

Comparative Analysis of Corporate Risk Management Practices in Croatian and Slovenian Companies

*Danijela Miloš Sprčić**

*Željko Šević***

Abstract: The paper explores differences as well as commonalities in corporate risk management practices and risk exposures in the large non-financial Slovenian and Croatian companies. Comparative analysis of survey results have revealed that the majority of analysed companies in both Croatia and Slovenia are using some form of risk management to manage interest-rate, foreign exchange, or commodity price risk. Regarding the intensity of influence of financial risks on the performance of the analysed companies, the results have shown that the price risk has the highest influence among the Slovenian as well as the Croatian companies. Croatian companies are more affected by currency risk than the Slovenian companies, while the interest-rate risk has been ranged as less important in comparison with commodity price and currency risks. The survey's results have clearly indicated that Croatian and Slovenian non-financial companies manage financial risks primarily with simple risk management instruments such as natural hedging. In the case of derivatives use, forwards and swaps are by far the most important instruments in both countries, but futures as representatives of standardised derivatives and structured derivatives are more important in the Slovenian than in the Croatian companies.

Keywords: corporate risk management, financial risks, risk management instruments, derivatives, large non-financial companies

JEL Classification: G320, G390

Introduction

In this paper we present the research results on corporate risk management¹ practices in the large Croatian and Slovenian non-financial companies. Financial risks - the risks to a corporation stemming from price fluctuations - are pervasive, and directly or indirectly influence the value of a company. Whether it is a multinational company

* Danijela Miloš Sprčić is at the Faculty of Economics, University of Zagreb, Zagreb, Croatia.

** Željko Šević is at the University of Greenwich Business School, London, UK.

and its exposures to exchange rates, transportation companies and the price of fuel, or highly leveraged company and interest rates exposure, how and to what extent such risks are managed now often plays a major role in the success or failure of a business. Therefore, it could be argued that financial risk management is one of the most important corporate functions as it contributes to the realisation of the company's primary goal – stockholder wealth maximisation.

This paper explores whether large Croatian and Slovenian non-financial companies are aware of the importance of financial risk management, and if they are, what kind of risk management instruments they use in order to protect their earnings and cash-flows from the adverse commodity price, interest-rate and exchange-rate fluctuations. This evidence is important for evaluating the overall risk characteristics of firms that use different hedging instruments, which is of interest to bankers, investors, the monetary authorities, and to scholars as well. The evidence is also important as it indicates the stage of development of derivative markets in countries under analysis. The research was conducted in September 2006. We have explored how many companies in both countries manage financial risks, whether they manage all three types of financial risks and what kind of risk management strategies they use. We have also asked financial managers about the intensity of influence of financial risks on the performance of their companies. Managers were questioned about the scope of the risk management policy, the firm's hedging horizon, the corporate risk management goals and the use of VaR or Monte Carlo analysis or some other type of simulation techniques as measures of the firm's risk exposure. Additionally, we have explored which financial institutions and intermediaries are the most important in providing risk management instruments and what are the reasons why Croatian and Slovenian companies do not manage corporate risks or use derivative instruments.

We have also tested several assumptions that refer to the differences in risk management practices in Croatia and Slovenia. These two countries have been chosen for a comparative analysis as they have followed similar economic and political patterns for more than 70 years. From 1918 these countries were part of Yugoslavia, firstly the Kingdom of Serbs, Croats and Slovenes, then the Socialist Federal Republic of Yugoslavia. After they declared their independence in 1991, they have started to develop their own economies. However, in spite of the same starting position after the dissolution of Yugoslavia, Slovenia has achieved much better results than Croatia during the last fifteen years. Croatian economy was severely affected by the Balkan Civil War in the period from 1991 to 1995. The disruptions caused by the War and the lack of competitiveness of many export sectors led to a decline in traditional industries like base metals, textiles, wood and food industry. Only in the recent past has the economy begun to show its potential, with tourism, banking and public investment leading the way (EIU, 2006). Progress in

enterprise restructuring through the ending of the privatisation process, SME development and export promotion, together with the EU accession process should accelerate the future growth and prosperity of Croatia as well as the country's economic and structural reforms. In contrast to Croatia, the largely homogeneous Slovenia was spared any significant involvement in ethnically based conflicts. With Slovenia's strong economy and low unemployment rates, as well as the establishment of stable democracy since its independence, the country was regarded as one of the better prepared EU candidate countries and one of the least corrupt countries in Europe. Today, it is one of the best economic performers in Central and Eastern Europe, with a GDP per capita estimated at 13 534 US dollars in 2005 (EIU, 2006).

Therefore, besides other objectives, this research explores whether financial risk management, as one of the most important objectives of modern corporate strategy, is more developed among the Slovenian than among Croatian companies. Firstly, we argue that the Slovenian companies have more advanced risk management practices in comparison to the Croatian companies, measured by the total number of companies that use derivative instruments to manage their risk exposures. Secondly, we test the hypothesis that the Slovenian companies have more advanced risk management practices than the Croatian companies, measured by the implementation of more sophisticated risk management strategies. To distinguish the less and more sophisticated risk management strategies, we took the use of different derivatives instruments as an example of more advanced risk management strategies with an emphasis on structured derivatives use, while instruments like natural hedging, hedge substitutes, operational hedging or business diversification we have classified as a less sophisticated risk management strategies.

