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RATIONALES FOR CORPORATE RISK MANAGEMENT FROM STAKEHOLDERS' PERSPECTIVE

Abstract

The rationales for corporate risk management are examined from the point of view of the theory of finance and of key stakeholder groups' interests. A study of the use of hedging instruments in 161 Polish non-financial listed companies is then presented. The study is based on keyword analysis of financial statements; parametric tests and logit regression are used to determine relationships between the hedging decision and financial standing of companies. However, company size is proved to be the only significant factor for a hedging decision. The implications of these findings and new research questions are discussed in the conclusion.

1. Introduction

In recent years the issue of risk management has been gaining growing interest and support among both academicians and corporate managers around the world. As a result, the number of publications and various approaches to this issue has been becoming ever larger. Nevertheless, the basic questions, of the both positive and normative nature, pertaining to risk management remain without an ultimate answer. Among them are the bottom-line problems: What motivates companies and their managers to engage in risk management? Do companies profit from it, or maybe only their managers do? Do shareholders profit from it? Does it raise value? Does it benefit also other stakeholders? In this article an attempt is made to analyze the rationales for risk management, or more accurately, for corporate hedging. The paper is organized as follows. In the first section, theoretical rationales for hedging are discussed on the basis of the theory of corporate finance and stakeholder theory. The second section presents results of a study carried out on the basis of financial statements of Polish non-financial listed companies. The aim of the study was to determine how popular hedging was in Poland, and which of the rationales, discussed in the preceding section, seemed to motivate Polish companies to undertake hedging. In the final section implications of the findings are discussed, conclusions are drawn, and future research questions are suggested.

2. Risk management in the theory of economics

Despite rapid development of risk management theory and practice the very idea of risk management in general, and hedging in particular, is still being disputed¹. In fact, there does not even exist one common definition of the term *risk*. Therefore, let us define the basic

¹ One of the most longstanding controversies, the distinction between hedging and speculation, is discussed at length by H. Working, *Futures Trading and Hedging*, "American Economic Review" 1953, Vol. 43, p. 314-340 and L. L. Johnson, *The Theory of Hedging and Speculation in Commodity Futures*, "Review of Economic Studies" 1960, Vol. 27, p. 139-151.

definitions and scope of this discussion before we proceed any further. The focus of this paper is on financial risk uniquely – that is only speculative risks are taken into account. The nature of these risks is such, that they can bring about both gains and losses for the corporation; quite unlike pure risks, which by definition only yield losses. Moreover, since the focus here is on hedging, just the most common of speculative risks are taken into account, since only for these types of risks do derivative instruments exist. Consequently, we shall include in the analysis only foreign exchange risk, interest rate risk, commodity price risks, and stock price risk. As for management of these risks, the primary focus will be on hedging with the use of financial derivatives. Hence, we will deal only with a subsection of the whole process of risk management. Keeping in mind these restrictions, we define the risk management process as: “the process whereby organizations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities”². It is a central part of strategic management. The goal of risk management is to help the organization in achieving its goals, however they are defined. The question of what the goal of the corporation is, and whether hedging does contribute to the achievement of this goal, is where the dispute becomes most fervent and interesting.

2.1. The corporation’s goal

Although one might think, that after over two centuries of the development of economic thought the matter of the goal of corporate actions would have been finally settled, this is still not the case. There are three basic approaches to the question of corporate objective: profit maximization, value maximization and stakeholder benefit maximization. Profit maximization, historically the earliest concept, seems to appeal to the popular public, but collapses under the scrutiny of an economist. First of all, this objective does not set any criteria for intertemporal choice³. Take for instance a pharmaceutical company, that can decide to invest in research and development today to achieve higher profits tomorrow. Since research and development expenses increase costs, profit today will fall. Which option should the firm choose? – the profit criterion does not indicate that. More importantly however, profit maximization is not feasible in an uncertain world. When managers take an investment decision, it is not only the expected profit that changes, but the distribution of profits, which

