St. Petersburg State University
Graduate School of Management
Master in Corporate Finance Program

DETERMINANTS OF M&A PREMIUM

Master's Thesis by the 2nd year student
Concentration – Master in Corporate Finance
Fakhrutdinov Ruslan

Research advisor:
Berezinets Irina Vladimirovna,
Associate Professor

St. Petersburg
2016

ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

Я, Фахрутдинов Руслан, студент второго курса магистратуры направления «Менеджмент», заявляю, что в моей магистерской диссертации на тему «Детерминанты премии в сделках слияния и поглощения», представленной в службу обеспечения программ магистратуры для последующей передачи в государственную аттестационную комиссию для публичной защиты, не содержится элементов плагиата.

Все прямые заимствования из печатных и электронных источников, а также из защищенных ранее выпускных квалификационных работ, кандидатских и докторских диссертаций имеют соответствующие ссылки.

Мне известно содержание п. 9.7.1 Правил обучения по основным образовательным программам высшего и среднего профессионального образования в СПбГУ о том, что «ВКР выполняется индивидуально каждым студентом под руководством назначенного ему научного руководителя», и п. 51 Устава федерального государственного бюджетного образовательного учреждения высшего профессионального образования «Санкт-Петербургский государственный университет» о том, что «студент подлежит отчислению из Санкт-Петербургского университета за представление курсовой или выпускной квалификационной работы, выполненной другим лицом (лицами)».

 (Подпись студента)

_____26/05/16_____ (Дата)

STATEMENT ABOUT THE INDEPENDENT CHARACTER OF
THE MASTER THESIS

I, Fakhrutdinov Ruslan, second year master student, Master in Corporate Finance program «Management», state that my master thesis on the topic «Determinants of M&A premium», which is presented to the Master Office to be submitted to the Official Defense Committee for the public defense, does not contain any elements of plagiarism.

All direct borrowings from printed and electronic sources, as well as from master theses, PhD and doctorate theses which were defended earlier, have appropriate references.

I am aware that according to paragraph 9.7.1. of Guidelines for instruction in major curriculum programs of higher and secondary professional education at St.Petersburg University «A master thesis must be completed by each of the degree candidates individually under the supervision of his or her advisor», and according to paragraph 51 of Charter of the Federal State Institution of Higher Professional Education Saint-Petersburg State University «a student can be expelled from St.Petersburg University for submitting of the course or graduation qualification work developed by other person (persons)».

_____ (Student's signature)

_____26/05/16_____ (Date)

АННОТАЦИЯ

Автор	Фахрутдинов Руслан Муратович
Название магистерской диссертации	«Детерминанты премии в сделках слияния и поглощения»
Факультет	Высшая школа менеджмента
Направление подготовки	080200 “Менеджмент” (Профиль: Корпоративные финансы)
Год	2016
Научный руководитель	Ирина Владимировна Березинец, к.ф.-м.н., доцент
Описание цели, задач и основных результатов	Цель данной работы заключается в определении взаимосвязи между уплаченной премией и характеристиками компании покупателя, приобретаемой компании и сделки. Для достижения поставленной цели мы подробно изучили теоретическую концепцию процесса слияний и поглощений, проанализировали теоретические подходы к уплате премий и провели критический анализ современных исследований по мотивации уплаты высоких премий. В рамках работы мы провели эконометрическое исследование на базе 222 сделок, проведенных в США с 2000 по 2015 годы. Результаты эконометрического исследования подтвердили наличие положительной взаимосвязи между размером уплаченной премии и приведенной стоимостью предсказанной синергии. Кроме того, мы выявили наличие положительной взаимосвязи между размером уплаченной премии и показателями операционной деятельности компании покупателя; уровнем долговой нагрузки приобретаемой компании. Размер компании покупателя и приобретаемой компании, уровень долговой нагрузки приобретаемой компании, относительная важность сделки для компании покупателя имеют отрицательную взаимосвязь с размером уплаченной премии. Более того, регрессионный анализа позволил выявить отрицательную взаимосвязь между долей акций и опционов в общем вознаграждении генерального директора компании покупателя и вероятностью переплаты; отрицательную взаимосвязь между размером приобретаемой компании и вероятностью переплаты; положительную взаимосвязь между вероятностью переплаты и показателями операционной деятельности компании покупателя.
Ключевые слова	Слияния и поглощения, сделка по слияниям и поглощениям, премия, приведенная стоимость предсказанной синергии, переплата, недоплата

ABSTRACT

Master Student's Name	Ruslan Fakhrutdinov
Master Thesis Title	“Determinants of M&A premium”
Faculty	Graduate school of management
Main field of study	080200 “Management” (specialization: Master of Corporate Finance)
Year	2016
Academic Advisor’s Name	Irina V. Berezinets, PhD in Physico-mathematical sciences, Associate Professor
Description of the goal, task and main results	The research goal of the paper is to determine the relationship between the premium paid and characteristics of acquirer, target and deal. In order to achieve the defined research goal, we have briefly investigated theoretical concepts of M&A process, analyzed theoretical approaches to premium payments and reviewed contemporary research on motivation for paying high premiums. For the purpose of the study we have conducted econometric analysis on the sample of 222 deals conducted in USA from 2000 till 2015. The findings of the econometric analysis confirmed the positive relationship between the size of the premium paid and present value of forecasted synergies. Moreover, we have determined the positive relationship between the premium and operating performance of the acquirer; leverage of the target. Size of the acquirer and target, debt load level of the acquirer, relative importance of the deal for acquirer were found to be negatively correlated to the size of the premium. Regarding the probability of overpayment, the findings of regression analysis suggest the existence of negative relationship between the share of stock and options in the total CEO consideration of the acquirer and probability of overpayment; negative relationship between the size of the target and probability of overpayment; positive correlation of probability of overpayment to the operating performance of the acquirer.
Keywords	M&A, M&A deal, premium, present value of forecasted synergies, overpayment, underpayment

Table of Contents

INTRODUCTION 7

CHAPTER 1. THEORETICAL BACKGROUNDS OF THE MOTIVATION FOR PAYING HIGH PREMIUMS IN M&A DEALS 10

1.1. Definition of the M&A process 10

1.2. Key components of the price in M&A deals 19

1.3. Analysis of motivation of premium payments 22

Summary 31

CHAPTER 2. EMPIRICAL RESEARCH OF DETERMINANTS OF THE PREMIUM IN M&A DEALS 32

2.1. Methodology 32

2.2. Sample selection 37

2.3. Descriptive statistics of variables 39

2.4. Econometric analysis 45

2.5. Main findings 56

Summary 58

CONCLUSION 60

REFERENCES 62

APPENDIX 66

Appendix 1. Global M&A activity worldwide 66

Appendix 2. Number of “mega” deals conducted in 2014 and 2015 67

Appendix 3. Calculation of independent variables. 68

INTRODUCTION

In the recent years M&A activity became the main driving force of the economic growth worldwide. The year 2015 was the biggest ever for mergers and acquisitions with the global deal value of 4,78 trln. US $, breaking the previous record of 4,33 trln. US $ achieved in 2007. The yearly growth of M&A activity accounted for almost 45%, growing from 3,3 trln. US $ in 2014 to 4,78 trln. US $ in 2015. Moreover, the forecast, made by KPMG, suggests that M&A activity will further continue its growth in 2016, reaching the threshold of 5 trln. US $ (KPMG report on M&A activity).

"Mega" deals became the main locomotive power of the rapid expansion of M&A activity. Under "mega" deals we imply deals with a value of more than 1 bln. US $. Thus, worldwide the number of deals with a value of less than 1 bln. US $ has almost stayed unchanged when comparing years 2014 and 2015: 31 927 deals versus 33 166, which is only a 3,7 percent growth. At the same time number of deals with a value of more than 10 bln. US $ has more than doubled: increase from 20 deals in 2014 to 45 deals in 2015. Worldwide the total number of "mega" deals has increased from 475 to 556, a 17 percent growth (Thomson Reuters Eikon). It is essential to mention that USA continues to be the favored M&A destination because of its relatively healthy economy.

There are numerous potential motivations for mergers and acquisitions, however the recent growth in M&A is mainly fostered by the need of consolidation of core business, growing competition and persistence of lower than historically average oil prices. Other currently crucial motivations for M&As, especially in technology and pharmaceutical sectors, are converging technologies and expiration of patents (KPMG report on M&A activity).

Large deal values, which, as we have seen, are typical for the current growth in M&A activity, can be partly explained by enormous premiums paid by acquirers. Widely accepted reasoning behind the payment of large premium are the potential revenue enhancements and cost savings resulting from the deal (Reed, 2007; Sherman and Hart, 2006). Financial and operational synergies are recognized as the main sources of potential revenue enhancements and cost savings resulting from the deal (Damodaran, 2005).

However, the recent study done by Dutordoir reveals that in 54% of all deals the premium paid exceeds the estimated synergies (Dutordoir et al., 2010). In turn, Slusky and Caves define the excess of premium paid over the present value of forecasted synergies as overpayment and postulate that these acquisitions are guided by opportunistic behavior of management of the acquirer (Slusky and Caves, 1991). Moreover, there is empirical evidence that overpayments in M&A deals lead to the shareholders' value destruction (Ismail, 2011). Furthermore, based on the results of empirical research Ismail concludes that forecasted synergies resulting from the deal

do not explain the size of the premium paid and suggests that the core motivation for paying large premiums is conviction of target's shareholders to pursue the deal (Ismail, 2011). These findings suggest that there might be other factors, which determine the premium paid apart from the expected synergy gains.

Thus, the purpose of this paper is to explore factors that determine the size of the premium and probability of overpayment. The primary subject of the master thesis is premium paid in M&A deals.

The research goal of the paper is to determine the relationship between the premium paid and characteristics of acquiring and target companies and of the deal.

In order to achieve the defined research goal, we set the following objectives:

- To identify the M&A process and to determine the key components of the price in M&A deals;
- To analyze the motivation for paying high premiums in M&A deals based on the review of the contemporary scientific research;
- To conduct an empirical study in order to identify the factors that are linked with the size of the premium in M&A and probability of overpayment;
- To analyze the obtained results, to draw conclusions and to provide management recommendations.

This master thesis is an empirical research: for the purpose of our study we conduct econometric analysis with the help of Stata software.

The main sources of information for the master thesis were: academic articles devoted to motivations for conducting M&A deals, theoretical justifications of the price paid in M&A deals, specific drivers of premium payments, potential synergies resulting from the deal; professional periodical literature (Journal of Finance, John Wiley & Sons, The Financial Times and others); analytical reports of global financial companies (e.g. KPMG).

In addition to Thomson Reuters Eikon, Zephyr, Thomson One Banker databases we use reports published on Security Exchange Commission (8-K, DEF14, DEF 14A, 10-K and S-4) and reports available on official websites of companies for the purpose of regression analysis.

We have chosen the following structure of the paper in order to achieve the stated goal and objectives. The first chapter is devoted to the analysis of the M&A process in general: terminology, procedure of deal prosecution, types of deals and etc. Moreover, in the first chapter we consider main components of the price paid in M&A deals, analyze theoretical approaches to premium payments, briefly consider former research on motivation for premium payments and develop research hypotheses.

In the second chapter we describe the research methodology applied, sample selection process and present descriptive statistics of the sample. Furthermore, we discuss results of the econometric analysis and announce our main findings. On the basis of our findings we develop managerial recommendations.

CHAPTER 1. THEORETICAL BACKGROUNDS OF THE MOTIVATION FOR PAYING HIGH PREMIUMS IN M&A DEALS

1.1. Definition of the M&A process

In order to get a thorough understanding of M&A process we will start with the discussion of general M&A concepts. Thus the first chapter of the paper is devoted to M&A terminology, history of M&A activity, generic procedure of deal prosecution and possible parties involved. Moreover, we will review most common motivations for conducting M&A deals both from the perspective of seller and buyer, consider essential stages of deal prosecution and compare friendly and hostile acquisitions.

Despite the popularity of M&A deals in the business world, there is no common opinion on the M&A terminology in the specialized literature. Many acknowledged scholars define M&A as a set of economic processes of integration of business and capital, as well as the transfer of corporate control in all forms, including the purchase and exchange of assets. Often the authors don't distinguish the terms "merger" and "acquisition".

However, according to Robert F. Bruner, the term "merger" should be used for the deals, the purpose of which is the creation of the single legal entity, and the term "acquisition" just means the process of acquisition of an entity or of its part (Bruner, 2009). In this paper we will use the terminology, presented in the work of Reed and Lajoux "The Art of M&A".

Under the term *merger* we will understand the unification process of two companies, due to which there is an exchange of certificates for the right of ownership of the target company for the certificates for the right of ownership of shares of the purchasing company. The target company is liquidated following the results of the deal. There is also a specific kind of the merger, called *corporate consolidation.* In this case both companies: target and acquirer are liquidated; their shares are converted into securities of the new company, specially created for this deal.