Theorising the Framework

Schmit and Roth (1990) have argued that risk management can be described as the performance of activities designed to minimise the negative impact of risk regarding possible losses. Because risk reduction is costly, minimising the negative impact will not necessarily eliminate risk. Rather, management must decide between alternative methods to balance risk and cost, and the alternative chosen will depend upon the organisation's risk characteristics. Financial risk management can be conducted in two in two rather distinct ways. Either the firm can engage in activities which together result in less volatility than they would exhibit individually, or the firm can engage in financial transactions that will have a similar effect. The first approach is the application of diversification strategy in the portfolio of businesses operated by the firm, while the second is the firm's purchase of derivative instruments. Corporate

diversification is often justified on the grounds that it reduces risk, or volatility in rates of return, by reducing a firm's exposure to the cyclicity of any single industry. The theoretical rationale for this concept is borrowed from the modern portfolio theory (Markowitz, 1952).

However, diversification based upon conglomerate activity, while once a popular strategy, has fallen out of favour. During the 1950s and 1960s many corporations undertook massive diversification programs. In a few decades the trend has reversed, with a study by Comment and Jarrell (1995) documenting and confirming a return to specialisation. This push toward focus apparently resulted from the view that unrelated diversification actually decreases firm value. Theoretical arguments suggest that diversification has both value-enhancing and value-reducing effects. The potential benefits of operating different lines of business within one firm include greater operating efficiency, less incentive to forego positive net present value projects, greater debt capacity and lower taxes (see: Weston, 1970; Stulz, 1990; Lewellen, 1971). However, the potential costs of diversification include the use of increased resources to undertake value-decreasing investments, cross-subsidies that allow poor segments to drain resources from the better-performing segments, and misalignment of incentives between central and divisional managers (see: Myerson, 1982; Harris, Kriebel and Raviv, 1982; Stulz, 1990; Jensen's, 1986; 1988; Meyer, Milgrom and Roberts, 1992; Berger and Ofek, 1995).

The above papers have not distinguished between related and unrelated diversification. In this context, Lubatkin and Chatterjee's (1994) findings make the difference. Instead of a linear relationship, they have found a curvilinear relationship, suggesting that there is an optimal level of diversification for firms. It appears that risk, however measured, is best minimised by some midrange level of diversification, such as a constrained strategy, in which opportunities to share tangible and intangible assets are numerous. Lubatkin and Chatterjee's (1994) findings are therefore contrary to the popular portfolio theory. Firms that diversify in a constrained manner are able to realise synergies that other diversification types can not achieve, and these synergies help to protect the firm from macroeconomic uncertainties. Their results have important implications and suggest that diversifying into new markets only for the purpose of hedging may actually increase corporate risks. It could be concluded that it is better for corporate managers to focus their attention on building competitive advantages in each market in which they participate, and that can be accomplished through a constrained diversification strategy.

Operational hedging is a way to conduct a multinational diversification strategy, which provides a reason for direct foreign investments by firms, and may further explain the existence of multinational firms with production facilities at several foreign locations. An example of an operational hedging policy would be to locate production in a country where significant sales revenues in the local currency are

expected. Multinational corporations often sell products in various countries with prices denominated in corresponding local currencies. The effect of unexpected changes in exchange rates and foreign demand conditions on domestic currency value of sales revenues are hedged by similar changes in the domestic currency value of local production costs (Chowdhry and Howe, 1998).

In the place of diversification strategy, firms, concerned about the volatility of earnings, have turned to the financial markets, due to the fact that the financial markets have developed more direct approaches to risk management that transcend the need to directly invest in activities that reduce volatility (Santomero, 1995). The task of managing financial risks has been facilitated by the increasing availability of a variety of derivative instruments to transfer financial price risks to other parties. Allen and Santomero (1998) have written that, during the 1980s and 1990s, commercial and investment banks have introduced a broad selection of new products designed to help corporate managers in handling financial risks. At the same time, the derivatives exchanges, which successfully introduced interest rate and currency derivatives in the 1970s, have become vigorous innovators, continually adding new products, refining existing ones, and finding new ways to increase their liquidity. Since then, markets for derivative instruments such as forwards and futures, swaps and options, and innovative combinations of these basic financial instruments, are developing and growing at a breathtaking pace. The range and quality of both exchange-traded and OTC derivatives, together with the depth of the market for such instruments, have expanded intensively. Consequently, the corporate use of derivatives in hedging interest rate, currency, and commodity price risks is widespread and growing (Santomero, 1995). The emergence of the modern and innovative derivative markets allows corporations to insulate themselves from financial risks, or to modify them (Hu, 1995; 1996). Therefore, under these new conditions, shareholders and stakeholders increasingly expect company's management to be able to identify and manage exposures to financial risks.

Methodology

Empirical research was conducted on the largest Croatian and Slovenian non-financial companies and the criteria for selecting companies in the sample were similar for both countries. The Croatian companies needed to meet two out of three conditions required by the Croatian Accounting Law² that relate to large companies, while the Slovenian companies were included in the sample if they met two out of three conditions required by the Slovenian Company Law³ also related to large companies. A list of the largest 400 Croatian companies in the year 2005⁴ had been used and 157 companies that have met the required criteria were selected in the

sample. In the case of the Slovenian companies, GVIN⁵ electronic database had been used and, on the basis of selected criteria, 189 companies were chosen for further analysis. The primary advantage of these samples is that the evidence can be generalised to a broad class of firms in different industries. Financial firms were excluded from the sample because most of them are also market makers, hence their motivation in using risk management instruments may be different from the motivations of non-financial firms.