² Federation of European Risk Management Associations, *A Risk Management Standard*, <http://www.ferma-asso.org/Risk%20Managers%20section/Entreprise%20Risk%20Management%20Corporate%20Governance/RM%20standard%20UK.15.11.04.pdf>

³ M. C. Jensen, *Value Maximisation, Stakeholder Theory, and the Corporate Objective Function*, “European Financial Management” 2001, Vol. 7(2), p. 297-317.

in this case are a random variable⁴. These problems are avoided, if value maximization is used instead. The management's actions are directed then at raising market value of the firm – both the value of shares and of debt – and this allows them to choose the best of potential investments⁵. Nevertheless, this approach is still subject to criticism based on the inability to maximize a random variable while changing its distribution. However, in this case it is enough for the management to seek out decisions that lead to increases in value. Although such decisions may be suboptimal in some instances, they still lead the firm in the right direction⁶. An alternative approach to the objective function seems to have sprouted from stakeholder theory and has become popular under the name of a “balanced scorecard”. The aim of the scorecard is to provide the management with information about both past achievements and future prospects of the firm, that is, not only with historical financial data, but also with information about the firm's productive assets, human resources, and satisfaction of various stakeholder groups. It may contain any of a number of indicators that show social, ecological and financial achievements of the company. Although the scorecard may indeed be a very useful communication and management tool, it does not provide a single score, which would definitely show whether the company is doing better or not. It is balanced only in the sense of incorporating a wide range of various indicators, but as Jensen argued – it is more of a dashboard than a scorecard⁷. It cannot tell the management how to trade off customer satisfaction against profits for shareholders, for instance. Consequently, it cannot possibly be used instead of the value maximization criterion, although it does serve as a useful complement⁸.

2.2. Risk management in financial economics

In the field of finance hedging is usually discussed within the framework of the Modigliani-Miller (MM) paradigm. In their landmark work published in 1958, MM showed using an arbitrage proof that the financial policy of a company is irrelevant for company value as long as certain classical assumptions are satisfied⁹. Consequently, hedging can only be of value to the firm if at least one of these assumptions is relaxed in the real world. The first of these assumption violations, discussed by MM themselves, was the existence of taxes and tax

⁴ M. H. Miller, F. Modigliani, *The Cost of Capital and the Theory of Investment*, “American Economic Review” 1958, Vol. 48, p. 261-297.

⁵ *Ibidem*.

⁶ M. C. Jensen, *op. cit.*

⁷ *Ibidem*.

⁸ *Ibidem*.

⁹ M. H. Miller, F. Modigliani, *The Cost of Capital and the Theory of Investment*, “American Economic Review” 1958, Vol. 48, p. 261-297.

shield produced by debt. If taxes do exist, then hedging can add value to the corporation by either enhancing firm's debt capacity and providing a greater tax shield¹⁰, or ensuring fullest use of existing tax shield benefits by keeping profits stable at a sufficiently high level. Secondly, hedging can also be beneficial to the firm by allowing it to budget its strategic investment expenses with confidence, which becomes important once costly outside financing is taken into account¹¹. Next, in the real world transaction costs of bankruptcy do exist, as well as direct and indirect costs of other types of financial distress. Since hedging can lower the possibility of financial distress, it also diminishes its' expected costs, thus raising value¹². Finally, if we allow information asymmetries between the corporation and individual investors, the arbitrage proof itself is rejected – shareholders are no more able to hedge all risks by themselves, and therefore they can benefit from corporate hedging¹³. Although the consequences of relaxing these assumptions provided numerous potential rationales for hedging, possibly even more interesting rationales for risk management arose from relaxing more fundamental *ceteris paribus* assumptions of the MM model.

