

SAMPLE SURVEY RESEARCH ON FINANCIAL RISK MANAGEMENT: A CASE OF CROATIAN COMPANIES

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Abstract: The paper presents the authors' sample survey research findings on statistically significant dependence of usage of financial risks management instruments on characteristics of Croatian firms, such as ownership type and application of controlling function. The main activity and managers' need for further education about risk protection did not appear to be in significant dependence on managing risks activity. The liquidity risk appeared to be more serious than currency risk and interest rate risk. Low practical efficiency of instruments was the main reason for non-usage of more protection.

Keywords: financial risk management instruments, survey research, random sample, χ^2 -test of independence, Levene's test for equality of population variances, t-test of means difference

1. Introduction

According to Jorion (2001), it is about a decade since financial industry emerged from pre-history of financial risk management, and now the circumstances are met for introducing Integrated Risk Management or Enterprise-wide Risk Management, which covers company – wide risks: business and non-business risks, where financial risks are considered to be a set of non-business risks including market risks, credit risks, liquidity risks and operational risks. In the praxis the role of CFO (Chief Financial Officer) becomes more and more important and more under stress, so they wish to share the weight of risk pressure using modified decisions and modified managing strategies. Financial risks come out the financial transactions, but, since, sooner or later, all the risks create financial consequences, as Peterlin (2003) said, indirectly all kinds of risks could be considered as to be financial. While economic risk is connected with uncertainty of producing real goods and services in an economy, financial risk is uncertainty connected with the price of financial contracts that perform the affirmation of these goods and services (shares, bonds, and currency itself), and this risk can not be eliminated, but could be only dispersed. After recognizing the type of risk, financial managers may use hedging, insurance or a kind of diversification strategy, prescribed instruments or financial limits.

Companies in transition countries such as Croatia are particularly exposed to the problem of financial risks, especially because they do not have enough experiences with protection against them. So, the authors found financial management instruments usage to be quite challenging topic to investigate.

The aim of this paper is to present the main results of an original empirical survey research conducted using random sample of Croatian companies in October 2004 about the extent to which large and medium-sized companies were using financial risks management

instruments to protect themselves against three kinds of risks: liquidity risk, currency risk and interest rate risks. The authors have investigated the impact of companies' characteristics on attitude towards financial management means application.

The research hypothesis that financial managing in Croatian companies was independent on their selected characteristics were tested as follows: the hypothesis H1 was that the usage or non-usage of risk protection instruments was independent on Croatian companies' main activity; the hypothesis H2 stated that the usage or non-usage of protection instruments was independent on the type of ownership; the hypothesis H3 included the statement that the usage or non-usage of financial risk protection means was independent on the application of controlling function; and the last hypothesis H4 stated that the usage/non-usage of financial risk protection was independent on the managers' need for some additional education about financial protection services.

Further purpose of the paper was to discover if managers knew or used certain protection instruments for each kind of risks, why they did not use them more, or why they did not use these instruments at all.

In the analysis the appropriate statistical tests: Levene's test for equality of population variances, t-test for means difference and χ^2 -test of independence were applied (for tests McClave et al., 2005, could be seen).

2. Survey Sample

Survey research based on a telephone interview as data collection mode with financial (or accounting) managers from a random sample of $n=101$ Croatian companies was carried out in October 2004. The methodology of stratified random sampling according to the number of employees as a stratification criterion was adopted. An approximately equal allocation of sampling units was applied: $n_1=50$ large (with more than 250 employees), with sampling fraction $f_1=0.12$; and $n_2=51$ medium-sized companies (51-250 employees), sampling fraction equals $f_2=0.03$, from each of respective strata was applied. Sampling frame used was a FINA's list of Companies from 2002. Later on, after the survey was finished, it was recognised that distinguishing the companies by number of employees was not that important for the main variable under study. But, because this was an originally conducted pilot survey for Croatia, as it has been described in more details in Dumičić et al. (2005a), it seemed to be important to test if the size of a company would influence or not their usage or non-usage of financial risks protection instruments.

Methods of estimation took into account the procedure of random sampling of units in each of defined strata, so, margin of errors could be given, as well. Considering unbiased point estimator of the proportion and with normal approximation of its sampling distribution, in each strata an interval estimate for the proportion with $n=50$ and 95% confidence level ($z = 1.96$), was within maximum margin of error of $\mp 14.2\%$.