The transition process of shares or assets from one entity to the ownership of the other entity is called *acquisition.* Thus, acquisition is the general term, which describes the process of transfer of ownership and merger is a more specific term, which implies the specific judicially defined process, which can either follow acquisition or not (Reed, Lajoux, Nesvold, 2007). The definitions offered in "The Art of M&A" are in line with the distinction of terms merger and acquisition made by Robert F. Bruner.

Mergers and Acquisitions are complex economic phenomena that result from the interaction of many exogenous and endogenous factors. As Robert F. Bruner mentions in his work, currently 6 major periods of highest M&A activity - M&A "waves", as the author names them, can be identified (Bruner, 2009). Generally, M&A "waves" were caused by exogenous

factors – high quotations on stock markets, regulations and access to debt capital. High quotations on stock markets, on the one hand, reflect the positive mood on the market, which stimulates the M&A activity and, on the other hand, encourages the stock-swap deals, as the managers are encouraged to pay with overvalued stocks relative to their fair value. Clearly, the degree of state regulation and access to the debt directly impact the level of M&A activity. The author distinguishes the following main M&A waves (Bruner, 2009):

1. First wave (1897-1904) – horizontal M&A: the target company operates in the same industry as the acquirer. Exogenous catalysts: the absence of the antitrust regulation and economic growth.
2. Second wave (1916-1929) – vertical M&A: merger/acquisition of the companies form the adjacent sector, operating at different levels within an industry's value chain. Exogenous catalysts: antitrust regulation on horizontal deals and high quotations on stock markets.
3. Third wave (1960s) – creation of conglomerates, related and unrelated diversification. Exogenous catalysts: antitrust regulation on vertical deals and the development of capital markets.
4. Forth wave (1980s) – hostile takeovers, LBOs. Exogenous catalysts: introduction of strict regulation on conglomerates, introduction of the junk debt market and thus simplified funding, deregulation in aero industry and telecommunications industry.
5. Fifth wave (1992 – 2000) – cross-border takeovers. Exogenous catalysts: high quotations on stock markets, stock-swap deals, deregulation of the banking sector in US – banks are again allowed to combine investment banking and commercial banking business.
6. Sixth wave (2003 – 2007) – M&A in the form of direct investments. Exogenous catalysts: easily accessible funding and peak values of stock indexes.

The deal procedure hasn’t changed significantly since the first wave of mergers and acquisitions in the first decade of the twentieth century. There are two main parties in M&A deals: acquiring company and target company. The acquiring company makes a payment to the shareholders of the target company for their stake in the company. Generally, the payment is either in cash or in securities (shares of the acquiring company, convertible debt instruments or derivative securities). Sale of the target company may be organized in the form of an open competition (auction) or closed-door negotiations between a limited number of parties. The length of negotiations can vary from 20 weeks to several years and substantially depends on the type of acquisition (hostile or friendly) and on the number interested in the deal parties (Rappaport, 1998).

Apart from the acquirer and the target company, there is a number of external advisors both from sell and buy sides participating in the deal: investment bank/M&A boutiques, accountants/auditors/tax advisors, lawyers and consultants.

Investment banks/M&A boutiques:

- Help to identify the firm's strategic objectives;
- Screen potential buyers and sellers;
- Make initial contacts with seller or buyers;
- Provide negotiation support;
- Perform the valuation of the target;
- Structure the deal;
- Perform financial structuring;
- Help to arrange financing to execute the deal (Reed, 2007).

For their services investment banks/M&A boutiques charge the retainer fee upfront to the deal and success fee in case the acquisition was made. The most well-known investment banks and M&A boutiques are Barclays Capital, Citibank, Deutsche Bank, Goldman Sachs, JP Morgan, Lazard, Merrill Lynch, Morgan Stanley, UBS and others.

Accountants/auditors and tax advisors:

- Advise on the optimal tax structure;
- Perform the financial structuring;
- Perform financial and tax due diligence (Reed, 2007).

Accountants/auditors and tax advisors are paid on hourly basis. BDO, Deloitte, Ernst & Young, Grant Thornton, KPMG and PWC are among the best accountants/auditors and tax advisors.

Lawyers:

- Perform the legal due diligence of the target;
- Prepare acquisition agreement and other legal documents (Reed, 2007).

Lawyers are also paid on an hourly basis. The most well-known M&A lawyers are: Baker & McKenzie, Clifford Chance, Cuatrecasas, Garrigues, Freshfields, Linklaters and others.

There are all kinds of consultants, supporting the seller and the buyers: strategy consultants (help to identify the firm's strategic objectives and develop the strategy), human resource consultants (perform human resource due diligence and develop the human resource policy), marketing consultants (perform the market due diligence and develop the marketing strategy) and even environment consultants, who perform environmental due diligence and

check whether the target company fulfills environmental laws and buyers environmental policy Reed, 2007).

Consultants are either paid on a project or hourly basis. Unlike other advisors, consultants not only support buyers and sellers in the preacquisition phase but also help to integrate the companies in the postacquisition phase. The most well-known consultants are: McKinsey&Company, BCG, Bain& Company, Booz& Company, Monitor Group, Deloitte Consulting, Merver LLC and others.

Both the buyer and the seller can initiate the transaction. The deal initiated by the seller is different from the deal initiated by the buyer in the sense that the target company by itself searches for the ones, who are potentially interested in acquiring it and organizes the selling procedure. The motivation for selling a company substantially depends on the type of business sold:

- Motivations for the sale of family business:
  - Lack of successors;
  - The desire to retire;
  - Age and health concerns;
  - To eliminate personal guarantees;
  - To raise money for other projects;
  - Confrontations between parties;
  - Losing key people or key customers;
  - Lack of financial capacity to grow;
  - Lack of profitability and competitiveness.
- Motivations for the sale of subsidiaries or divisions:
  - Focus on the core-business;
  - Change of strategy;
  - Unprofitable business;
  - Failure to fit in well;
  - Legal regulations;
  - Tax benefits;
  - To raise funds;
  - To reduce risks;
  - To reject business from old acquisitions;
  - To avoid conflicts with customers, suppliers and partners (Sherman and Hart, 2006).

Before the deal, the seller prepares an information memorandum, which serves as an advertising handout of the target company for the acquirers and includes the main information on the company: history and activity; product lines and markets; description of operations; management team and human resources; historical financial statements; strategy; future financial projections and, of course, expected advantages for the potential buyer.

For the acquirer the process of any merger begins with determining the exact characteristics, which the target company should possess. The main selection criteria for the absorption of the company vary from deal to deal. Generally, buyers define them anew for each specific case.

However, according to the objectives pursued, we can identify two main groups of buyers:

- Strategic buyer;
- Financial buyer (Damodaran, 2005).

In the first case, acquisition is initiated in order to achieve synergy effects due to the total or partial integration of the enterprise into the acquirer's company. Thus, strategic investors acquire companies, which business can help them achieve previously stated strategic objectives.

It is important to mention that strategic aspects that are not always taken into account with necessary thoroughness play an essential role in M&A deals. For example, Quaker Oats, an American food conglomerate, which owned sports drink producer Gatorade in late 1994 acquired Snapple, engaged in production of alternative beverages, for $ 1.7 bln. Later the management of Quaker Oats realized that it is impossible to integrate the realization of Snapples' products into the distribution network of Gatorade. As a result of severe strategic mistake, Quaker Oats had to sell the entire Snapple business only for $ 300 million in 1996, only three years after the deal (Winer, 2002).

We will discuss the strategic motivation of M&A in detail in the part 1.3. – Analysis of motivation of premium payments.

Financial acquirers, in turn, when searching for a potential target are not interested in potential synergetic effects from interaction of the target with its other assets. The core objective of financial investors is to determine the cash flows, which the target company will generate, as their main goal is to make profit from financial operations (Damodaran, 2005).

Main financial investors are private equity funds and venture capital funds. The purpose of private equity and venture capital funds is to realize capital gains on the invested in the fund capital on the time horizon of up to 10 years. So the average length of the investment for private equity and venture capital funds varies from 3 to 7 years. In order to do this private equity and

venture capital funds set a clear defined investment strategy, in which size, stage of development, sector and geographical location of target companies are determined (Reed, 2007).

When investing in companies' financial investors usually set and monitor the implementation of value creation strategy, however they don't generally exercise day-to-day control (Arzac, 2005). Private equity and Venture capital funds do take active participation in strategic decisions made by the acquired companies, usually, through veto rights in the board of directors on key questions, such as: entry to the new markets, introduction of new products, capex and divestments, legal changes, payment of dividends, human resource policies.

The following types of venture capital investments are identified in scientific literature:

- Seed stage: financing to develop an initial concept (mainly private equity funds);
- Start-up stage: financing for product development and initial marketing;
- Expansion or development stage: financing for growth and expansion (developing new products, entering new markets, acquisitions and increasing production capacity);
- Replacement stage: purchase of shares from another investor or refinancing of debt;
- Buyout: acquisition of mature companies;
- Turnaround: financing provided to a company at a time of financial difficulties (Arzac, 2005).

Financial buyers benefit by receiving dividends in proportion to their shareholding in the target company and by subsequent resale of the target company to the public or the private investors. The possible "exit" strategies for financial investors are: repurchase agreement, trade sale, IPO, management buyout and sale to another financial investor.

The ideal target company for the financial investor should have the following characteristics:

- Sound growth opportunities in present markets and products as well as in new potential markets and products;
- Sound and well-balanced management team;
- Being profitable;
- Being relatively undervalued by the market;
- Possess sustainable competitive advantages;
- Have opportunities to improve management in income statement, working capital, capital expenditures and divestments;
- Have easy "exit" strategy (Morris, 2000).

Improvement of management in income statement, working capital, capital expenditures and divestments is basically the main source of value creation for financial investors (Arzac, 2005). Private equity and venture capital funds generally increase accounting profits, reduce working capital and capital expenditures and divest from the noncore businesses, thus increasing the value of the acquired companies and then sell them.

From the target company's perspective expansion capital from financial investors help companies to: finance growth, avoid dangerous debt levels, bring professionalism, image and contacts to small businesses, support for strategic managements, have sound experience in growing companies, assist with subsequent financing of operations and negotiate with banks favorable conditions.

The following stages of M&A deals from the acquirer's point of view are recognized:

1. Definition of business objectives and motives for M&A deals;
2. Development of an acquisition plan;
3. Definition of selection criteria (investment size, products, markets, location and etc.);
4. Search of the potential candidates;
5. Investigation of potential candidates;
6. First contacts;
7. Negotiation;
8. Acquisition structuring (creation of special purpose vehicle or not; acquisition or merger; acquisition of shares or assets; percent of shares acquired; acquisition funding; cover of potential contingencies and etc.);
9. Development of integration plan;
10. Due Diligence (basic due diligence: financial audit, tax audit, legal audit, labor law compliance audit; strategic due diligence: commercial audit, technical audit, environmental audit, cultural audit);
11. Reaching agreement and closing the deal;
12. Post-acquisition integration;
13. Post-acquisition analysis (Rappaport, 1998; Sherman and Hart, 2006).

The first official document signed in negotiations is the confidentiality agreement/ nondisclosure agreement, which states that the potential acquirer will not disclose the internal information of the potential target. Then, sometimes, acquirer and target may sign the lock-out agreement/exclusivity agreement, which affirms that the parties, participating in the deal promise not search for another potential options: acquirer will not consider other targets and the target company will not search for other bidders. The signature of the letter of intent is the penultimate stage of negotiations. In the letter of intent the parties describe the initial situation, define what is

bought (assets of the company or share, percent of shares bought), establish the price, establish the form of payment, define the causes of the price revision, agree on the seller's future collaboration, the company's new management team, set warranties and due diligence deadline and define break-up fees (Sherman and Hart, 2006).

If after the thorough due diligence, which is aimed to check and expand on the information on the target company and to find unresolved problems that make the acquisition inadvisable or require the conditions to be renegotiated, the parties still agree on the characteristics of the deal, the acquisition/share purchase agreement is signed and the official part of M&A deal is over (Sherman and Hart, 2006). The acquisition agreement includes information on contracting parties, sale and purchase of share, price and form of payment, representations and warranties, non-competition covenants and etc.

Obviously not all the negotiations lead to the consummation of the deal. The most frequent deal killers identified in the scientific literature are disagreements other price or other basic aspects, personnel incompatibility, incompatibility in processes, antitrust laws and other state regulations, inability to finance the acquisition, appearance of other more interesting candidates, problems with due diligence, changes in economic environment and the length of negotiations. However, even if the agreement between the seller and the buyer was found and the deal was completed, as the most complicated part is still ahead. Often managers pay most of their attention to the selection of "perfect" candidate, strategic and operational fit, valuation, careful due diligence and underestimate the importance of the post-acquisition phase – integration of two companies (DePamphilis, 2001).