Data were collected through the survey. The questionnaire was mailed at the beginning of September 2006 to the Croatian and Slovenian managers involved in the financial risk management decision. It was designed to explore how many companies manage financial risks and which types of risk management instruments are employed by the analysed companies. Additionally, a part of the questionnaire referred to those companies that classified themselves as non-hedgers in order to search for reasons not to manage financial risks. In the case of Croatia, only 19 companies answered by the end of September, so a follow-up letter was sent to the non-respondents. Sending a follow-up letter encouraged a response rate from 12 to 31 per cent. In the case of Slovenian companies, 41 companies answered on the questionnaire without any additional contact with potential respondents, creating a response rate of 22 per cent. An adequate response rate is the problem that has been often raised in research based on a survey. The accomplished response rates regarding both the Croatian and Slovenian samples are satisfactory for statistical generalisation (e.g. the response rate of the 1998 Wharton survey of derivate usage, as reported in Bodnar, Hayt and Marston (1998) was 21 per cent). However, it is important to mention that the inability to compare the survey results to the data of non-responding companies should be treated as a limitation of this research.

Regarding the data analysis employed, firstly, descriptive statistics has been presented which gave an insight into risk management practices of firms in both samples. Then, by using the independent sample t-test, the differences between means for Slovenian and Croatian hedgers and nonhedgers have been explored. Independent sample t-test enables a calculation of statistically significant differences between small and mutually unrelated parametric samples (Bryman and Cramer, 1997). Both Slovenian and Croatian research samples were small, unrelated and parametric. In addition, research data were of a non-categorical nature (interval/ratio data), therefore t-test was found as the most suitable for univariate analysis. T-test has enabled us to explore whether financial risk management is more developed among the Slovenian than among Croatian companies, as well as whether different risk management strategies are used in the analysed countries. A comparative analysis has also been employed as a method used to compare the results of empirical research conducted on the Croatian and Slovenian companies. The comparative analysis was designed as compare-and-contrast work (Walk, 1998) in which results for both

countries were weighted equally trying to find crucial differences as well as commonalities in financial risk management practices employed by the Croatian and Slovenian companies.

Research Results

The survey results have revealed that the majority of analysed companies in both countries manage financial risks - 78 per cent Slovenian respondents and 73.5 per cent Croatian respondents claim that they are using some form of risk management to manage interest-rate, foreign exchange, or commodity price risk. Regarding the use of derivatives as risk management instrument, 65.9 per cent of the analysed Slovenian companies use derivatives as risk management instruments, while in Croatia only 43 per cent of respondents declare themselves as derivative users. It could be concluded that the Slovenian companies use derivatives more frequently than their counterparts in Croatia. Therefore, our research hypothesis, which argues that the Slovenian companies have more advanced risk management practices than the Croatian companies, measured by the total number of companies that use derivative instruments to manage their risk exposures, should be accepted.

If we compare the results of the Croatian and Slovenian survey with the findings of Bodnar, Hayt and Marston (1998), who have revealed that 50 per cent of US non-financial companies use some form of financial engineering to manage financial risks, the conclusion would be that Slovenian companies use derivatives more frequently than US companies, while Croatian companies are lagging behind their US counterparts. However, it should be noted that the time difference needs to be taken into account. We believe that the use of derivatives has grown since 1998 in the US as well as globally, therefore the results of our survey cannot be directly compared with those of Bodnar, Hayt and Marston (1998).

In the survey questionnaire we have asked financial managers about the intensity of influence of all three types of financial risks to the performance of their companies. The results have shown that the price risk has the highest influence among the Slovenian companies, which can be seen from the fact that 77.5 per cent of financial managers claim that price risk has strong or very strong influence on the company's performance. Price risk is the most influential in the Croatian companies as well – 61.2 companies claim that their performance is highly affected by price fluctuations. We believe that these findings could be explained by the fact that Slovenia and Croatia are small and open economies, which results in a high dependence on international trade. On the highly competitive market, prices of goods are volatile, therefore companies that compete on that market need to be prepared for these conditions and protect their risky positions.

Regarding the currency risk exposure, 59.2 of Croatian managers think that this particular risk has strong or very strong influence on the company performance, while 39 per cent of the Slovenian managers claim the same. This finding leads to the conclusion that the Croatian companies are more affected by currency risk than the Slovenian companies, which could be explained by the fact that the exposure to foreign-exchange risk was not so high in 2006, and it is expected to be further decreased in 2007 as Slovenia has introduced the Euro as an official currency. Slovenia's major trade partners are Germany, Italy, France and Austria, so the majority of transactions are now denominated in one currency since Slovenia entered the Euro Zone (EIU, 2006). The results of the t-test have confirmed the results of descriptive statistics and have revealed a statistically significant difference between the analysed companies regarding the intensity of influence of currency and price risk on the company's performance – the Croatian companies are more affected by the currency risk, while the Slovenian companies are more affected by the price risk (see table 1).