In the sample the majority of 56% (23 out of 41) of financial risk protection instruments users were from large companies and 44% from those medium-sized. The users under study had got an average number of employees of 565 with coefficient of variation of 107%. Among non-users there was a majority of 55% of medium (33 out of 60) and 45% of large firms. An average number of employees for non-users was 371 with coefficient of variation of 83%. Also, 56% (28 out of 50) of large companies; and 43% (22 out of 51) those medium-sized were users of financial risk protection instruments. But, the dependence of protection instrument usage and company size was not shown to be statistically significant, because in testing the hypothesis of independence for categories in Table 1 the empirical χ^2 did not give

enough evidence for rejection of the null-hypothesis ($\chi^2=1.200$, p-value=0.273), compare to the detailed research project description in Dumičić et al. (2005a).

Table 1. Usage of financial risks protection instruments by company size

Usage	Medium-sized companies	Large companies
Use	18	23
Don't use	33	27
Total	51	50

For companies under study that were using financial risks protection instruments an average annual revenue in the previous year (2003) was higher (35029725 €), than for the rest of companies that were not using them (16923357 €). With the assumption of different variances (Levene's empirical ratio $F=15.355$ and p-value=0.000), the t-test of the means difference for annual revenue for these two types of companies was applied, and, it showed that this difference was significant only with significance level α higher than calculated p-value= 0.066 ($t=1.888$). Also, in firms that apply risk protection, the revenue was growing more dynamically than in the rest of firms. The appropriate χ^2 -test of independence gave the result which was highly significant, so it is possible that the revenue growth was statistically dependent on usage of financial risk protection, and vice versa (empirical $\chi^2=9.711$, p-value=0.008).

3. Research Results

Considering the main economic activity of companies, for the purpose of testing the research hypothesis H1, the structure of the sample was as follows: 64% of companies were from industry sector (manufacturing; electricity, gas and water supply; and construction); and 36% from services sector (retail trade; wholesale trade; hotels and restaurants; transport, storage and communications; real estate, renting and business activities). Even though the majority of instruments users were from industry sector, the dependence of risk protection instruments usage/non-usage on the two roughly defined sectors of activity (industry sector and services sector) did not appear to be statistically significant ($\chi^2=0.466$; p-value= 0.495), so, the research hypothesis H_1 could not be accepted.

In testing the hypothesis H2, the survey results showed that the companies that were using these instruments were more often (69%) registered as share holding companies than as limited ones, and, dependence of usage/non-usage of protection instruments on the type of ownership appeared to be significant only with significance level α higher than calculated p-value=0.071 ($\chi^2=3.261$).

Further, the hypothesis H3 came out from the idea that companies that apply a controlling function in their business tend to apply some kind of risk protection means, too. Among users of risks protection instruments there were 87% of companies with developed financial controlling and among non-users there was a majority of 65% of such companies. The χ^2 -tests of independence allowed the rejection of the null-hypothesis ($\chi^2=5.097$, p-value=0.024), so, upon this test, with $\alpha=0.05$, the categories of risk protection usage and application of controlling were significantly dependant, so, the research hypothesis H_1 could be accepted.

The hypothesis H4 stated that active financial risk management of a company was influenced by the managers need for some additional education about financial protection

services, or vice versa. It was also found out that 40% of managers interviewed wanted to get additional education about financial risk protection instruments services. When testing the independence of two categories mentioned in Table 2, the empirical χ^2 don't appear to be significant, so, the null-hypothesis was accepted as it would be possible ($\chi^2=0.684$, p-value=0.408), and the alternative H_1 rejected.

Table 2. Demand for additional education about financial risk protection by company size

Education	Medium-sized companies	Large companies
Need	24	20
Don't need	27	30
Total	51	50

The reasons, mentioned by interviewed managers, for not using the protection instruments more often and more intensively are listed in Table 3, and this list indicates that the reasons seem to be quite different across the surveyed companies. "Protection instruments are not enough efficient" was the most often mentioned reason for that.

Table 3. The main reasons why companies did not use financial risk protection instruments more often (one answer was possible)

Reasons	Medium-sized companies	Large companies
Protection instruments are not well known	2	3
Protection instruments are not enough efficient	6	2
Protection instruments are too expensive	5	2
Financial market is not enough confident	1	2
Financial services have too many formal requirements	1	2
Something else	2	10

Also, the reasons for non-usage of the risk protection that were mentioned by interviewed managers are listed in Table 4. It could be noticed that certain reasons for no-usage of protection by surveyed companies appeared very differently. "Protection instruments are not well known" was the most often mentioned one.