Many well-known deals have failed due to the poor integration strategy. The shining example is the merger of Daimler-Benz and Chrysler in 1998. It was expected to be a "perfect" merger with tremendous synergies due to the great strategic fit. In theory the merger, on the one hand, should have allowed Chrysler to expand outside of North America and, on the other hand, should have given Daimler-Benz a needed partner that had an existing and extensive distribution network in the United States and Asia. However, none of the strategic benefits of the merger were realized because the management hasn't developed and introduced a viable integration strategy. Despite the declared merger of two companies, in reality Daimler-Benz and Chrysler never became one integrated company. Cultural clash and negative attitude of workers from both companies to each other made the deal disastrous: sales and revenues of the group continued to fall. After 9 years of unsuccessful collaboration, in 2007 DaimlerChrysler has sold Chrysler Group (Isidore, 2007).

In the post-merger stage problems of corporate arrogance, when managers of the acquirer possess themselves "above" the management of the acquired company, and incompatibility of

management teams in general are often the main reasons for failing integration of companies. Other cultural problems rising in M&A deals are: loss of corporate identity, feeling of loss (security and stability), anger on new corporate culture, fear and feelings of "winners and losers" (Weston et al., 1998).

The most important part of successful integration is well and coherent communication with external stakeholders and internal employees. Workers should clearly understand who is the acquirer, what are the general plans for the company and their departments, whom should they report to and what changes are going to be introduced (Depamphilis, 2001).

Until now we have been mainly talking about the friendly acquisitions, where the board of the acquired company generally supports the takeover. However, there is the second type of acquisitions – hostile takeover, when the board of the acquired company doesn't support the acquisition (Reed, 2007). It is important to mention that hostile takeovers are possible only with listed companies. In hostile takeovers the acquirer places a bid with a certain premium trying to persuade the shareholders of the acquired company to sell their share.

The general characteristics of the hostile takeover are: board of directors and management of the target are against takeover, only cash payment is possible, high free float of shares of the acquired company and there are several competing bidders (Reed, 2007).

The ideal target company for the hostile takeover has: broad shareholder base, disagreements among board members, low stock price, marketable assets or subsidiaries, good future prospects not reflected in stock price and low debt. The level of debt is important as when the target company has a low debt level, the acquirer can attract a lot of credit resources to pursue the acquisition.

There are certain defenses, which the management can use to avoid the hostile acquisition. We can split these defenses into prebid and postbid.

Prebid defenses:

- Golden parachutes – lucrative benefits given to top executives in the event that a company is taken over by another firm;
- Shark repellents – provisions in a company's bylaws: requiring a vote that is substantially higher than that required by the law; creating different voting rights attached to different stocks;
- Poison pills – offering discounted shares to current shareholders in order to dilute whatever stake the acquirer may hold and increase the cost of acquisition;
- Sale of attractive assets;
- Financial restructuring – getting into debt.

Postbid defenses:

- Legal action – "buying" time to erect additional takeover defenses;
- White Knight or White Squire – a friendly bidder that rescues a targeted firm from an unsolicited or hostile takeover;
- Asset restructuring – sale of attractive assets or make defensive acquisitions;
- Pac-Man defense – the company that is under a hostile takeover acquires its would-be buyer (Sherman and Hart, 2006).

The main difference between the white knight and white squire is that white squire compared to white knight purchases a smaller stake in the company.

An acquirer in hostile takeovers can introduce a "bear hug" approach, offering a takeover bid that is potentially so attractive to the target company's shareholders that its management has to consider it, or find agreement with large shareholders (Sherman and Hart, 2006). Moreover, till the certain threshold[1] an acquirer can pursue open-market purchases and increase its share in the target company.

1.2. Key components of the price in M&A deals

Price is probably the most important component in an M&A deal as the amount paid actually determines whether an acquirer will benefit from the deal or not. So if the acquirer overpays for the target and price paid is bigger than the value of the acquired company and resulting from the merger synergies, then this is a value destroying deal for the shareholders of the bidder (Rappaport, 1999). Thus managers of the acquirer should be extremely cautious with the price paid in an acquisition. Of course, the price paid in an M&A deal is always a two-sided game: high price paid, on the one hand, benefits the target's shareholders and, on the other hands, harms the acquirer's shareholders. Thereby, price is always the main stumbling block during the negotiations in M&A deals.

According to the neoclassical theory, price in an M&A theory should be based on the following formula (Davidson, 1999): Price = Value (target) + PV (Synergies). However, in practice it is quite complicated to estimate each of the two components of the presented formula. There are three most common methods used to estimate the true value of the target:

- Discounted Cash Flow method;
- Method of Multiples;
- Asset Valuation method (Damodaran, 2002).

[1] Legislation in each country defines a specific threshold till which open-market acquisitions can be done without announcing them

Each of the listed above methods has its strengths and weaknesses: none of them is perfect. The positive aspect of the Discounted Cash Flow method is that it is firm specific in the sense that it allows to take into account various firm specific characteristics, such as cost of capital, tax rate and etc., when performing a valuation. However, need for many assumptions questions the objectivity of DCF method. So in order to conduct a DCF valuation you have to assume the company's cash flows for the next five or ten years an predict the future growth rate of cash flows. Even a slight change in the expected growth rate of cash flows will significantly impact the size of the terminal value of the company and its total value and the expected growth rate of CFs is based on the subjective opinions of industry experts (Copeland et al, 1991).

Method of Multiples is probably the simplest way to estimate the company's value. It is based on the assumption that similar assets should be traded at similar price. So, when valuing a company, analysts estimate the ratio of market value of its peers to their main operational figures, such as EBIT, EBITDA and NI, and find the industry average. Further, the resulting ratios are multiplied by the corresponding operational figures of the assessed company. Thus method of multiples generally reflects the market perception of the similar companies. Its main drawback is that it doesn't take the firm specific characteristics and the potential growth rate of the company into account. Moreover, industry multiples are cyclical and depend a lot on general economic conditions (Arzac, 2005).

Asset valuation method is based on the value of assets, which the company owns. However, it is unclear how to value goodwill, brand and human resources. In addition, asset valuation method doesn't take into account the value created from the interaction of the assets. Asset valuation method is considered to be the most conservative (Damodaran, 2002).

The assessment of possible synergies or present value of synergies to be more precise is even a harder mission. Synergies resulting from an M&A deal depend on many exogenous and endogenous factors and on their combination: the market's response to the merger, the ability of managers to integrate two companies, the general condition of the economy, the complementarity of two businesses and etc. Thus, it is extremely complicated to estimate the expected synergies and all the valuations of the synergy in the end are subjective and might differ from analyst to analyst.

When conducting the valuation of the company usually all three methods discussed above are used. The result of the valuation is not a certain value, but a range of possible values: from the "worst" case scenario to the "best" case scenario (Copeland et al, 1991). Not only the management of the acquirer but also the management of the target company performs the valuation of their own company and tries to estimate the possible synergies for the acquirer.

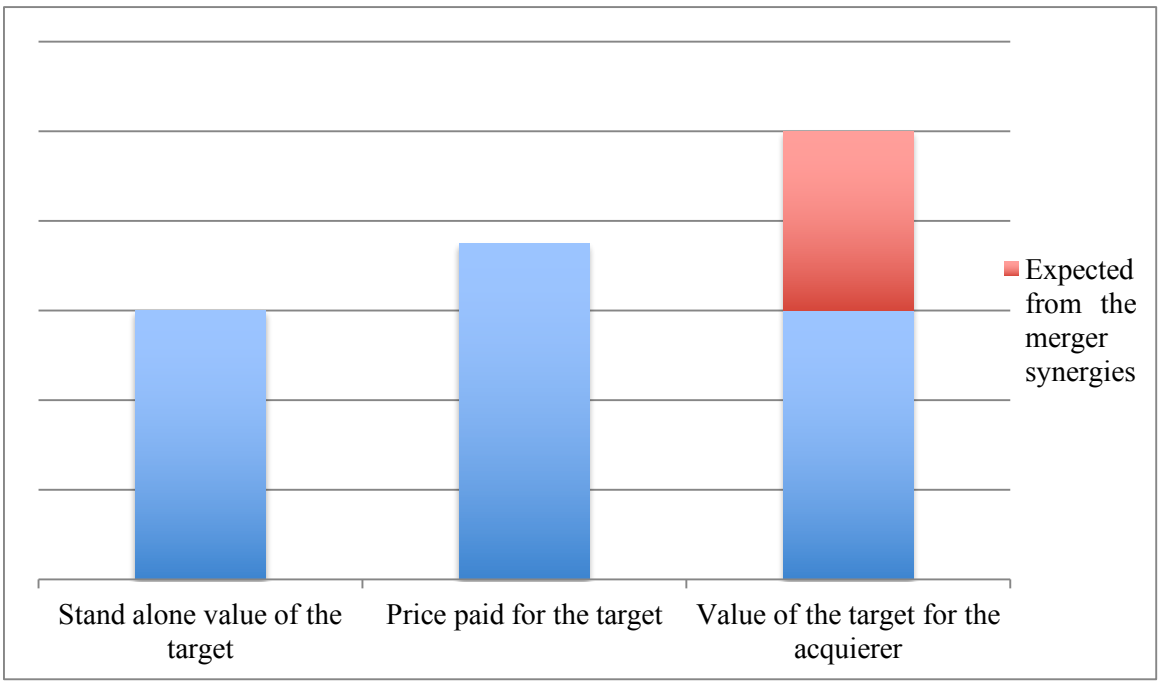


Figure 1. Value of the target company. Source: developed by the author.

In the end the price paid is always somewhere in between the stand-alone value of the target and the value of the target for the acquirer (Arzac, 2005). Certainly, the acquirer wants to pay as little as possible (stand alone value of the target) and the management of the target wants to receive as much of the expected synergies in the price paid as possible (value of the target for the acquirer).

Success of negotiations mainly depends on whether the range of values assessed by the acquirer's management intersects with the range of values estimated by the target's management. For example, if the target's management values its company somewhere in between $80 and $100 mln. and the acquirer values the target somewhere in between $40 and $60 mln. negotiations are likely to fail. The intersect of the acquirer's and target's management valuations is the potential agreement zone for the price.

Valuations of the target may differ for two main reasons: either management of the acquirer and target estimate the stand-alone value of the target differently or they expect different synergies from the merger (Arzac, 2005).

The payment in excess of the market value of the target is called premium. According to the neoclassical theory the main motivations for the payment of premium is the expected synergies. Other theories and possible motivations will be considered in detail in the next subparagraph.

Three main type of payment in M&A deals are identified in scientific literature:

1. "Cash deals" – the payment to the target's shareholders is done entirely in cash. Own cash reserves of the acquiring company and debt are the main sources of the payment in this case. Highly leveraged transactions are called LBOs[2];
2. "Stock-swap deals" – acquiring company issues additional shares and exchanges them for the shares of the target company. Thus, shareholders of the target company receive the shares of the acquirer in exchange for their shares of the target at a particular predetermined exchange ratio;
3. Mixed form – the payment is done both in cash and shares of the acquirer (Reed, 2007).

Moreover, there are special tools for the provision of deferred payments to the shareholders of the target company, the amount of which is tied to the achievement of certain results by the merged company – earnouts. The achievement of results and thus the amounts of future payments are usually tied to some operational indicators: sales, EBIT, EBITDA, NI and etc. Earnouts are often used, then parties cannot agree on the price paid. Let's say, for example, that the method of multiples is used to estimate the value of the target company: Price = (Multiple x EBITDA) – Debt. However, if the parties disagree on the size of EBITDA used in the formula: management of the target company believes that EBITDA will be higher than the one expected by the acquirer. In this case the earnout can be used to mitigate a conflict. Initially shareholders of the target receive the price calculated with the use of the EBITDA offered by the acquirer and parties make an arrangement that for the specified period acquirer will pay the shareholders of the target the following amount: (Actual EBITDA – EBITDA used in the price calculation) x Multiple used in the price calculation. Generally, if the parties are sure in their predictions concerning EBITDA this arrangement satisfies both sides: if the actual EBITDA exceeds the one estimated by the acquirer, as the target's management has predicted, target's shareholders will receive the remaining funds or otherwise will receive no additional payments (Arzac, 2005).

1.3. Analysis of motivation of premium payments

A merger premium exists when the common shareholders of a target company receive cash and/or securities of a greater value than the premerger value of their stake in the acquired company (Ismail, 2011).

The potential synergy gains and incremental cash flows resulting from the merger are the main widely accepted motives for M&A deals in general and premium payments in particular.

[2] Leveraged buyout

As mentioned in the first paragraph, strategic acquisitions are in fact designed to achieve synergy effects – an added value that appears only as a consequence of merging two enterprises (Reed, 2007):

$$\text{Value (A+B)} = \text{Value A} + \text{Value B} + \text{Synergies}.$$

Thus, primary motives for the prosecution of the deal and premium payments for strategic buyers are efficiency-synergies (economies of scale and scope), market position (market power – higher prices; diversification – new products and markets; strategic refocus – new capabilities) and hidden opportunities (target undervalued).

Main sources of synergy can be split into two groups:

- Operational synergy;
- Financial synergy (Damodoran, 2005).

Further we will analyze the main types of each synergy in detail and define their influence on the choice of the target company.