Table 1: Independent samples t-test - Comparative analysis of Croatian and Slovenian exposure to financial risks

		Levene's Test for Equality of Variances	t-test for Equality of Means		Group Statistics						
		F	Sig.	t	Sig. (2-tailed)	Country	N	Mean	Std. Deviation	Std. Error Mean	
Intensity of influence of currency risk	Equal variances assumed	3.839	.053	2.388	.019	Intensity of influence of currency risk	Croatia	49	3.82	.99	.14
	Equal variances not assumed			2.335	.022		Slovenia	41	3.24	1.28	.20
Intensity of influence of price risk	Equal variances assumed	10.175	.002	-2.214	.029	Intensity of influence of price risk	Croatia	49	3.63	1.38	.20
	Equal variances not assumed			-2.299	.024		Slovenia	41	4.20	.94	.15

Source: Survey data

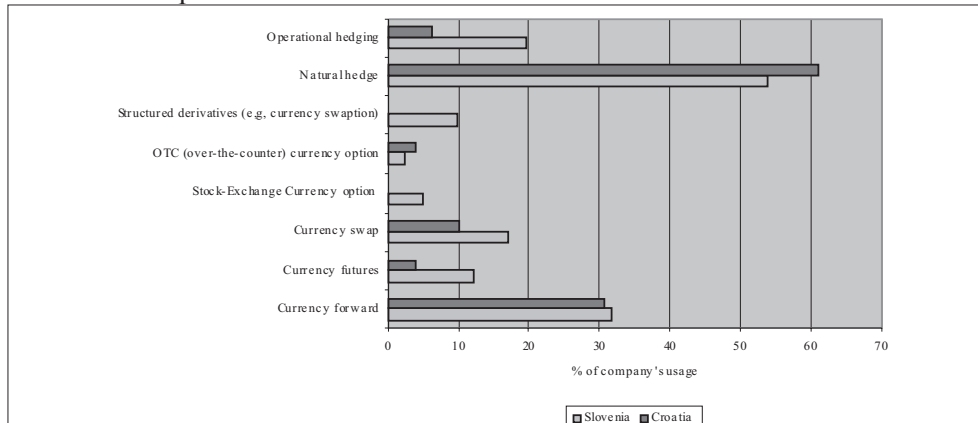
Finally, 44.9 per cent of the Croatian companies think that the influence of interest-rate risk is strong or very strong, while 36.6 per cent of their Slovenian

counterparts claim the same. Exposure to the interest-rate risk is a result of external financing through borrowing activity. Our results have shown that the average long-term debt-to-assets ratio in the two countries is 12.13 and 21.7 per cent respectively. Croatian companies are more leveraged than Slovenian companies, but according to Graham and Campbell (2001), who have argued that companies are highly leveraged if the debt-to-assets ratio exceeds 30 per cent, it could be concluded that the Slovenian and Croatian companies do not use debt capital heavily. This argument offers an explanation why the interest-rate risk has been ranked as less important in comparison with commodity price and currency risks. Overall, it could be concluded that, regarding the pecking order of financial risk management types and their influence on company's performance, managers in both countries conclude the same. Price risk is the most influential, which is followed by currency risk, while interest-rate risk is the last.

Regarding the risk management instruments that companies use in managing currency risk, it could be concluded that natural hedge like matching currency structure of assets and liabilities (e.g. debt in foreign currency) is the most important instrument in managing currency risk in both countries. In respect to the use of derivatives, the currency forward is the most important and frequently used instrument, followed by currency swap as the second most important derivative instrument. Currency futures and structured derivatives use in the Slovenian companies have gained importance in comparison with the Croatian companies, as well as international diversification of business (operational hedging). Other derivatives such as stock-exchange and OTC options are not important currency risk management instruments among the Croatian and Slovenian companies. However, it should be emphasised that, in respect of the currency risk management instruments that were used in the Slovenian companies before the Euro was introduced at the beginning of 2007, it is expected that their importance will decrease sharply, especially for those that have their value attached to the Euro or Slovenian tolar.

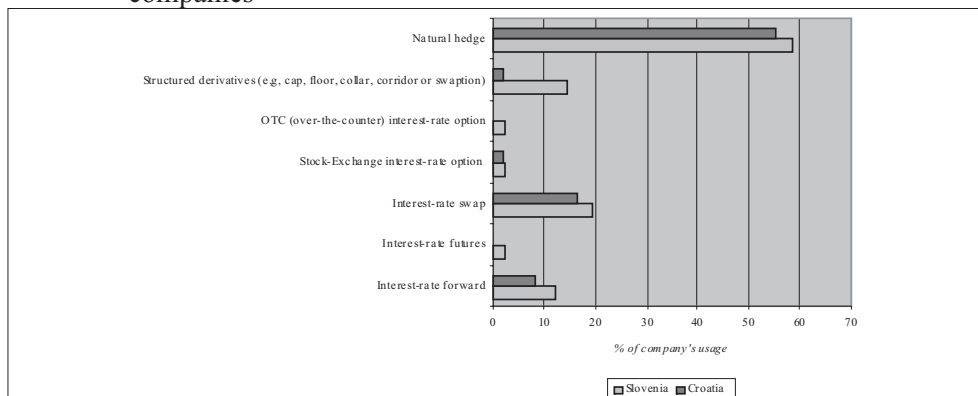
Interest rate risk in the Slovenian as well as in the Croatian companies is hedged most frequently by natural hedge (e.g. matching maturity of assets and liabilities or combining debt with fixed and fluctuating interest-rates). Again, forward contract and swap are the most important derivative instruments in the risk management strategy, but in contrast to currency risk management, interest rate swap is more important than interest rate forward. Contrary to the findings of the Croatian analysis, structured derivatives are an important instrument of interest-rate risk management among the Slovenian respondents. In comparison with other instruments, structured derivatives are even more important than interest-rate forward. Regarding the use of other derivative instruments like interest-rate options or futures in respect to risk management practices in both countries, it could be concluded that they do not play an important role in managing interest rate risk.