In the 70s financial economics developed enough to depart from the traditional model of the financial world, where everything was homogeneous and all actors agreed unanimously on rational choices. Jensen and Meckling, in their 1976 paper, laid foundations for what may be seen as financial stakeholder theory, although their primary focus was on the separation of ownership and management¹⁴. The authors recognized that managers were motivated on the one hand by the marginal utility of perquisites, and by marginal utility of wealth on the other. Consequently, the value of a company owned by silent shareholders would be lower, than of a company owned solely by an owner-manager – the difference is termed agency costs. Later, Stulz developed a model to examine the influence of managerial contract structure on risk management strategies employed by the company¹⁵. He generally advocated that managers should be awarded stock instead of stock options, since the latter can motivate them to take excessive risks. He analyzed the problem more thoroughly with Smith, by incorporating differences in the shape of managerial marginal wealth function and marginal utility of wealth

¹⁰ H. E. Leland, *Agency Costs, Risk Management, and Capital Structure*, "The Journal of Finance" 1998, Vol. 53 (4), p. 1213-1242.

¹¹ K. A. Froot, D. S. Scharfstein, J. C. Stein, *Risk Management: Coordinating Corporate Investment and Financing Policies*, "Journal of Finance" 1993, Vol. 48 (5), p. 1629-1658.

¹² C. Smith, R. M. Stulz, *The Determinants of Firm's Hedging Policies*, "Journal of Financial and Quantitative Analysis" 1995, Vol. 20 (4), p. 391-405.

¹³ M. H. Miller, *The Modigliani-Miller Propositions After Thirty Years*, "Journal of Economic Perspectives" 1988, Vol. 2 (4), p. 99-120.

¹⁴ M. Jensen, W. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure*, "Journal of Financial Economics" 1976, Vol. 4, p. 305-360.

¹⁵ R. M. Stulz, *Optimal Hedging Policies*, "Journal of Financial and Quantitative Analysis" 1984, Vol. 19, No. 2., p. 127-140.

function¹⁶. Jensen and Meckling examined also the issue of wealth distribution between shareholders and debt-holders of the firm. In highly leveraged companies, the shareholders (and managers as their fiduciaries) have an incentive to raise the total risk of the company in hope of broadening the tails of the distribution of value (so called asset substitution). This problem stems from the fact, that in such cases it is the debt-holders who bear the larger part of negative consequences, while shareholders capture most of the potential profit. Consequently, if the company is committed to hedging, the agency costs of debt can be lower, and debt-holders do not have to demand covenants in order to avoid asset substitution. This line of analysis was also followed by Leland, whose model incorporated the asset substitution problem while also taking into account the interdependencies between financing and investment decisions¹⁷. He found that hedging can allow higher leverage and lower costs of debt, as well as lower expected costs of bankruptcy.

2.3. Risk management in stakeholder theory

Many reasons may be identified for companies to attempt to satisfy different stakeholder groups, which is due to the breadth of the theory and of the definition of the stakeholder itself¹⁸. However, if we view stakeholder management as a means of ameliorating the firm's chances of reaching its' goal – value maximization – then risk management can be shown to have a positive effect on corporate value, by taking into account the effects of hedging on interests of various stakeholder groups. As it was discussed above, the two main groups of financial claimants can benefit from hedging: shareholders and debt-holders, but other groups may benefit as well. First of all, managers were also mentioned as extremely important stakeholders, who can affect firm's performance to a great extent, and who actually decide upon the use of hedging instruments. In general however, hedging may be desirable for all stakeholders who hold illiquid assets, the value of which is dependant upon the firm's financial condition¹⁹. Managers' wealth is obviously a function of corporation's risk, and they may require additional compensation for taking that risk – if the risk is decreased through hedging, the compensation may be lower²⁰. Moreover, hedging may allow better assessment

¹⁶ C. Smith, R. M. Stulz, *The Determinants of Firm's Hedging Policies*, "Journal of Financial and Quantitative Analysis" 1995, Vol. 20 (4), p. 391-405.

¹⁷ H. E. Leland, *op. cit.*

¹⁸ R. E. Freeman, the founding father of stakeholder theory, defined stakeholders as "any group or individual who can affect or is affected by the achievement of the organization's objectives". R. E. Freeman, *Strategic management: A stakeholder approach*, Englewood Cliffs, NJ: Prentice-Hall 1984, p. 46.

¹⁹ S. Lim, H. C. Wang, "Firm Risk Management Policies: Financial Hedging and Corporate Diversification", Academy of Management Proceeding 2001.