Table 4. The main reasons why companies did not use financial risk protection instruments (one answer was possible)

Reasons	Medium-sized companies	Large companies
Protection instruments are not well known	14	6
Protection instruments are not enough efficient	12	2
Protection instruments are too expensive	0	3
Financial market is not enough confident	1	1
Financial services have too many formal requirements	3	2
Bad quality of financial services	1	0
Something else	2	12

Table 5 shows which instruments were known to financial managers interviewed and which of them were actually used, compare to Dumićić et al. (2005b). It is evident from the highest frequencies for liquidity risk that most of users were concentrated on protection

against this kind of risk. Currency risks, as well as interest rate risks, were not considered as to be so dangerous for Croatian managers. The frequencies for financial risk protection instruments “used” were in many cases smaller than for “known” category. This difference is the most evident for liquidity risk protection method called “credit capability analysis”.

Table 5. No. of managers that were acquainted by or were using certain types of financial risk protection instruments (more than one answer was possible)

Against Liquidity Risk	Known	Used
Cash flow investments analysis	34	29
Analysis of assets, liabilities and sources	30	29
Credit capability analysis	38	20
Against Currency Risk	Known	Used
Netting	9	5
Leading and lagging	11	10
Selling prices policy	14	12
Assets and liabilities management	10	10
Currency forward	12	11
Currency futures	15	14
Currency swap	9	8
Currency options	8	6
Against Interest Rate Risk	Known	Used
Interest rate management at the money market	4	4
Forward rate agreements	4	3
Interest rates futures	6	5
Interest rate swap	5	3
Interest rate option	4	3
Caps, floors, and collars	3	3

4. Conclusion

After the survey research for the purpose of this paper was carried out the enterprises in Croatian transition economy seemed to be not enough aware of dangers that have arisen from financial risks. The results from 2004 Croatian companies sample survey have shown that two fifths of medium and large companies in Croatia did use instruments to protect themselves from them.

There was a variety of reasons for non-usage mentioned by interviewed managers, but, those that prevailed were: “Protection instruments are not well known” and “Protection instruments are not enough efficient”.

The main reasons for not using protection more often seemed to be quite different across the surveyed companies, but the most significant reason was: “Protection instruments are not enough efficient”.

The research results indicated that Croatian companies were not sufficiently acquainted with adequate protection instruments. Managers interviewed considered liquidity risk and currency risk to be the most serious types of risks, and interest rate risk did not seem to be that dangerous. These larger firms included in the sample were better informed and they used risk protection approach, instruments or services, more often than medium-sized ones. Numbers of

companies that “used” these instruments were in many cases smaller than for the companies that only “knew” about them.

Considering research hypothesis, sample survey research results led to some new findings.

After testing the hypothesis H1, the Croatian company’s usage/non-usage of financial risks protection instruments appeared not to be in statistically significant dependence on the main activity of these companies (H_0 accepted).

The test of independence of usage/non-usage of financial risks protection instruments on the type of ownership (the hypothesis H2), showed that the two categories could be considered as dependent (H_0 rejected) with significance level α higher than p-value=0.071, which is not highly significant.

The test of independence of usage/non-usage of financial risks protection instruments on applying the controlling function (the hypothesis H3), has shown that the empirical χ^2 -value was significant with $\alpha=0.05$, so the independence of categories under study could not be accepted as possible (H_0 rejected).

After testing the hypothesis H4, there was a surprise because nevertheless 40% of interviewed managers had got a desire for additional education about risk protection instruments, this characteristic was not in statistically significant dependence (H_0 accepted) on the fact that this financial managers used (or did not use) risk protection means.

Following the research findings, it should be recommended to banks and other financial institutions in Croatia, such as insurance companies, and consultants, to make stronger efforts to inform corporate clients about financial risks protection services, methods and instruments, and to suggest them what is available for application.

The limitation of this survey is that relatively a small sample size was applied, so, in perspective a bigger sample should be recommended. In a future sample survey the authors plan to include not only large and medium-sized, but also small Croatian companies to investigate the financial risks influence to this category of firms and their attitude towards this real life phenomenon, as well.

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