Figure 1: Currency risk management instruments used by Croatian and Slovenian companies



Source: Survey data

Figure 2: Interest-rate risk management instruments used by Croatian and Slovenian companies

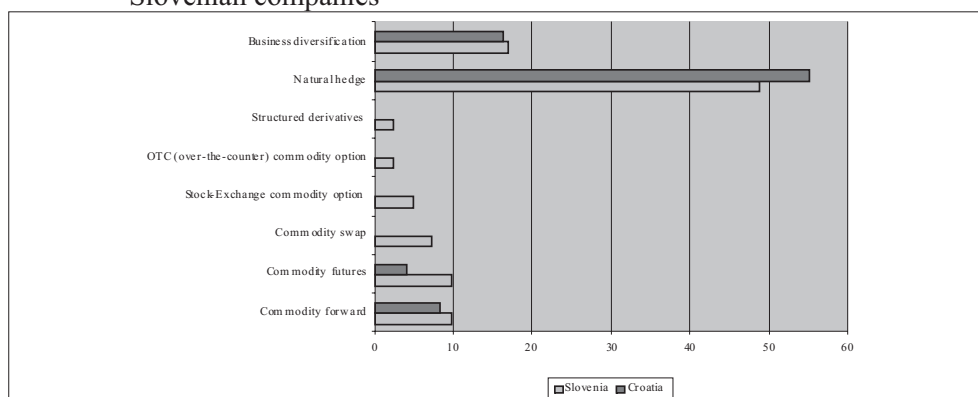


Source: Survey data

Price risk management, in both the Slovenian and Croatian companies, is usually hedged naturally by managing assets and liabilities. Among derivatives instruments, the commodity forward and commodity futures are equally important in the Slovenian companies. For the first time, futures contracts are used as representatives of standardised derivative instruments traded on the financial market. In Slovenia, futures and forwards are followed by commodity swap and standardised options, while in Croatia, contrary to the findings presented while analysing currency and interest-rate risk, the commodity swap has not been used at all, nor have the other derivative instruments. In the case of commodity risk management, structured

derivatives as well as OTC options are not important instruments, while business diversification through mergers, acquisitions, and other business combinations is quite important in managing price risk in both countries.

Figure 3: Commodity price risk management instruments used by Croatian and Slovenian companies



Source: Survey data

On the basis of the survey results, it could be concluded that forwards and swaps are by far the most important instruments in both countries. Futures as representatives of standardised derivatives together with structured derivatives are more important in the Slovenian than in the Croatian companies, while exchange-traded and OTC options are not important means of financial risk management in both countries. The results of t-test (see table 2) conducted to explore for differences between risk management practices in the Slovenian and Croatian companies have shown statistically significant evidence that the Slovenian companies use all types of derivatives, especially structured derivatives like swaptions, caps, floors, collars or corridors, as instruments for managing currency and interest-rate risk more intensively than the Croatian companies. Additionally, the Croatian companies use simple risk management instruments like natural hedging to a greater extent in comparison with the Slovenian companies when managing price risk. These findings are consistent with the research prediction that Slovenian companies have more advanced risk management practices than Croatian companies, measured by the implementation of more sophisticated risk management strategies. Therefore, in respect of the use of structured derivative instruments, the research hypothesis is accepted.

Table 2: Independent samples t-test - Comparative analysis of Croatian and Slovenian financial risk management practices

		Levene's Test for Equality of Variances		t-test for Equality of Means		Group Statistics					
		F	Sig.	t	Sig. (2-tailed)		Country	N	Mean	Std. Deviation	Std. Error Mean
Structured Derivatives - currency risk	Equal variances assumed	29.860	.000	-2.295	.025	Structured Derivatives - currency risk	Croatia	34	.00	.00	.00
	Equal variances not assumed			-2.117	.043		Slovenia	29	.14	.35	6.52E-02
Structured Derivatives -interest rate risk	Equal variances assumed	21.357	.000	-2.003	.050	Structured Derivatives -interest rate risk	Croatia	28	3.57E-02	.19	3.57E-02
	Equal variances not assumed			-2.026	.049		Slovenia	29	.21	.41	7.66E-02
Derivative users	Equal variances assumed	3.783	.055	-2.367	.020	Derivative users	Croatia	49	0.43	0.5	7.14E-02
	Equal variances not assumed			-2.379	.020		Slovenia	40	0.68	0.47	7.50E-02
Natural hedging	Equal variances assumed	46.266	.000	2.660	.010	Managing assets and liabilities	Croatia	28	.96	.19	3.57E-02
	Equal variances not assumed			2.660	.012		Slovenia	28	.71	.46	8.69E-02

Source: Survey data

Regarding the scope of corporate risk management policy, the majority of the analysed Slovenian and Croatian companies that manage financial risks claim that they use selective hedging (87.5 per cent and 88.9 per cent respectively), while the rest of them manage financial risks completely. It could be concluded that there appeared to be a decided preference for active risk management as opposed to a full-cover or variance-minimising hedging approach. 56.3 per cent of the Slovenian respondents that manage financial risks have a documented policy regarding the use