²⁰ C. Smith, R. M. Stulz, *op. cit.*

of the management's success or failure by eliminating *noise* variation in company value caused by volatility of an important financial variable, for instance the exchange rate, which can be easily hedged²¹.

Secondly, shareholders may also benefit from the existence of block shareholders, usually original founders of the firm, who have invested a large portion of their assets in the company's shares. Such shareholders are motivated to expend more efforts on monitoring the management, which is beneficial to also to other shareholders – agency costs are diminished. Lowering total company risk lowers the risk of block-holders and provides an additional incentive for them to continue holding their shares²².

Thirdly, employees are another group vitally interested in the company's prospects. The risk of bankruptcy and financial distress obviously influences their expected wealth. Moreover, an important part of their employment contract's value may rest in so called *implicit claims* – claims that are too complex and vague to be written down in a contract, such as promises of future training, career path and promotion possibilities. The provision of these claims by the company may serve motivational purposes and increase productivity²³. Similarly, implicit claims may also be an important part of contracts with suppliers, who invest in modifications of their production and communication systems in order to cooperate more efficiently with the firm. Finally, clients who purchase the firm's products expect that they will be provided with warranty and post-warranty service, as well as exchange parts. In case of computer equipment, for instance, they will need to be reasonably sure that the data formats will not be discontinued, rendering their equipment useless, and that new, compatible equipment will be available in the future. These claims are also implicit, and conditional upon the firm's existence. If implicit claims are indeed important for the company's value, the management will need to find means of assuring potential claimholders that their claims will be respected. One way to achieve this, is by lowering the risk of financial distress by implementing a hedging strategy and communicating it to stakeholders²⁴.

3. Financial statement analysis of Polish corporations

Financial statements of Polish non-financial listed companies for the tax year beginning in 2003 were analyzed. The sample, restricted to companies listed at the Warsaw

²¹ R. M. Stulz, *Rethinking Risk Management*, "Journal of Applied Corporate Finance" 1996, Vol. 9 (3), p. 8-24.

²² D. Fite, P. Pfleiderer, *Should Firms Use Derivatives to Manage Risks?*, In: W. Beaver, G. Parker eds., *Risk Management: Problems and Solutions*, McGraw-Hill, 1995, p. 61-76.

²³ B. Cornell, A. C. Shapiro, *Corporate Stakeholders and Corporate Finance*, "Financial Management" Spring 1987, Vol. 16, p. 5-14.

²⁴ *Ibidem*.

Stock Exchange with headquarters located in Poland, from sectors other than financial services, consisted of 161 full financial statements. The choice of listed companies was motivated by the fact, that their ownership is dispersed, and that full financial reports are freely available. The aim of the analysis was to determine the extent of derivative use in Poland and verify four research hypotheses: the decision to use hedging was expected to be positively correlated with company size, risk of bankruptcy, liquidity restraints, and existing growth options.

3.1. The method

The analysis was performed in three steps: keyword analysis, statistical tests of sub-sample characteristics, and logit regression. The purpose of keyword analysis was to determine the values of four dependent variables – use of derivatives, declaration of their purpose, declaration of risk management policy, and use of hedge accounting – which assumed binary values of true or false. Variables were assigned truth values if a company respectively:

- a. used derivative instruments,
- b. declared hedging as the goal of derivative instruments use,
- c. declared the existence of a risk management policy document,
- d. used hedge accounting.

In order to assure reliability of results, a set of guidelines was established for determining whether these criteria were satisfied. Although only the decision to hedge, and not the extent of hedging was the object of analysis, it was assumed that greater involvement in risk management would be reflected in more variables having truth values. After hedging instruments users were identified, financial data of companies were collected in order to verify the research hypotheses. The following independent variables were selected (Table 1).