Operational synergy

The term operational synergy means a synergistic effect that allows organizations to increase their operational return on existing assets. According to Sherman, Hart (2006) and Reed (2007), we can identify eight main sources of operational synergy:

1. Economy of scale

Economies of scale imply a reduction in average production costs due to increased production volumes. Thus, the merged company is becoming more cost-effective. Usually this type of synergy can be achieved through horizontal mergers. In this case the acquirer is focused on the acquisition of assets or companies in the same industry. Moreover, economies of scale can benefit the merged company from the reduction of required investments in working capital. According to the scientific research expected economies of scale remain the most popular motive for M&A deals (Sharma, 2009). Campa and Kedia, studying diversification as a motive for M&A, came to conclusion that the market perceives mergers of companies from related industries most positively, as related mergers allow to obtain operational synergies (Campa and Kedia, 2002).

2. Market power

Horizontal acquisitions are also conducted in order to reduce competition and increase market share. This effect can be easily achieved in markets with relatively small amount of players. The conducted M&A deal in such a market can result in development of oligopoly with an ability to control prices to a certain extent, which in turn will give the merged company an opportunity to increase operating profits and margins. Despite the continuously growing control by the antitrust authorities, this type of synergy is often a strong motivator to pursue the deal.

3. Reduction of capital expenditures and sale of assets

Apart from decreasing operational costs through the economies of scale, companies can also achieve a reduction of capital costs through mergers and acquisitions. This can be accomplished mainly due to the reduction of duplicate assets. For example, the entire management structure of the acquired company can be moved to the headquarters of the acquirer and the vacant office can be sold.

4. Combination of core competences of companies

The core motive of the deal can be an acquisition of the company, which possesses a vast experience in any particular course of business or has a unique knowledge in the form of patents or R&D projects. This type of M&A motivation is quite popular among pharmaceutical companies. Often large pharmaceutical companies acquire startups to obtain their R&D investigations. This type of synergy can be achieved even between companies from different industries as some business processes can be applied to various types of businesses.

5. Entry to new markets

As a part of the strategy of geographic expansion for fast and efficient entry to new markets companies sometimes pursue a number of major acquisitions of local players with already well established business processes, brand recognition and high customer loyalty. These are usually cross-border acquisitions.

6. Marketing benefits

In the scientific literature, obtaining marketing benefits from an M&A deal is highlighted as one of the ways to achieve synergy that may occur in the following areas:

- Weak distribution network;
- Unbalanced product line;
- Ineffective methods of product promotion.

7. Economies of scope

Reducing operating costs can be also achieved by vertical acquisitions. These acquisitions might allow acquirers to increase company's competitiveness by reducing production costs, improving quality control and protection of proprietary technologies. Moreover, logistics costs and dependence on suppliers and consumers are significantly reduced. For example, this was the main reason for the acquisition of the oil company Conoco by DuPont, one of which product lines is the production of plastic, which main raw material is oil.

8. Risk diversification

The other potential motivation for M&A deals is risk diversification through working in several businesses. Risk diversification was the main motive for M&A deals in 1960s and 1970s, in time of heyday of conglomerates. However, recently, scientific literature questions

diversification as a rational motive for M&A activity as research indicates that conglomerates underperform and that private investors can diversify easier than companies (Reed, 2007; Sherman and Hart, 2006).

Financial synergy

Achievement of financial synergies allows to increase cash flows and to reduce the cost of capital. Here are the main ways of benefiting from the deal through financial synergies recognized by Sherman, Hart (2006) and Reed (2007):

1. Increase of an investment potential

If one company has a large surplus of cash and a limited number of projects and the other company possesses an untapped lucrative investment potential in the absence of necessary funds, it is reasonable to merge these companies. An increase of value of the acquirer in this way is often observed when large companies absorb small enterprises or public organizations merge with private companies.

2. Increase in the limit of debt burden

The maximum debt burden for the merged organization might increase due to the increase in cash flows, their stability and predictability. This in turn will allow companies to borrow more funds than they could have functioning separately. The shift of the capital structure towards debt allows the merged company to decrease the weighted average cost of capital and to benefit from the increased tax shield.

3. Reduction of the tax burden

The company, carrying out the acquisition can reduce its tax burden by pursuing so called tax inversion deal, when the acquirer moves its headquarters to the jurisdiction of preferential taxation. Moreover, in cases when one of the merging companies suffers losses, synergies can be achieved through the compensation of high income of the other company with the operating losses of the first company, thus decreasing the total amount of tax payments.

4. Better credit ratings

The increase of the cash flows of the merged companies, their stability and predictability might also result in better credit ratings, which in turn will decrease the cost of debt and improve financial position of the merged company (Reed, 2007; Sherman and Hart, 2006).

Summarizing all the above, we can conclude that the main purpose of M&A deals is to increase the value of the company. Primarily, this purpose is based on the interests of the company's shareholders.

Moreover, the existence of potential synergies in M&A deal induces the acquirer to pay a premium for the target company, as not only the management of the acquiring company assesses the potential synergy gains but also the management of the target realizes that due to the

existence of synergies the value of the target for the acquirer might be higher than the stand-alone value of the target and, hence, acquirer is ready to pay a premium.

Thus, for the purpose of our empirical analysis we develop the following hypotheses related to the existence of the synergy forecast when conducting a M&A deal and size of the forecasted synergies:

H1: The existence of the forecast on synergies is relevant in explaining the size of the premium.

H2: There is a positive relationship between the size of the premium and present value of forecasted synergies.

Generally, in the economic literature there are two fundamental approaches to the classification of the motives of M&A deals: the neo-classical approach based on the premise of rationality of managers, who make decisions in the interests of shareholders, and agency theory, which claims that managers often make decisions in their own interests and are not always aimed at increasing the shareholders' wealth (Sherman and Hart, 2006). The motives of M&A deals and premium payments according to the neo-classical theory – potential synergy gains were discussed above.

Obviously, in the value creating deals, the maximum size of the premium paid should be equal to the present value of the expected synergies (Davidson, 1985). Slusky and Caves state that if the premium paid is greater than the expected synergistic effect from the deal then such an acquisition is driven by agency problems (Slusky, Caves, 1991). A. Ismail finds that companies, which overpay in M&A deals (premium paid > present value of synergies) have both worse operating performance and stock long-run postmerger performance than the companies, which underpay for the targets (Ismail, 2011).

Empirical studies show that some M&A deals are initiated with previously known negative net present value: premium paid > present value of synergies. Dutordoir et al. reveals that in 54% of the analyzed deals merger premium exceed the estimated synergies (Dutordoir et al., 2013), implying that there should be some additional factors, explaining these overpayments. There is a number of theories stating potential motives for M&A activity and premium payments, apart from synergy gains:

- Managerial hubris (Roll, 1986);
- Agency problems and empire building (Fama, 1980; Jensen and Meckling, 1976; Jensen, 1986);
- Managerial entrenchment (Sheilfer and Vishny, 1989).

Narayanan and Berkovitch prove that cited above motives result in value destruction for the shareholders of first acquiring and then merged company (Berkovitch and Narayanan, 1993).

According to the agency theory managers pursue their own goals at the expense of shareholders' interests. Thus the management may intentionally initiate an unprofitable deal. Apart from the prestige of managing a larger company there are reasons of material nature that push top managers, who are interested in their personal well-being, to approve deals with a negative expected NPV:

- Top management of some companies receives solid bonuses as a compensation for carrying out M&A deals. So, according to the study of Grinstein and Hribar 39% of companies – acquirers pay bonuses to CEOs for conducting M&A deals. Moreover, in general, this type of compensation is paid in cash. Another interesting finding of the mentioned above authors is that the size of the compensation depends on the "efforts" of management and not on the actual results of the deal (Grinstein and Hribar, 2003).
- Compensations of CEOs and other key executives often depend on the size of the company (Ross et al., 2010).

In his article Roll suggests that almost 2/3 of all unsuccessful M&A deals can be explained by irrational actions of management; R. Roll argues that arrogance and overconfidence of management (management hubris) leads to huge losses for the shareholders of the acquiring company (Roll, 1995). On the basis of his ideas M.Hayward and K.Hambrick conducted an empirical study, which has confirmed that CEO's ego in many cases leads to the settlement of value destroying deals (Hayward and Hambrick, 1997).

Taking into account the relevance of the problems revealed by agency theory for the purpose of our empirical study we develop two hypotheses related to the personal interests of top management in M&A prosecution:

H3: There is a positive relationship between the share of stocks and options in the total consideration of CEO of target and probability of overpayment.

H4: There is a negative relationship between the share of stocks and options in the total consideration of CEO of acquirer and probability of overpayment.

Nevertheless, the M&A topic is widely covered in empirical studies, there is a limited number of research dedicated purely to the motivations of paying high premiums.

The study of J.Nielsen and R.Melicher was the first attempt to find justifications for the premium paid in M&A deals. The authors aimed to conduct an integrated analysis of possible synergy motives underlying the payment of large premiums and to check whether high versus low premiums can be explained by operating and financial synergies and specific acquiring firm characteristics. J.Nielsen and R. Melicher employed statistical and regression analyses in order to identify possible motivations for paying high premiums in M&A deals. The sample of 128

mergers conducted between 1960 and 1969 in USA among large industrial conglomerates was used in their study. The analyzed mergers had to fulfill the following restrictions: deals financed with a common-for-common stock exchange; acquirer and target publicly traded; both companies engaged in the deal have positive earnings in the fiscal year prior to the deal announcement. The authors intended to check the following hypothesis:

H1: There is a positive correlation between the size of the premium and operational synergy resulting from the deal.

H2: There is a positive correlation between the size of the premium and financial synergy resulting from the deal (Nielsen and Melicher, 1973).

The findings of J. Nielsen and R. Melicher support the operating synergy motivation for paying premiums in M&A deals, however they find no clear evidence that financial synergies justify the payment of above average premiums (Nielsen and Melicher, 1973).

In our opinion the recent study of Ahmad Ismail is the most valuable and coherent work, in terms of explaining the motivations for paying high premiums in M&A. In his research the author tries to explain the premium payments not only from the neo-classical perspective, using the present value of predicted synergies as an explaining factor, but also includes other factors, which could potentially influence the management's decision on the size of the premium paid: premerger value of the merged companies; operational characteristics of the merged companies (Debt/Asset ratio, OCF/Assets, FCF/Assets and etc.), relative size of the target to the acquirer, the degree of corporate governance provision (measured by the Entrenchment index, constructed by Gompers et al. (2003), total compensation of acquiring company's executives scaled down by the book value of assets and the percentage of stock options granted in the total compensation of executives of the acquiring company. The later three variables examine whether the payment of high premiums can be explained by the personal managerial objectives (agency problem). Univariate and Multivariate analyses were employed for the purpose of the study. In his research Ahmad Ismail uses the data on 336 M&A deals in US from 1985 to 2004. The author adopted the following refinement procedure for the sample construction: a disclosed dollar deal value of at least $1 mln.; the deal has to result in a transfer of ownership such that acquirer owns more than 50% of the target; all the required accounting information is available on Compustat files; information on synergy forecasts is publicly available. Ahmad Ismail aimed to answer the following research questions with the findings of his research:

Q1: Does the managerial synergy forecast explain the merger premium?

Q2: What are the determinants of exceeding the estimated synergy?

Q3: Does conflict of interest between managers and shareholders explain overpayment, defined as supremacy of premium paid over forecasted synergies (Ismail, 2011)?

The main conclusion is that the expected synergies do not explain the size of the premium paid, thus the premium is paid mainly to convince the shareholders of the acquired company to pursue the deal. Moreover, the author confirms the hypothesis of the agency theory that high premiums can be explained by the private objectives of the management: low Entrenchment index and compensation of management of the acquiring company positively correlate with the size of the premium paid. In addition, acquirers tend to overpay when the target company is large, has high growth potential and attractive premerger operating performance. However, the deal and acquirer's specific characteristics are not found to explain the size of the premium paid and the likelihood of overpayments (Ismail, 2011).

In the end everything is about people and P. Haunschild considers the motivations for paying premiums in M&A deals from the perspective of behavioral finance (Haunschield, 1994). Thus, the purpose of this study to investigate whether the interorganizational relationships between the target and acquirer have an effect on the size of the premium paid. Moreover, the author intends to review whether the acquirer's management considers their interlock partners and qualified firms when deciding the size of the payment and whether the influence of interlocks and qualified firms is stronger when the true value of the target is highly unclear and acquirer's management is uncertain about the fair price. P. Haunshild applies statistical and regression analyses in order to draw conclusions on the effect of interorganizational relationships on the size of the premium paid. The study was conducted on a sample of 453 M&A deals that were announced and closed during the period of 1986 - 1993. All the analyzed deals fulfilled the subsequent requirements: a controlling interest was transferred to the acquirer as a result of the deal; both target and acquirer are publicly traded in USA; interlock data is publicly accessible (P. Haunshild, 1994).