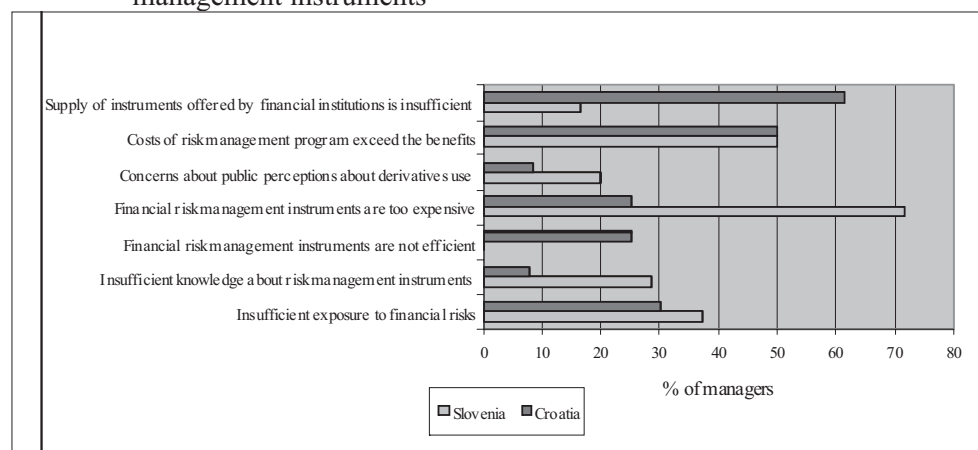
of financial risk management instruments, while 64 per cent of their Croatian counterparts manage risks without an official corporate policy.

Additionally, only 18.8 per cent of the Slovenian and 8.3 per cent of the Croatian hedgers use Value-at-Risk (VaR) as a measure of risk exposure, while the same can be concluded for 12.5 per cent of the Slovenian and 11.1 per cent of the Croatian companies regarding the use of Monte Carlo analysis or some other type of simulation techniques as measures of risk exposure. The survey has revealed that 49 per cent of the analysed Slovenian companies manage risk for transaction with maturity up to a year's time, and the same can be said for 71 per cent Croatian companies. Therefore, it could be concluded that the hedging horizon for financial risk management in both countries is typically less than one year.

An important issue in corporate risk management is defining its goals. The theoretical financial literature strongly recommends focusing on cash flows or on the value of the company. A focus on accounting numbers is generally discarded (Bodnar, Hayt and Marston, 1998). However, the results of the survey have shown that, in spite of the fact that the primary goal of hedging is managing the volatility of cash flows, 53.1 per cent of Slovenian and 68.6 per cent of Croatian firms focus also on accounting earning volatility as well as managing balance sheet and financial ratios. Some 40 per cent of the Croatian companies argue that the market value of the company is the primary goal of corporate risk management, while only 18.8 per cent of the Slovenian respondents claim the same thing. It should be emphasised that there is a strong link between Slovenian and Croatian financial accounting and tax accounting. As a result of those institutional features, we believe that there is a strong focus in both countries on accounting earnings in all business decisions and consequently also in hedging decisions. Commercial banks are by far the primary source for derivatives transactions for 73.4 per cent of the Slovenian and 87.5 per cent of the Croatian hedgers. Investment banks, insurance companies and exchange/brokerage houses are not a very important source for derivative transactions, and very few analysed firms in both countries use them as counterparties.

Amongst the most important reasons why companies do not use derivatives, both Slovenian and Croatian financial managers have addressed the high costs of establishing and maintaining risk management programs that exceed the benefits of. This finding can be related to the informational and transactional scale economies argument which implies that larger firms will be more likely to hedge due to the economically significant costs related to hedging (see: Froot, Scharfstein and Stein, 1993; Haushalter, 2000; Hoyt and Khang, 2000).

Figure 4: The most important reasons why companies do not use derivatives as risk management instruments



Source: Survey data

Apart from this problem, the Slovenian managers have listed two additional reasons that have stopped them from hedging. The first is the high cost of financial risk management instruments (e.g. see: Mian, 1996; Getzy, Minton and Schrand, 1997; Hushalter, 2000). Such costs include the transaction costs like the costs of trading as well as the costs of the internal control systems associated with the opportunities for speculation with derivative instruments. It can be concluded that, regardless to the fact that the transaction costs have fallen with the growth of the derivatives markets, both Slovenian and Croatian derivative markets are still small and shallow, so the high cost of risk management instruments remains the problem for the substantial number of analysed companies. The second problem that has prevented Slovenian companies from using derivatives is insufficient exposure to financial risks. This problem is closely connected to the problems of the high costs of establishing and maintaining risk management programmes and the high cost of risk management instruments discussed above. It has been argued that only firms with sufficiently large risk exposures are likely to benefit from a formal hedging program, because organising the Treasury for risk management involves significant fixed costs (Dolde, 1995). Therefore, it can be concluded that numerous analysed companies do not manage financial risks simply because it is not an economically worthwhile activity.