Table 1. Independent variables

Variable Name	Variable Description	Proxy for
Revenue	Net revenue from sales	company size
BTMV	Book to market value	existing growth options
Leverage	Degree of financial leverage	risk of financial distress
Dividend	Dividend per share	liquidity constraints
Dps/Eps	Dividend/Earnings per share	liquidity constraints
L/Rev	Liabilities/Revenue	liquidity constraints and risk of financial distress
Profitability	Operational profit/Revenue	risk of financial distress (negative)

Next, tests of mean values were effected between groups of companies that used derivatives and did not use them, as well as other groups selected basing on dependent variables' values. At this stage two largest companies – PKN Orlen and TP SA – were removed from the sample as outliers; their revenues were incomparably higher than those of the rest of sampled firms. Both of these companies did use derivatives for hedging purposes to a high extent. Finally, logit regressions of dependent variables against all independent variables were carried out.

3.2. The results

Keyword analysis identified only 46 (29%) companies as derivative users. Out of these, 24 declared hedging as the purpose of derivative transactions (3 declared speculation), while 8 companies declared having a formalized risk management policy. Surprisingly, only 3 companies employed hedge accounting. Vast majority used only foreign exchange forward contracts purchased with their banks, with just a few companies using also over-the-counter options. Swaps proved to be dominant instruments for interest rate risk hedging, while futures were used exclusively to hedge exposures in prices of non-ferrous metals at the London Metal Exchange.

Statistical tests of means, carried out between groups identified in the keyword analysis, showed that only mean values of revenue and profitability were significantly different (at confidence level of 5%) in the group of derivative users versus non-users (Table 2). However, higher profitability of derivative users runs contrary to the hypothesis of financial distress. Perhaps this result was due to risk management being associated with high management skills, which also resulted in better overall performance. Although at this stage, due to low number of derivative users, we decided to focus further analysis on the decision to use derivatives or not to use them, similar comparisons of mean values were subsequently effected between the groups of hedgers and other derivative users, as well as between all derivative users and companies that declared risk management policies. However, only the size variable was significant in the former case, while in the latter, it was significant but with a negative sign (contrary to the hypothesis and previous results), which may be due to the small number of companies that declared hedging policies – too low for the test to yield reliable results.

Table 2. Comparison of variable means in the group of derivative users and non-users

Variable	Derivative users N=44		Non-users N=114		Test of means	
	mean	st. dev.	mean	st. dev.	test stat.	p-value
Revenue	821 682,66	1 155 563,10	268 909,13	395 602,52	3,1037	0,0010
BTMV	1,62	1,34	1,79	1,57	-0,5732	-0,7168
Leverage	1,62	3,55	1,66	3,71	-0,0686	-0,5273
Dividend	0,10	0,37	0,09	0,39	0,1180	0,4530
Dps/Eps	0,06	0,17	0,05	0,19	0,1416	0,4437
L/Rev	0,62	0,89	0,54	0,52	0,5490	0,2915
Profitability	0,06	0,08	-0,01	0,25	2,4948	0,0063

Note: P-values show normal distribution critical values for lack of reasons to reject the zero hypothesis of equal mean values in both groups.

Table 3. Comparison of variable means between groups of hedgers, and other derivative users.

Variable	Derivative users N=24		Declared hedgers N=20		Test of means	
	mean	st. dev.	mean	st. dev.	test stat.	p-value
Revenue	455 657,79	458 648,22	1 260 912,50	1 547 611,83	2,2462	0,0123
BTMV	1,62	1,35	1,61	1,38	-0,0269	-0,4893
Leverage	1,36	1,53	1,93	5,05	0,4821	0,3149
Dividend	0,02	0,07	0,20	0,53	1,5264	0,0635
Dps/Eps	0,03	0,09	0,10	0,23	1,2503	0,1056
L/Rev	0,48	0,27	0,80	1,28	1,0952	0,1367
Profitability	0,05	0,08	0,08	0,08	1,2809	0,1001

Note: P-values show normal distribution critical values for lack of reasons to reject the zero hypothesis of equal mean values in both groups.