The following hypotheses were developed by the author:

H1a: There is a positive correlation between the premium paid and to prior premium payments made by their interlock partners;

H1b: The positive correlation between the premium paid and to prior premium payments made by their interlock partners is stronger when the value of the target is unclear;

H2: There is a positive correlation between the number of investment banks involved in the deal and uncertainty on target value;

H3a: There is a positive correlation between the size of the premium paid and premiums paid in prior deals where the same investment bank was involved;

H3b: The positive correlation between the size of the premium paid and premiums paid in prior deals where the same investment bank was involved is stronger when the value of the target in unclear (Haunschield, 1994).

The results of the research support hypotheses H1a, H1b, H2 and H3a; the hypothesis H3b was rejected. Thus, the author finds evidence that personal relations of management of the parties engaged in M&A deal, interorganizational relationships, linkages with professional firms and interlock partners do have an impact on the size of the premium paid, independent of the financial and operational performance of the target, expected synergies, industry condition and other decisive factors. P. Haunshild concludes that prior premium payments made by interlock partners and premiums paid in prior deals where the same investment bank was involved positively affect the size of the premium paid by acquirer. Moreover, the author indicates that the effect of prior premium payments made by interlock partners on the size of the premium paid is stronger when the management of the acquirer is uncertain about the true value of the target (Haunschield, 1994).

The report released by PR Newswire indicates that the acquirers conducting the coherent and thorough due diligence in general pay lower premiums and deliver significantly higher long-term value for shareholders. Thus, based on the conclusion made in the report done by PR Newswire, we can conclude that often acquirers overpay because they don't understand the true value of the target and resulting from merger synergies.

All the considered above researches are dedicated to the study of motivations for premium payments in the US market.

There is no doubt that an institutional environment, in which M&A deals are conducted has an impact on the design of the deal. In the recent decades we can observe a strong trend towards the global harmonization of accounting rules and widespread adoption of IFRS[3]. The study of Bozos K. et al. is focused on the analysis of the influence of IFRS adoption on the size of premiums paid in the European Union (Bozos et al., 2013). For the purpose of their research the authors employ regression analysis. The sample of 973 deals conducted between January 2000 and December 2011 in the EU15[4], initial States-members of the European Union, is used in their study. The time period from 2000 till 2011 was chosen on purpose as it clearly allows to distinguish all the deals with regards to the institutional environment in which they were conducted: mandatory adoption of IFRS from 2005 in EU. All the deals had to fulfill the following criteria: target and acquirer had to be publicly listed and the deal had to result in a transfer of ownership such that acquirer owns more than 20% of the target. Bozos et al. develop the following research hypotheses:

H1: There is a negative relationship between the IFRS adoption and merger premiums in European Union;

[3] International Financial Reporting Standards

[4] European Union as of December 31 2003: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and UK

H2a: In case of voluntary IFRS adoption the impact on the size of the premiums paid is insignificant;

H2b: The mandatory IFRS adoption has a negative impact on the size of the premiums paid;

H3: The difference between the domestic accounting rules and IFRS has a negative impact on the size of premiums paid (Bozos et al., 2013).

The authors find that the recent adoption by the member countries of EU generally decreases premiums paid to the targets' shareholders. Moreover, the decline in premiums is stronger when the targets were mandatory required to report according to IFRS standards and the further were the national standards from the IFRS rules, the stronger is the effect on premiums (Bozos et al., 2013).

Limited number of studies related to the analysis of motivations for paying high premiums in M&A deals and ambiguity of findings regarding the relationship between the characteristics of the deal, target, acquirer and premium paid in existing research make this topic an attractive field for further research.

Summary

The in depth investigation of general M&A concepts allowed us to gain a thorough understanding of M&A process. According to the objectives pursued, there are two main groups of acquirers: strategic and financial. In the first case, the main purpose of the deal is to achieve synergetic gains as the result of total or partial integration of the target into the acquirer's company. The core objective of financial acquirers is to realize short and medium term capital gains on the invested in the target capital by increasing its accounting profits, reducing working capital and capital expenditures, divesting from the noncore businesses, thus increasing the value of the target and then reselling it.

Generally, when pricing the company, scenario analysis is applied and the range of possible values of the target for the acquirer is identified with the help of discounted cash flow method; method of multiples; and asset valuation method. The range of target's values mainly depend on the acquirer's ability to capitalize expected synergetic gains, resulting from the merger.

The thorough analysis of two fundamental approaches to the motivation of premium payments allowed us to develop 4 hypotheses for the purpose of econometric analysis. The study of prior research on premium payments revealed the ambiguity regarding the relationship between the expected synergies and premium paid and signified the existence of other factors that determine the size of the premium paid.

CHAPTER 2. EMPIRICAL RESEARCH OF DETERMINANTS OF THE PREMIUM IN M&A DEALS

2.1. Methodology

We will use two main methods in our research: *statistical* and *regression* analyses.

Statistical analysis

We will start our analysis by investigating whether the premium paid when compared to the forecasted synergies can be explained by deal, target and acquirer specific characteristics. Thus we use the sample of 100 deals, for which synergies were forecasted, and split them into two subsamples based upon whether the forecasted synergy exceeds the premium paid or not (Overpayment and Underpayment). As we have discussed in the first part of the paper, if the present value of estimated synergy is smaller than the premium paid, then, basically, the acquirer has overpaid. On the contrary, if the present value if estimated synergies is greater than the premium paid, then the acquirer has underpaid (Davidson, 1985; Slusky and Caves, 1991). In the univariate part of our analysis we end up comparing the means of deal, target and acquirer characteristics of two subsamples: Overpayment and Underpayment. Moreover, we conduct the mean-comparison test in order to understand whether the difference in means of two subsamples is significant or not. After the univariate analysis we can draw up some preliminary results on the deal, target and acquirer characteristics, which influence the overpayment or underpayment in M&A deals.

Regression analysis

Two main regression models are built in the study. The first one is aimed to find the intercorrelation between the size of the premium paid and various characteristics of the deal, acquirer and target. The second regression is built in order to investigate factors, which determine whether the acquirer had "overpaid" or "underpaid" for the target.

1st regression: determinants of M&A premium

In order to test the stated hypothesis a linear multivariate regression "determinants of M&A premium" has been built. The basic model is the following:

$premium = \alpha + \beta_1 * X + \beta_2 * Y + \beta_3 * Z + \varepsilon$, where

- X – vector of variables, which reflect the deal characteristics;
- Y – vector of variables, which reflect acquirer's characteristics;
- Z – vector of variables, which reflect target's characteristics;
- β1, β2, β3 – vectors of unknown coefficients;
- ε – random variable.

The dependent variable – size of the premium paid is calculated using the methodology of Moeller et al.: the deal value divided by the market value of equity of the target 1 month prior to the deal announcement (Moeller et al., 2004).

We group all the independent variables into three categories: variables, which characterize the deal; variables, which characterize the acquirer; and variables, which characterize the target.

Further we are going to describe the way we calculated independent variables, discuss what they represent, why we think it is relevant to include them into regression and which relationship we expect them to have with the dependent variable. We will also indicate abbreviations used in Stata. Moreover, for some variables we specify prior research where they have been used.

Following variables characterize the deal in general:

1. Relative size (Stata: *relsize)*

This variable represents the relative size of the target to the acquirer, measured as the ratio of market value of equity of the target 1 month prior to deal announcement to the market value of equity of the acquirer 1 month prior to deal announcement (Ismail, 2011).

2. Relative deal size (Stata: *reldealsize)*

The variable relative deal size represents the relative size of the deal to the size of the acquirer and is measured as the ratio of deal value to the market capitalization of acquirer 1 month prior to deal announcement (Ismail, 2011). We believe that variables relative size and relative deal size can be used as a proxy for the strategic importance of the deal for the acquirer, as it is obvious that larger deals will have a greater impact on the future performance and effectiveness of the company. However, the expected relationship of these variables with the size of the premium remains unclear.

3. Lengths of negotiations (Stata: *length)*

As it is clear from the name, this variable reflects the lengths of negotiations and is calculated as the difference in days between the effective and announcement days. We expect the negative relationship between the lengths of negotiations and size of the premium, assuming that long negotiation process implies tough arguments on the key elements of the deal, including price paid (PR Newswire report).

4. SIC (Stata: *sic)*

The variable SIC reflects the similarity of sectors, in which target and acquirer operate. It is a binary variable: target and acquirer are from the same sectors according to SIC (Standard Industrial Classification) – 1, otherwise – 0. Expected relationship: positive. The logic behind is that generally companies from similar industries capitalize higher postmerger synergies than

companies from different sectors and, according to the theory, higher synergies mean higher premium.

5. Deal attitude (Stata: *att)*

The variable deal attitude shows whether the deal was friendly or hostile. Deal attitude is a binary variable with: friendly acquisition – 1, hostile acquisition – 0. We expect that in hostile acquisitions premiums are higher as management of the target opposes the acquisition and acquirer has to offer higher price to convince shareholders of the target.

6. Competition (Stata: *comp)*

Binary variable, which shows whether there was one or several potential buyers: one potential acquirer – 0, more than 1 potential acquirer – 1. We anticipate that in competitive bids on average acquirers pay higher premiums in order to outperform other potential buyers.

7. Method of payment (Stata: *shares, cash)*

Basically, as discussed in the chapter 1, there are three possible methods of payment: cash, equity of mixed. We introduce two binary variables separately for the pure cash payment and pure shares payment: payment in cash(shares) – 1; if not – 0. Expected relationship: unclear. Applied by Eckbo et al., 1990; Sheilfer and Vishny, 2003.

Following independent variables reflect acquirer's characteristics:

1. Forecast (Stata: *forecast*)

Shows whether the management of the acquirer has numerically forecasted and published expected synergies. Forecast is a binary variable: if the management of the acquirer has forecasted synergies – 1, otherwise 0. Synergy forecasts were available only for 100 deals out of the sample of 222 deals. Expected relationship: positive.

2. LN of Assets MV (Stata: *lnassmvac*)

This variable is used as a proxy for the size of the acquirer and is measured as natural logarithm of market value of assets of the acquirer (Ismail, 2011).

$$MV\ assets = BV\ of\ assets - BV\ of\ equity + MV\ of\ equity$$

Expected relationship: unclear.

3. M/B (Stata: *mbac*)

Market-to-Book ratio reflects the perception of the company by the market. We calculate M/B as the ratio of market value of equity 1 month prior to announcement of the deal to book value of equity for the last available period prior to deal announcement (Rhodes-Kropf et al., 2005; Rhodes-Kropf and Viswanathan, 2004). Expected relationship: unclear.

4. Debt/ MV of assets (Stata: *debtassmvac*)

The ratio of debt to the market value of assets of the acquirer is used as a proxy for the debt load level. We anticipate negative relationship between the debt load of the acquirer and the

size of the premium paid. The reasoning behind is that acquirers often use debt as a source of financing the acquisition: the larger is the preacquisition level of debt in relation to the market value of assets, the less new debt can be attracted and the higher is the cost of carrying additional debt. Hence, the larger is the preacquisition level of debt, the more expensive is the financing of acquisition and acquirer is limited in his ability to pay a high premium.

5. OCF/MV Assets (Stata: *ocfassmvac*)

This independent variable reflects the operating performance of the company and is calculated as the ratio of OCF (Operating Cash Flows) for the last available period prior to deal announcement) to the market value of assets (Moeller et al., 2004). We expect the positive relationship between the ratio of OCF to MV of assets as companies with high OCF have more disposable cash flows due to the strong operating performance and, hence, have more freedom in paying high premiums.

6. CEO compensation (Stata: *ceoac*)

Total CEO compensation for the last available year prior to the deal announcement is scaled by the book value of assets for the last available period (Ismail, 2011). Expected relationship: unclear.

7. Options and Shares compensation (Stata: *stockoptceoac*)

This variable represents the share of stocks and options in the total CEO compensation of the acquirer and is calculates as the ratio of value of stock and options awards to the total CEO compensation for the last year before the deal announcement (Datta et al, 2001; Ismail, 2011). We anticipate negative relationship between the share of stocks and options in the total CEO compensation and premium paid. The logic behind is that when the CEO of the acquirer is personally interested in the future of the company, he/she tends to avoid overpayments, which might negatively influence the performance of the company and his personal wealth.

8. Synergy ratio (Stata: *pvsynmveqt*)

The synergy ratio, which is calculated as the ratio of present value of forecasted synergies to the market value of acquirer 1 month prior to the deal announcement, is one of the main control variables (Dutordoir et al., 2010). I use the procedure applied by Ruback (2002), Houston et al. (2001), Devos et al. (2009) in order to calculate the present value of synergies. Thus I collect the information on predicted cost savings and revenue enhancements in addition to information regarding estimated costs resulting from the merger, such as fees paid to advisors and consultants participating in the deal. Information on managerial projections is published in a free form as there are no regulatory standards that oblige acquirers to publish information regarding estimated synergies. Sometimes, forecasted synergies are extremely detailed with clearly defined timelines for realizing the incremental cash flows. In such case, we assume that

cash flows after the last year of projection will be steady and calculate terminal value. In other cases management of the acquirer just publishes the estimated yearly revenue enhancements and cost savings, resulting from merger. In this case we assume that yearly projected gains are perpetual. Moreover, for my calculations I assume the tax rate of 36%.