The Croatian managers have argued that the insufficient supply of risk management instruments offered by financial institutions is a very important reason why they do not hedge. On the basis of the respondents' answers and informal interviews conducted at the 3rd Annual Conference of the Croatian Association of

Corporate Treasurers held in September 2006, it can be concluded that, in spite of the fact that there is an increasing number of Croatian non-financial companies which are aware of the importance of financial risk management, a lack of suitable instruments offered to them by the domestic financial industry becomes a leading factor why many companies do not use derivatives when managing risks. Other reasons such as concerns about perceptions of derivatives use by investors, regulators and the public or insufficient knowledge about financial risk management instruments are not very important reasons why the Slovenian and Croatian companies do not hedge.

Discussion and Conclusion

Comparative analysis of survey results have revealed that the majority of analysed companies in both Croatia and Slovenia are using some form of risk management to manage interest-rate, foreign exchange, or commodity price risk. In respect to the use of derivatives as a risk management instrument, it could be concluded that the Slovenian companies use them more frequently than their counterparts in Croatia. Regarding the intensity of influence of financial risks on the performance of the analysed companies, the results have shown that the price risk has the highest influence among the Slovenian as well as the Croatian companies. We believe that these findings could be explained by the fact that Slovenia and Croatia are small and open economies, which results in a high dependence on international trade.

The survey has also revealed that the Croatian companies are more affected by currency risk than the Slovenian companies, which could be explained by the fact that the exposure to foreign-exchange risk was not so high in 2006 and it is expected to be further decreased in 2007, as Slovenia has introduced the Euro as an official currency. Finally, the interest-rate risk has been ranged as less important in comparison with commodity price and currency risks. The explanation of this result could be found in the fact that the Slovenian and Croatian companies do not use debt capital heavily; therefore they are not highly exposed to the fluctuations of interest rates.

The survey's results have clearly indicated that Croatian and Slovenian non-financial companies manage financial risks primarily with simple risk management instruments such as natural hedging. In the case of derivatives use, forwards and swaps are by far the most important instruments in both countries, but futures as representatives of standardised derivatives and structured derivatives are more important in the Slovenian than in the Croatian companies. Exchange-traded and OTC options as well as hybrid securities are not important means of financial risk management. The result of the t-test has shown statistically significant evidence that the Slovenian companies use all derivatives, especially structured derivatives as

instruments for managing currency and interest-rate risk more intensively than the Croatian companies. Additionally, the Croatian companies use simple risk management instruments like managing assets and liabilities to a greater extent in comparison with the Slovenian companies when managing price risk. These findings are consistent with our research prediction that the Slovenian companies have more advanced risk management practices than the Croatian companies, measured by the implementation of more sophisticated risk management strategies. Therefore, our research hypothesis is accepted.

Amongst the most important reasons why companies do not use derivatives, the Slovenian and Croatian financial managers have addressed the high costs of establishing and maintaining risk management programmes that exceed the benefits of it as the most important reason why they do not manage financial risks. Slovenian managers are also troubled by the high cost of financial risk management instruments and insufficient exposure to financial risks, while Croatian managers claim that the insufficient and inadequate supply of risk management instruments offered by domestic financial industry is a very important reason why they do not use derivatives.

We also argue that the characteristics of the Croatian and Slovenian firms could be found in other South-eastern European countries and that findings of this research may act as a baseline from which to generalise. Therefore, the survey results analysed in this paper also suggest a broader comparison across countries in the region. We believe that similar conclusion regarding the risk management practices and rationales in the Slovenian and Croatian companies could be made for countries like Poland, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria or Serbia. We argue that the non-financial companies in the numbered countries manage financial risks primarily with simple risk management instruments such as natural hedging, while in the case of derivatives usage, 'plain-vanilla' instruments like forwards and swaps are by far the most important instruments. However, exchange-traded derivatives and structured derivatives are more important in countries that have entered the Euro Zone as European financial market, together with derivative market as one of its segments, has developed significantly in recent years.

Market for derivative instruments has introduced a broader assortment of new risk management products designed to help corporate managers handle financial risks. In addition to the development of exchange traded derivatives there has also been an increase in the volume of OTC derivatives introduced by commercial and investment banks (Foreign Exchange and Derivatives Market in 2004, BIS, 2005; Monetary and Economic Development, OTC derivatives Market Activity, BIS, 2000; 2002; 2005). Therefore, it can be expected that countries like Croatia will develop markets for derivative instruments and increase the range of financial risk management instruments after they become members of the European Union. This should enhance

risk management practices used by non-financial companies. A further growth and development of derivative markets will have an impact to the decrease of the transaction costs related to the use of derivative instruments what should make these instruments more available and feasible to a broader class of companies in different industries.

NOTES

¹ The analysis of corporate risk management includes the group of financial risks; interest-rate, exchange-rate and commodity price risk management.

² In Croatian: Zakon o računovodstvu, Narodne novine 146/05

³ In Slovene: Zakon o gospodarskih družbah, Uradni list 15/05

⁴ The list has been published by the special edition of Privredni vjesnik.(in English: Business Herald)

⁵ www.GVIN.com is intended for both synthetic business overview of individual companies or industries and for extremely sophisticated analysis. GVIN.com data cover 3 main information domains: market information, Slovenian companies, and management and governance. In this research domain 'Slovenian companies' has been used, which enabled analysis of more than 220,000 companies and selection of a research sample.

