives activity reported to the Board of Directors? The responses are matched and weighted for hedgers.



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