We use the following formula to calculate the present value of the projected synergies:

$PV\ (synergies) = \sum_{i=1}^{N} \frac{(1-0{,}36)*CF_t}{(1+K_e)^t} + \frac{(1-0{,}36)*CF_N}{K_e*(1+K_e)^N}$, where

K_e – is the discount rate used to calculate the present value of forecasted synergies and represents an estimate for the cost of equity of the combined company. We use the cost of equity to discount cash flows making an assumption that expected cost saving and revenue enhancement will be accrued to shareholders only. While analyzing the sample we could not find any evidence that management expects incremental cash flows as a result of the change in debt or any change in capital structure is general. Thus we believe that an estimate for the cost of equity is an appropriate discount rate as it reflects the riskiness of equityholder's cash flows. An estimate for the cost of equity of the combined company is calculated as weighted average of cost of equity of acquirer and target, where the weights are relative market capitalizations of two companies one month prior to the deal announcement. Cost of equity for a particular company is calculated using capital asset pricing model (CAPM). We use the general beta of the industry, in which the company operates as an estimate for the company's beta. Yield on a 10-year T-bond is used as a measure of risk-free rate: for each year we take corresponding yields of 10-year T-bonds as an estimate of risk-free rate. The average growth of S&P500 index for the last fifteen years (2000-2015) – 4% is used as a measure for the market return. We use an average and not annual growth of S&P500 in order to avoid negative values as in times of crises index was falling.

Furthermore, we scale the obtained present value of forecasted synergies by the Market Value of Equity of the target one month prior to the deal announcement.

Present value of synergies is the core control variable in my study. Based on the neoclassical theory and prior research, described in detail in the first chapter we expect to obtain the positive relationship between the present value of synergies scaled by the market value of equity of the target one month prior to acquisition and the size of the premium paid.

Regarding independent variables that characterize the target, we use the same ones as for the acquirer, except for forecast and synergy ratio. The methodology of calculation remains the same.

The table, which summarizes all the information related to the calculation of independent variables can be found in the appendix.

2nd regression: determinants of overpayment and underpayment in M&A deals

In order to examine the influence of characteristics of the deal, target company and acquirer's decision to overpay for the target we built a probit multivariate regression model "overpayment and underpayment".

The basic model is the following:

$$\begin{cases} P\{difsynpr = 1 \mid X, Y, Z\} = F(I), 0 \le F(I) \le 1 \\ I = \alpha + \beta_1 * X + \beta_2 * Y + \beta_3 * Z \end{cases}, \text{ where}$$

- X – vector of variables, which reflect the deal characteristics;
- Y – vector of variables, which reflect acquirer's characteristics;
- Z – vector of variables, which reflect target's characteristics;
- β1, β2, β3 – vectors of unknown coefficients.

The dependent variable is a binominal variable, which takes the value of 1 if difference between the present value of synergies and premium is a positive number and otherwise 0. As it was explained in the first chapter of the paper, if premium is larger than the present value of forecasted synergies then the acquirer overpays and, if premium is smaller than the present value of forecasted synergies then the acquirer underpays (Davidson, 1985; Slusky and Caves 1991).

Independent variables are the same as in the 1st regression, except for *forecast* and *pvsynmveqt*. The variable *forecast* is not used as it shows whether the synergies were forecasted by the management of the acquirer and for the sample used in this regression all the acquirers made forecasts regarding synergies. In this regression model *pvsynmveqt* is inherently used to calculate independent variable.

2.2. Sample selection

My sample was constructed by searching the Thomson Reuters Eikon Database for all the M&A deals, which fulfill the following conditions:

- Deals announced from January 2000 to December 2015;
- Acquiring and target companies are both publicly traded in United States;
- Deals have a disclosed value of at least $ 3 billion;
- Deals have to result in a transfer of control such that the acquirer's ownership increases to greater than 50% as a result of acquisition.

The time period from 2000 till 2015 is used in order to see the current trends in M&A world and to compare the obtained results to the studies on premiums done for earlier periods. The requirement that both target and acquirer should be publicly traded in United States is justified by the availability of information on American deals. Initially I wanted to conduct my research for the deals performed in the Russian market, however, after preliminary investigations

I understood that, first, the sample would be extremely limited and, second, the details of the deals are not publicly available. The threshold of $ 3 billion is chosen due to the fact, that generally there is a trend that the bigger is the deal, the more information can be found. Moreover, one of the main independent variables used in the study is the present value of the forecasted synergies, data on which is usually unavailable for "small" deals. The requirement that the deal has to result in a transfer of control such that the acquirer's ownership increases to greater than 50% is set in order to avoid portfolio investments, which are purely aimed to earn financial return for an investor. In our study we aimed to conduct the research on deals, where acquirer takeovers the target based on strategic reasoning and not speculative purposes.

Initially there were 252 deals that fulfil the discussed above conditions, however after the collection of data on the variables used in research, the sample has significantly reduced due to the unavailability of information on certain deals. The main sources of information were: Thomson Reuters Eikon database, Zephyr database, reports published on Security Exchange Commission (8-K, DEF14, DEF 14A, 10-K and S-4) and reports available on official websites of companies. In the table 1 underneath the required data for each deal and sources of information are presented.

Table 1

The required data for every deal and sources of information.

№	Data	Sources of information
1	Announcement and effective dates of the deal	Thomson Reuters Eikon
2	Market value of equity of target and acquirer (1 month prior to deal announcement)	Thomson Reuters Eikon
3	Deal Size	Thomson Reuters Eikon
4	Percent acquired	Thomson Reuters Eikon
5	Industry sector for target and acquirer	Thomson Reuters Eikon
6	Deal attitude	Thomson Reuters Eikon
7	Method of payment	Zephyr database
8	The synergy forecast	SEC (reports 8-K, S-4, DEF14,DEF 14A)
9	Competitiveness of the bid	Zephyr database
10	Cost of equity for target and acquirer	Damodaran
11	Book values of equity of target and acquirer (Last available prior to deal announcement)	SEC (report 10-K)
12	Book value of assets of target and acquirer (Last available prior to deal announcement)	SEC (report 10-K)
13	OCF of target and acquirer (Last available prior to deal announcement)	SEC (report 10-K)
14	CEO compensation of target and acquirer (Last available prior to deal announcement)	SEC (report 10-K)

I ended up having 222 deals on which all the required data, except for synergy forecast, was available. The disclosure of the managerial synergy forecast is not required by the regulators and, hence it was available only on 100 deals.

2.3. Descriptive statistics of variables

We will split our descriptive statistics into three parts: descriptive statistics of general deal characteristics, descriptive statistics of acquirer's characteristics and descriptive statistics of target's characteristics.

Let us first analyze the descriptive statistics of deal characteristics. Descriptive statistics of deal characteristics is presented in the Table 2 underneath.

Table 2

Descriptive statistics of deal characteristics.

Variable	Observations	Mean	Std. Dev.	Min	Max
Premium paid, mln. $	222	1 808,681	7 124,317	-42 738,81	28 801,15
Present value of forecasted synergies, mln. $	100	4 598,356	7 133,654	233,546	44 043,02
Deal value, mln. $	222	11 337,92	13 238,09	3009	89 432
Deal value/Market value acquirer	222	0,895	1,36	0,013	11,91
MV target/MV acquirer	222	0,653	1,07	0,007	10,76
Length of negotiations, days	222	170	98,97	38	540

As we can infer from the table the average premium paid in our sample accounts for 1 808,6 mln. US dollars. However, sometimes, there are acquisitions with the negative premium, meaning that actually acquirer pays less for the target than its market capitalization. There are 45 deals in our sample, in which the premium paid was negative. In the most extreme case the acquirer has paid 42 738, 81 mln. US dollars less than the market value of the target. We could not detect any pattern in negative premium payments, when considering characteristics of target companies. So, we can conclude that explanation behind negative premium payments might be specific terms of deal agreement rather than characteristics of the target. We also observe deals with extreme overpayments, the maximum premium accounted for 28 801, 15 mln. US dollars.

Unfortunately, only in 45,45% cases management of the acquirer has forecasted the expected revenue enhancements and cost savings resulting from the deal. Thus the present value of the forecasted synergies could be calculated only for 100 deals. The average size of the present value of forecasted synergies is 4 598,356 mln. US dollars. It is worth noting that the present value of forecasted synergies varies significantly across considered deals: from 233,546 mln. US dollars in the minimum case to an incredible amount of 44 bln. US dollars. In 61 out of 100 deals the present value of forecasted synergies exceeded the premium paid.

The average deal value in the considered sample is 11,3 bln. US dollars, implying that the sample is mainly composed of megadeals. The smallest deal value is 3 bln. US dollars and the largest is over 89 bln. US dollars.

We can conclude that most of the deals from the considered sample are of a great importance for the acquirer as on average the deal size constitutes for 89,5% of the size of the acquirer, measured as market value of equity. There are some deals, in which the deal value exceeds market capitalization of acquirer by more than ten times.

As expected, on average the acquiring company is larger than the target: the average market capitalization of the target is only 65,3% of the market capitalization of the acquirer. Nevertheless, there are deals when noticeably smaller company in terms of market capitalization acquires larger company.

The average length of negotiations, measured as the difference between the effective and announcement dates, is 170 days for our sample. The shortest negotiations lasted only 38 days and the longest ones 540 days, which is almost one and a half year.

In our sample almost 73% of all the considered deals were conducted by the companies from the same industry according to SIC (Standard Industrial Code). Moreover, 98,6% of all the acquisitions were friendly and only 5% of deals were competitive, meaning that there was more than one potential acquirer.

Regarding the method of payment, in 30,1% of the deals the payment was done using equity swaps, in 29,7% the payment was in cash and all the other deals were paid using the mixture of cash and shares.

Now let's move to the analysis of descriptive statistics of variables, which represent the acquirer's characteristics. Descriptive statistics of acquirer's characteristics is presented in the Table 3 underneath.

Table 3

Descriptive statistics of acquirer's characteristics.

Variable	Observations	Mean	Std. Dev.	Min	Max
Market capitalization, mln. $	222	45 242,72	60 248,9	821,1	329 721,2
MV Assets, mln. $	222	68 935,81	100 555,5	1 120,15	797 989,6
M/B ratio	222	7,302	17,94	-15,531	183,617
Debt/MV Assets	222	0,342	0,216	0,001	0,91
OCF/MV Assets	222	0,058	0,069	-0,596	0,458
CEO compensation, mln. $	222	14,8	15,339	1	96,443
Share of stocks and options in total CEO compensation	222	0,554	0,27	0	0,998

As we can infer from the table, the average market capitalization of acquiring companies is 45 242 mln. US dollars, varying significantly across companies: from only 821 mln. US dollars to 329 721 mln. US dollars. The average size of acquiring companies when measured as market value of assets is equal to 68 935 mln. US dollars.

On average market capitalization of acquirer exceeds its book value by 7,3 times. In 3 cases there are negative values of M/B ratios, implying that companies' have extremely high level of debt: debt is greater than the book value of assets. Deals, in which either acquirer has a negative M/B ratio will be excluded in regression analysis in order avoid biased results.

The average level of debt load of acquiring companies, measured as the ratio of debt to market value of assets is 0,342. Moreover, we can see from the table that the debt load varies significantly across acquiring companies.

The average ratio of OCF (Operating Cash Flows) to market value of assets, which is used as a proxy for the operating performance of companies, for acquirers is 0,058, implying that on average $1 of assets produces 5,8 cents. In our sample we have 10 acquirers with negative

ratio of OCF to market value of assets. These observations will be kept for the regression analysis as companies with negative OCF cannot be considered as outliers.

Regarding CEO compensation, we can educe from the table that on average total CEO compensation is 14,8 mln. US dollars and on average 55,4% of total CEO consideration is paid either in shares or in options. Both total CEO consideration and share of stocks and options in total CEO consideration vary significantly across acquirers. The intriguing is the fact that in 5 acquiring companies' total CEO consideration is only 1$. These observations will also be excluded in regression analysis. Twenty one acquiring company do not have equity compensation program as a part of CEO consideration.

Let's move to the descriptive statistics of target's characteristics. Descriptive statistics of target's characteristics is presented in the Table 4 underneath.

Table 4

Descriptive statistics of target's characteristics.

Variable	Observations	Mean	Std. Dev.	Min	Max
Market capitalization, mln. $	222	9592,234	12 473,25	86,08	79 638,69
MV Assets, mln. $	222	14 058,03	16 619,18	-802,694	112 657,7
M/B ratio	222	5,42	12,045	-23,972	87,941
Debt/ MV Assets	222	0,324	0,212	0,002	0,932
OCF/ MV Assets	222	0,045	0,051	-0,514	0,157
CEO compensation, mln. $	222	7,571	6,917	1	57,949
Share of stocks and options in total CEO compensation	222	0,536	0,264	0	1

The average size of target companies measured as market capitalization is 9 592 mln. US dollars and the mean market value of assets for targets is 14 058 mln. US dollars. Two target companies from the considered sample have negative market value of assets, these companies will be excluded in regression analysis as outliers.