REFERENCES

- Allen, F. and A. M. Santomero, (1998), 'The Theory of Financial Intermediation', *Journal of Banking & Finance*, 21(11): 1461-1485.
- Berger, G. P. and E. Ofek, (1995), 'Diversification's Effect on Firm Value', *Journal of Financial Economics*, 37(1): 39-65.
- Bodnar, G.M., G.S. Hayt and R.C. Marston, (1998), '1998 Wharton Survey of Derivatives Usage by US Non-Financial Firms', *Financial Management*, 27(4): 70-91.
- Bryman A. and D. Cramer, D., (1997), *Quantitative Data Analysis* (London; New York: Routledge).
- Chowdhry, B., J. Howe, (1999), 'Corporate Risk Management for Multinational Corporations: Financial and Operational Hedging Policies', *European-Finance-Review*, 2(2): 229-246.
- Comment, R., G.A. Jarrell, (1995), 'Corporate Focus and Stock Returns', *Journal of Financial Economics*, 37(1): 67-87.
- Dolde, W., (1995), 'Hedging, leverage and primitive risk', *Journal of Financial Engineering*, 4(2): 187-216.
- Froot, K.A., D.S. Scharfstein and J.C. Stein, (1993), 'Risk Management: Coordinating Corporate Investment and Financing Policies', *Journal of Finance*, 48(5): 1629-1658.
- Geczy C., B.A. Minton and C. Schrand, (1997), 'Why Firms Use Currency Derivatives', *Journal of Finance*, 52(4): 1323-1354.
- Graham, J. and H. Campbell, (2001), 'The Theory and Practice of Corporate Finance: Evidence from the Field', *Journal of Financial Economics*, 60(2-3): 187-243.

- Harris, M., C.H. Kriebel, and A. Raviv (1982), 'Asymmetric Information, Incentives and Intra-firm Resource Allocation', *Management Science*, 28(6): 604-620.
- Haushalter, G.D., (2000), 'Financing Policy, Basis Risk, and Corporate Hedging: Evidence from Oil and Gas Producers', *The Journal of Finance*, 55(1): 107-152.
- Hoyt R.E. and H. Khang, (2000), 'On the Demand for Corporate Property Insurance', *The Journal of Risk and Insurance*, 67(1): 91-107.
- Hu, H.T.C., (1995), 'Hedging expectations: 'Derivatives reality' and the law and finance of corporate objectives', *Texas Law Review*, 73(985): 985-1040.
- Hu, H.T.C., (1996), 'Behind the Corporate Hedge: Information and the Limits of Shareholder Wealth Maximization', *Journal of Applied Corporate Finance*, 9(3): 39-53.
- Jensen, M.C., (1986), 'Agency Costs of Free Cash Flow, Corporate Finance and Takeovers', *American Economic Review*, 76(2): 323-329.
- Jensen, M.C., (1988), 'Takeovers, their Causes and Consequences', *Journal of Economic Perspectives*, 2(1): 21-48.
- Lewellen, W.G., (1971), 'A Pure Financial Rationale for the Conglomerate Merger', *Journal of Finance*, 26(2): 521-537.
- Markowitz, H. M., (1952), 'Portfolio Selection', *Journal of Finance*, 7(1): 77-91.
- Meyer, M., P. Milgrom and J. Roberts, (1992), 'Organizational prospects, influence costs, and Ownership changes', *Journal of Economics and Management Strategy*, 1(1): 9-35.
- Mian, S. (1996), 'Evidence on Corporate Hedging Policy', *Journal of Financial and Quantitative Analysis*, 31(3): 419-439.
- Monetary and Economic Development, OTC Derivatives Market Activity (2000, 2002, 2005), Bank for International Settlements: Basel: BIS. Available at: <http://www.bis.org>.
- Myerson, R.B., (1982), 'Optimal Coordination mechanisms in generalized principal-agent problems', *Journal of Mathematical Economics*, 10(1): 67-81.
- Nance, D.R., C.W. Smith and Smithson, (1993), 'On the determinants of corporate hedging', *Journal of Finance*, 48(1): 267-284.
- Santomero, A.M., (1995), 'Financial Risk Management: The Whys and Hows', *Financial Markets, Institutions and Instruments*, 4(5): 1-14.
- Schmit, J.T. and K. Roth, (1990), 'Cost Effectiveness of Risk Management Practices', *Journal of Risk and Insurance*, 57(3): 455-470.
- Privredni Vjesnik, (2006) 'The largest 400 Croatian companies in 2005', (Zagreb: Privredni Vjesnik (Special Edition)).
- Stulz, R., (1990), 'Managerial Discretion and Optimal Financing Policies', *Journal of Financial Economics*, 26(1): 3-27.
- EIU (2006) 'Croatia Review 2005', Available at: <http://www.eiu.com>.
- EIU (2006) 'Slovenia Review 2005', Available at: <http://www.eiu.com>.
- Triennial Central Bank Survey, Foreign Exchange and Derivatives Market in 2004 (2005), Bank for International Settlements: Basel: BIS. Available at: <http://www.bis.org>.
- Walk, K., (1998), Writing Centre at Harvard University, Available at: <http://www.fas.harvard.edu/~wricntr/documents/CompAnalysis.html>
- Weston, J.F., (1970), 'The Nature and Significance of Conglomerate Firms', *St. John's Law Review*, 44 (Special Edition): 66-80.
- www.GVIN.com.
- Zakon o gospodarskih družbah (2005) Uradni list 15/05.
- Zakon o računovodstvu (2005), Narodne novine 146/05.