In view of the results of statistical tests, negative results of logit regression did not come as a surprise. It was only the revenue, as the proxy for size, that remained significant in various specifications of the equation – consequently, only company size was a significant factor for companies' decision to use or not to use derivatives. Moreover, adding other variables did not improve the fit of regression results with actual data. In fact, results of the regression of derivative use variable against revenues were themselves far from satisfactory. Out of 44 companies that did use derivatives, only 17 were identified correctly by the model, while there were as much as 18 false positives. The most probable cause of this problem was the non-normality of revenues distribution in the sample. However, poor specification may also have caused low degree of fit; in particular, we may have failed to identify an unknown significant variable. This variable may be of financial nature, or other, such as managerial skills level or experience.

4. Discussion

It appears to be an irrefutable conclusion of our study, that risk management is still not as popular an issue in Poland as it is in Germany, Great Britain, or the United States. Whereas in these countries the proportion of companies using hedging instruments ranged between

50% and 90% in the mid 90s²⁵, and has been rising since then, only 29% of Polish listed corporates did use derivatives in 2003. Moreover, the analysis of means showed that size and profitability were the only characteristics that significantly distinguished derivative users from other companies, while logit regression identified only size as statistically significant. All other hypotheses were rejected, which may imply, that in cases of such rare use of derivatives it is not the theoretical rationales for hedging that motivate companies to engage in hedging activities. Indeed, reasons for hedging may lie exclusively in the ability of a company to overcome barriers to hedging. It is very likely that development of hedging in Poland is obstructed by barriers which are present in foreign markets as well: lack of knowledge about hedging, lack of skills necessary for pricing and monitoring hedging strategies, high transaction costs of over-the-counter instruments, unavailability or low liquidity of exchange-traded instruments, problems with derivatives' and hedge accounting. While larger corporations may find it easier to finance their hedging operations, which was indicated by significance of size in our analysis, the ability to overcome other barriers was not taken into account in our study; and could not have been, due to lack of such data in financial statements.

The existence of barriers to hedging notwithstanding, what is also surprising is the apparent lack of interest on the part of management in communicating their risk management strategies. Merely half of the corporations that did use derivatives indicated the goal they were used for – no matter whether it was hedging or speculation. Although there have not been any conspicuous cases of derivative losses in Poland, the news of the crisis at Procter and Gamble or Metallgesellschaft must have reached both managers, shareholders and other stakeholders. In consequence, one would expect that companies did explain their risk management strategies thoroughly in their financial statements, but this was not the case. Notice, that only seven companies indicated that their hedging strategies were conducted within a framework of a formalized hedging policy, while any popular book on corporate hedging makes it clear that such a policy is a prerequisite for avoiding uncontrolled derivative losses. In fact, not only did the companies not describe their hedging policies, but they failed to mention risk management at all. The question arises, how many of Polish corporates have implemented any risk management processes? If many have, they apparently did not find it necessary to communicate it to stakeholders. However, in the first section of this paper we have shown that in many cases risk management can be profitable for the company to a much greater extent, if

²⁵ C. Mallin, K. Ow-Yong, M. Reynolds, *Derivatives usage in UK non-financial listed companies*, „The European Journal of Finance” 2001, Vol. 7, p. 63-91.

it is communicated effectively to stakeholders. Only then can it serve to motivate stakeholders to invest more of their assets in the company and bind themselves closely with the firm.

In conclusion, the results of our study show that risk management has not yet become a standard element of management in Poland, and is relatively popular only among larger firms. Consequently, any research conducted along theoretical lines is bound to yield unsatisfactory results. However, results of our analysis imply the existence of other factors that limit growth of risk management in Poland, and thus direct us towards new study questions. First of all, it seems obvious from our observations, that it would be worthwhile to effect research aimed at identifying barriers to hedging and risk management development. Secondly, one could inquire how popular other types of risk management are, except hedging? Thirdly, the problem of the risk management process as such comes to our attention. Do Polish companies establish the process, or is risk management only occasionally brought up within other processes? And finally, why is risk management not communicated to stakeholders? Does this imply that it is not important to stakeholders, or that stakeholders' perception of the firm's risk is not significant for the management, or for firm value? Summing up, numerous new research questions arise as an outcome of this study. However, finding answers to these questions will pose methodological challenges, since publicly available data will not be sufficient.

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