As for the target companies on average market capitalization exceeds book value by 5,42 times. In some cases, there are also negative values of M/B ratios, implying that companies have extremely high level of debt: debt is greater than the book value of assets. These observations will be kept in econometric analysis since we find that in our sample for target companies it is quite common to have negative M/B ratio: more than 10% of all considered targets have negative M/B ratios.

The average level of debt load of target companies, measured as the ratio of debt to market value of assets is 0,324. Moreover, we can see from the table that debt load level varies significantly across target companies.

The average ratio of OCF (Operating Cash Flows) to market value of assets, which is used as a proxy for the operating performance of companies, for targets is 0,045, implying that on average $1 of assets produces 4,5 cents. Fifteen target companies' have negative OCF and, hence, negative ratio of OCF to market value of assets.

Regarding CEO compensation, we can educe from the table that on average total CEO compensation is 7,571 mln. US dollars and on average 53,6% of total CEO consideration is paid either in shares or in options. Both total CEO consideration and share of stocks and options in total CEO consideration vary significantly across acquirers. In 2 target companies' total CEO consideration is 1 US dollar, these observations will be removed from the sample as outliers. Twenty five targets do not use stocks and options as a part of CEO compensation.

After we have analyzed characteristics of target and acquiring companies separately, let us conduct comparative analysis of target and acquiring companies. Comparative analysis of target and acquiring companies is presented in the Table 5 underneath.

Table 5

Comparative analysis of target and acquiring companies.

Variable	Observations	Mean - acquirer	Mean - Target
Market capitalization, mln. $	222	45 242,72***	9529,234***
MV Assets, mln. $	222	68 935,81***	14 058,03***
M/B ratio	222	7,302	5,42
Debt/ MV Assets	222	0,342	0,324
OCF/ MV Assets	222	0,058**	0,045**
CEO compensation, mln. $	222	14,8***	7,571***
Share of stocks and options in total CEO compensation	222	0,554	0,536

Note: the symbols *, ** and *** sign the variables significant at the 10%, 5% and 1% levels respectively.

As we can infer from the table the difference in means is significant only for four variables: market capitalization, market value of assets, ratio of operating cash flows to market value of assets and CEO compensation. Thus we can conclude that on average acquiring companies are larger than target companies: average market capitalization of acquirers' is almost five times bigger than average market capitalization of targets' and average market value of assets for acquirers is $ 32 859 million and for targets only $ 9 255 million. So, in general, as expected, larger companies tend to acquire smaller ones. In addition, acquiring companies on average have better operating performance, measured as the ratio of OCF to the market value of assets, that targets (0,058 vs 0,045). Moreover, the interesting fact is the average CEO compensation of acquirers' is almost twice higher as targets'.

2.4. Econometric analysis

Results of statistical analysis

As we have discussed in the methodology part, we start with the statistical analysis. We split the sample of 100 deals for which the synergies were forecasted into two subsamples based upon whether the present value of the forecasted synergies is greater than the premium (Underpayment sample) or smaller than the premium (Overpayment sample). Results of statistical analysis are presented in the Table 6 underneath.

Table 6

Statistical analysis: Overpayment and Underpayment.

	Premium<Synergy (Underpayment) 61 observation	**Premium>Synergy (Overpayment) 39 observation**
	Mean	**Mean**
prm	0,171**	2,23**
relsize	1,055	0,798
reldealsize	0,892**	1,42**
length	198,459	172,7
sic	0,803	0,871
att	0,983	1
comp	0,065	0,025
shares	0,377	0,359
cash	0,098	0,128
mbac	10,516	6,53
lnassmvac	10,32***	9,71***
debtassmvac	0,033	0,382
ocfassmvac	0,066	0,081
mbt	7,704	4,443
lnassmvt	9,555***	9,042***
debtassmvt	0,2782***	0,46***
ocfassmvt	0,044	0,045
ceoac	0,0015	0,0017
stockoptceoac	0,563*	0,534*
ceot	0,0018**	0,0015**
stockoptceot	0,47	0,516
pvsynmveqt	0,636	0,739

Note: the symbols *, ** and *** sign the variables significant at the 10%, 5% and 1% levels respectively.

The first thing we can conclude is that, for the considered sample, in 39 out of 100 deals the present value of the forecasted synergies was smaller than the premium paid, implying that in these cases acquirers have overpaid for the target.

We can infer from the table that the difference in means is significant for the size of the premium paid scaled by the market value of equity of the target 1 month prior to the deal announcement (*prm)*, the ratio of total consideration paid to the market capitalization of acquirer one month prior to deal announcement (*reldealsize),* natural logarithm of market value of assets of the acquirer (*lnassmvac),* natural logarithm of market value of assets of the target (*lnassmvt),* ratio of debt to market value of assets of the target (*debtassmvt)* and variables, which describe the CEO compensation of the target and acquirer(*stockoptceoac* and *ceot)*.

We can conclude from the table that, as expected, the average size of premium paid relative to market capitalization of the target and the mean ratio of total consideration paid and market capitalization of acquirer are significantly greater for the overpaying subsample, which is in line with the common sense: the more we pay for the target, the greater is the chance to overpay. Thus the average ratio of premium paid relative to market capitalization of the target is only 0,171 for underpaying sample and 2,23 for overpaying sample. The mean ratio of total consideration relative to market capitalization of acquirer is 0,892 for underpaying sample and 1,42 for overpaying sample.

The interesting finding is that the underpaying companies have larger average market value of assets: mean of natural logarithm of market value of assets for the underpaying subsample is 10,32 ($ 30 333 millions) and 9,71 ($ 16 481 millions) for the overpaying subsample. The reasoning behind can be that larger companies, market value of assets is a proxy for the size, might have greater bargaining power and, hence, can avoid overpaying. This result is consistent with the findings of Ismail, 2011. Moreover, target companies tend to be larger, the average size measured as natural logarithm of market value of assets, in underpaying sample: 9,555 ($ 14 155 millions) for the underpaying subsample and 9,042 ($ 8450 millions) for the overpaying subsample.

In addition, target companies tend to have higher ratio of debt to market value of assets in overpaying sample: 0,2782 for underpaying subsample and 0,46 for overpaying subsample. The mean difference is significant at the 1% level. The logic behind might be that companies with higher leverage, ratio of debt to market value of assets is used as a proxy for leverage, have lower WACC (Weighted Average Capital Cost) and acquirers are ready overpay for targets with low WACC as all the future Cash Flows will be discounted at a lower cost of capital and their present value will be higher. This might give an acquirer a certain ability to overpay without incurring losses.

We can infer from the table that the average share of stocks and options in the total CEO consideration of the acquirer is greater for the underpaying subsample: 0,563 vs 0,534. The mean difference is significant at 10% level. Thus we can conclude, that when CEO of the acquirer is personally interested in the future of the company, the decision whether to overpay for the target or not is made carefully. CEO of the company is the always main decision maker and the decision on whether to overpay or not is not an exception. This result in line with the managerial hubris theory (Roll, 1986), agency theory problem (Fama, 1980; Jensen and Meckling, 1976; Jensen, 1986) and recent finding of Datta et al. (2001) and Ismail (2011).

Furthermore, the average total CEO consideration scaled by the book value of assets is higher for the targets in underpaying subsample: 0,0018 for targets in underpaying subsample and 0,0015 in overpaying subsample. The mean difference is significant at 5% level.

All in all, according to statistical analysis the described above variables significantly differ for underpaying and overpaying sample and, hence potentially influence the acquirers' decision to overpay for the target.

Results of regression analysis

As for the results of multivariate analysis we will start with the obtained results for the 1st regression: *determinants of M&A premium.*

Let us remind that with the help of the first regression we investigate the intercorrelation between the premium paid and deal, target and acquirer characteristics. We conduct a multistep regression analysis. Firstly, we look separately at the interconnection between the premium paid and characteristics of the deal; target; and acquirer[5]. In this step we investigate whether characteristics of the deal, target and acquirer, if taken separately, determine the size of the premium paid. Secondly, we analyze the interconnection of the premium paid and characteristics of the deal, target and acquirer taken altogether. Thus, we can see how the results of the analysis change when considering all independent variables at once. Thirdly, we add our core variable – the present value of the forecasted synergies and we see whether in reality it is the core factor, determining the size of the premium as predicted by the theory.

Let us move directly to the analysis of results. Table 7 represents the obtained results for five regression models. In all regressions premium paid scaled by market capitalization of the target 1 month prior to deal announcement (*prm)* is a dependent variable. The first three columns (I, II, III) reflect the correlation between the premium paid and characteristics of the deal; target; and acquirer if taken separately. The forth column (IV) shows the interconnection between the

[5] In this step we run three separate regressions with the premium paid as a dependent variable and characteristics of the deal as a vector of independent variables in the first regression; characteristics of the target as a vector of independent variables in the second regression; characteristics of the acquirer as a vector of independent variables in the third regression.

premium paid and characteristics of the deal, target and acquirer when taken altogether. The fifth column (V) also represents the correlation between the premium paid and characteristics of the deal, target and acquirer, however, in this regression, as it was mentioned above, we add the present value of forecasted synergies as an independent variable.

Table 7

Determinants of M&A premium.

	I	II	III	IV	V
reldealsize	-0,234			0,264	-0,549*
length	-0,002			-0,001	-0,001
sic	0,2794			0,285	0,695
att	0,289			-0,959	6,101
shares				-0,558	0,087
cash	-0,774				
forecast		0,415		0,806*	
mbac		-0,004			
lnassmvac		-0,282		0,151	-0,589*
debtassmvac				-2,788**	-3,877***
ocfassmvac		-2,288		-2,557	14,627**
ceoac		-0,431		3,602	
stockoptceoac		-0,521		0,144	0,256
mbt			0,019	0,014	0,004
lnassmvt			-0,863***	-1,008***	0,533
debtassmvt			6,065***	7,585***	3,251**
ocfmvasst			-0,199	0,249	-3,507
ceot			4,934	4,905	
stockoptceot			1,141	1,245	-0,901
pvsynmveqt					3,165***
cons	0,931	3,341	5,871***	6,524**	-6,45
Observations	210	210	210	210	94
Adj. R^2	-0,005	-0,007	0,155	0,155	0,796
Prob > F	0,576	0,603	0,000	0,000	0,000

Note: the symbols *, ** and *** sign the variables significant at the 10%, 5% and 1% levels respectively.

The first essential thing to mention is that three out of five models are significant. The first and the second regressions have Prob > F of 0,576 and 0,603 respectively and, hence, are insignificant.

Thus we can conclude that when taken separately characteristics of the deal; and acquirer do not determine the size of the premium.

On the contrary, the significance of the third model implies that target's characteristics are still important for the size of the premium, even if taken separately. The logic behind is quite simple. It is obvious that when deciding how much to pay the characteristics of the object you acquire are the most important decisive factors.

The following variables are proved to be significant at 1% level in the third regression model: the size of the company, measured as a natural logarithm of market value of assets and leverage, measured as ratio of debt to market value of assets.

The results of the model are consistent with the preliminary findings of the statistical analysis. We find a negative correlation between the size of the premium paid scaled by the market value of equity of the target 1 month prior to deal announcement and size of the target company, measured as natural logarithm of market value of assets. Moreover, we observe positive correlation between the leverage of the target company and premium. We have mentioned in the part of statistical analysis that this can be explained by the fact that companies with higher leverage, ratio of debt to market value of assets is used as a proxy for leverage, have lower WACC (Weighted Average Capital Cost) and acquirers are ready overpay for targets with low WACC as all the future Cash Flows will be discounted at a lower cost of capital and their present value will be higher.

After we have discussed the results of the first step (correlation between the premium in M&A deals and characteristics of the deal; target; and acquirer, when taken separately) let us move to the analysis of findings of the second step, in which we examined the interconnection of the premium paid and characteristics of the deal, target and acquirer taken altogether.

The following variables are significant at 1, 5 and 10 percent levels in the fourth model: *forecast, debtassmvac, lnassmvt* and *debtassmvt*. It is worth mentioning that, nevertheless, the number of significant variables has risen, the explanatory power of the model has remained exactly the same, when comparing to the third regression (Adj. R^2 equals 0,155).

As we have concluded before, when acquirer's characteristics are taken separately none of them are significant, however, when we consider the interrelation of the premium and acquirer's characteristics together with the deal and target characteristics, the leverage of the

acquirer[6] becomes significant. Thus we can conclude that leverage becomes important taking into account other factors, which characterize either the deal or the target. We find negative correlation of the ratio of debt to the market value of assets of the acquirer to the size of the premium. This can be explained by the fact that acquirers often use debt as a source of financing the acquisition: the larger is the preacquisition level of debt in relation to the market value of assets, the less new debt can be attracted and the higher is the cost of carrying additional debt. Hence, the larger is the preacquisition level of debt, the more expensive is the financing of acquisition and acquirer is limited in his ability to pay a high premium. This finding is consistent with the results of Ismail, 2011.

The rationale behind the positive correlation of target's leverage / negative correlation of the natural logarithm of market value of assets of target has been already discussed before. It is essential to mention these variables are held constant, meaning that coefficients are stable in different regressions. This indicates the robustness of the obtained results.

The other intriguing fact is that when considering all characteristics at once, the variable *forecast* becomes significant. The variable *forecast* shows whether the management of the acquirer has predicted revenue enhancements and cost savings, resulting from the deal (binary variable). This finding allows us to accept hypothesis H1: *The existence of the forecast on synergies is relevant in explaining the size of the premium.*

In addition, the significance of this variable implies that, as predicted by the theory, the forecasted synergies are in fact important in deciding the size of the premium. In order to verify this statement, in the final step of our analysis (model V) we added the present value of forecasted synergies scaled by the market value of equity of the target 1 month prior to the deal announcement as an independent variable to regression.

Unfortunately, the synergies were forecasted and disclosed only for 100 deals from the whole sample. We also had to exclude 6 deals as outliers.

The first essential implication of the fifth model is that after adding the present value of forecasted synergies scaled by the market value of equity of the target as an independent variable the explanatory power of the model increases from around 15% to more almost 80%, signifying that present value of forecasted synergies is one of the core factors explaining the size of the premium.

The following variables are significant at 1, 5 and 10% levels in the fifth model: *reldealsize, lnassmvac, ocfassmvac, debtassmvac, debtassmvt* and, of course, *pvsynmveqt.*

Considered together with the present value of synergies, previously insignificant variables *reldealsize, ocfassmvac* and *lnassmvac* become significant.

[6] Leverage is measured as the ratio of debt to the market value of assets (Ismail, 2011)

We find negative relationship between the deal value scaled by the market capitalization of the acquirer and premium paid. Hence, the findings suggest that the more important is the deal for the acquirer, assuming that the deal value in relation to the size of the acquirer can be used as a proxy for the strategic importance of the deal, the more careful is the acquirer regarding the estimation of the fair price of the target. We believe that the deal size in relation to the market capitalization of the acquirer is a reasonable proxy for the strategic importance of the deal for the acquirer as it is obvious that larger deals will have a greater impact on the future performance and effectiveness of the company.

Moreover, we observe the negative relationship between the size of the acquirer, measured as a natural logarithm of the market value of assets, and the size of the premium paid: larger acquirers, if taken other factors fixed, tend to pay smaller premiums. The logic behind has already been discussed in the part of statistical analysis.

From the table we can infer that there is a positive correlation between the ratio of OCF (Operating Cash Flows) to the market value of assets of acquirer and the size of the premium paid. The reasoning might be that companies with high OCF have more disposable cash flows due to the strong operating performance and, hence, can afford themselves to pay higher premiums without any negative consequences.

As for the intercorrelation of the leverage of target and acquirer, measured as the ratio of debt and market value of assets of the company, and size of the premium paid, results support our prior findings: positive relationship between the leverage of the target and size of the premium paid; negative relationship between the leverage of the acquirer and size of the premium paid. The reasoning behind was already discussed above.

Regarding the present value of synergies, based on the results of the analysis we accept our core hypothesis H2 that there is strong positive relationship between the present value of forecasted synergies and size of the premium paid.

After thorough investigation of the intercorrelation between the premium paid and characteristics of the deal, target and acquirer, we believe it is consistent to continue our analysis with the study of factors, which determine the overpayment/underpayment of acquirer for the target. The issue of overpayment/underpayment is directly linked to the size of the premium paid and present value of forecasted synergies as we define overpayment/underpayment as the difference between premium paid and present value of forecasted synergies: overpayment if premium paid is larger that the PV of forecasted synergies and underpayment if premium paid is less than the PV of forecasted synergies (Davidson, 1985; Slusky and Caves 1991).

Table 8 presents the results of the second regression model*: determinants of overpayment and underpayment in M&A deals.*

In this regression the dependent variable is a binominal variable, which takes the value of 1 if difference between the present value of synergies and premium is a negative number (Overpayment) and otherwise 0 (Negative).

Table 8

Determinants of overpayment and underpayment in M&A deals.

	Probit regression
reldealsize	0,191
length	-0,002
sic	0,212
cash	-0,208
lnassmvac	-0,047
debtassmvac	-1,236
ocfassmvac	5,706**
stockoptceoac	-0,991*
mbt	0,002
lnassmvt	-0,596**
debtassmvt	3,528***
ocfmvasst	-1,827
stockoptceot	0,751
cons	4,519**
Observations	94
Pseudo R^2	0,31
Prob > chi	0,000

Note: the symbols *, ** and *** sign the variables significant at the 10%, 5% and 1% levels respectively.

The first thing we can conclude is that regression is valid: Prob > F is equal to 0,000.

The following variables are significant at 1,5 and 10% levels: *ocfassmvac, stockoptceoac, lnassmvt* and *debtassmvt.*

In order to directly interpret the obtained results, we need to calculate the marginal effects of independent variables on the dependent variable. Marginal effects are presented in the Table 13 underneath.

Table 13

Marginal effects for probit regression.

	dy/dx
reldealsize	0,068
length	-0,0005
sic	0,073
cash	-0,072
lnassmvac	0,016
debtassmvac	-0,444
ocfassmvac	2,051**
stockoptceoac	-0,356*
mbt	0,0007
lnassmvt	-0,214**
debtassmvt	1,268***
ocfmvasst	-0,657
stockoptceot	0,269

Note: the symbols *, ** and *** sign the variables significant at the 10%, 5% and 1% levels respectively.

Thus, according to the obtained results, we find that there is not only a positive relationship between the leverage of the target, measured as the ratio of debt to the market value of assets of the target, and the size of the premium but the increase in the debt load level of the target also increases the probability of overpayment, when other factors held constant, as can be inferred from the table. The same logic of explanation used above can be applied to interpret this finding: companies with higher leverage, have lower WACC and acquirers might be ready to overpay for targets with low WACC as all the future Cash Flows will be discounted at a lower cost of capital and their present value will be higher. This might give an acquirer a certain ability to overpay without incurring losses.

The findings of probit regression model support the results of statistical analysis that there is a negative correlation between the size of the target and probability of overpayment.

In addition, the results presented in the table indicate that, when held other factors constant, the increase in the share of the stocks and options in the total CEO consideration of the acquirer decreases the probability of overpayment in M&A deals. Hereby we can accept the Hypothesis H4: *There is a negative relationship between the share of stocks and options in the total consideration of CEO of acquirer and probability of overpayment.*

The other finding, is that companies with better operating performance, measured as the ratio of OCF (Operating Cash Flows) to the market value of assets of acquirer, held other factors constant, are subject to higher probability of overpayment when conducting acquisitions.

2.5. Main findings

In this part we are going to summarize all the findings of econometric analysis and compare them to the results of prior research on motivation for premium payments.

Results of the conducted analysis confirm the existence of significant relationship between the characteristics of the deal, target, acquirer and the size of premium paid in M&A deals. Moreover, we detected several factors that determine the decision of the acquirer's management to overpay for the target. The obtained results allowed us to accept hypotheses H1, H2 and H4.

The existence of forecast on revenue enhancements and potential cost savings, resulting from the merger, was proved to be significant for the size of the premium. The significance of this variable assumed that, as predicted by the theory, the forecasted synergies are in fact important in deciding the size of the premium. After we added the present value of forecasted synergies directly into the regression analysis, we confirmed the significance of predicted synergies in determining the premium paid and found strong positive relationship between the present value of forecasted synergies and size of the premium paid. The obtained result is in line with the neoclassical theory and empirical findings of Nielsen and Melicher (1973). Thus, Nielsen and Melicher empirically confirm the positive relationship between the operational synergies resulting from the deal and premium pad (Nielsen and Melicher, 1973). However, in the similar study of Ismail, findings of the regression analysis suggest that the present value of forecasted synergies does not explain the size of the premium paid (Ismail, 2011). The difference in the results can be explained by the fact that these studies were conducted for different time periods and for completely different samples.

Moreover, we found robust negative relationship between the share of stocks and options in the total consideration of CEO of acquirer and the probability of overpayment. This finding is line with the managerial hubris theory (Roll, 1986), agency theory problem (Fama, 1980; Jensen and Meckling, 1976; Jensen, 1986) and recent finding of Datta et al. (2001) and Ismail (2011).

Negative correlation of the share of stocks and options in the total consideration of CEO of acquirer to the premium paid indicates to the fact that when the CEO of the acquirer is personally interested in the future of the company, he/she tends to avoid overpayments, which might negatively influence the future performance of the company and, hence, his/her own wealth.

Based on the obtained results of regression analysis, we reject hypothesis H3, as for our sample the variable, which reflects the share of stocks and options in the total CEO consideration of target is found to be insignificant.

Furthermore, we recognize other characteristics of the deal, target and acquirer, apart from the ones mentioned in hypotheses, to be statistically significant.

Both, the size of acquirer and target, measured as natural logarithm of market value of assets, have negative relationship with the size of the premium paid. Thus, larger acquirers, if taken other factors fixed, tend to pay smaller premiums and for larger targets premiums paid are generally smaller. Moreover, we reveal negative correlation of probability of overpayment to the size of target. The reasoning behind the negative correlation between the premium paid and size of the acquirer can be that larger companies might have greater bargaining power and, hence, can avoid overpaying. The explanation of the negative relationship between the premium/probability of overpayment and size of the target might be that larger companies tend to have more diluted ownership, and, hereby, for the acquirer it is easier to persuade the shareholders of the target to conduct the deal. These results are consistent with the findings of Ismail, 2011.

Our analysis indicates the existence of negative relationship between the deal value scaled by the market capitalization of the acquirer and premium paid. Hence, the findings suggest that the more important is the deal for the acquirer, assuming that the deal value in relation to the size of the acquirer can be used as a proxy for the strategic importance of the deal, the more careful is the acquirer regarding the estimation of the fair price of the target. In many cases deal size in relation to the market capitalization of the acquirer can be used as a reasonable proxy for the strategic importance of the deal for the acquirer as it is obvious that larger deals will have a greater impact on the future performance and effectiveness of the company.

The leverage of both target and acquirer is found to be significant in determining the size of the premium.

Based on the obtained results, we find that there is not only a positive relationship between the leverage of the target, measured as the ratio of debt to the market value of assets of the target, and the size of the premium but the increase in the debt load level of the target also increases the probability of overpayment, when other factors are held constant. We interpret this finding in the following way: companies with higher leverage, have lower WACC and acquirers

might be ready to overpay for targets with low WACC as all the future Cash Flows will be discounted at a lower cost of capital and their present value will be higher. This might give an acquirer a certain ability to overpay without incurring losses.

We find negative correlation of the ratio of debt to the market value of assets of the acquirer to the size of the premium. This can be explained by the fact that acquirers often use debt as a source of financing the acquisition: the larger is the preacquisition level of debt in relation to the market value of assets, the less new debt can be attracted and the higher is the cost of carrying additional debt. Hence, the larger is the preacquisition level of debt, the more expensive is the financing of acquisition and acquirer is limited in his ability to pay a high premium. This finding is consistent with the results of empirical study conducted by Ismail, 2011.

The last but not the least is that our study suggests that companies with better operating performance, measured as the ratio of OCF (Operating Cash Flows) to the market value of assets, held other factors constant, tend to pay higher premiums and are subject to higher probability of overpayment when conducting acquisitions. The reasoning might be that companies with high OCF have more disposable cash flows due to the strong operating performance and, hence, have more freedom in conducting expensive acquisitions.

Summary

In this chapter with the help of econometric analysis we have identified factors that determine the size of the premium in M&A deals. Moreover, we have recognized characteristics of the deal, target and acquirer that impact the management's decision to overpay for the target. Overpayment was defined as the positive difference between the premium paid and present value of forecasted synergies.

We have empirically confirmed the existence of robust positive relationship between the size of the premium paid and present value of forecasted synergies and, hence affirmed the postulates of neoclassical theory.

Apart from strong impact of present value of forecasted synergies on the premium paid we have determined the positive relationship between the premium and operating performance of the acquirer; and leverage of the target. Size of the acquirer and target, debt load level of the acquirer, relative importance of the deal for acquirer were found to have negative correlation with the size of the premium paid.

As for the probability of overpayment, we have identified the empirical evidence of robust negative relationship between the share of stock and options in the total CEO consideration of the acquirer and probability of overpayment. This finding allowed us to

conclude that, as predicted by agency theory, personal interests of acquirer's CEO do have an impact on the decision whether to overpay for the target or not.

Furthermore, we have determined the negative correlation between the size of the target and probability of overpayment; positive relationship between the operating performance of the acquirer and probability of overpayment.

CONCLUSION

In this paper factors that determine the size of the premium and probability of overpayment in M&A deals were analyzed. The goal of the study was to determine the relationship between the premium paid and characteristics of acquiring and target companies and of the deal. In the furtherance of the stated goal all the research objectives we achieved.

Thus, in the first step we have briefly investigated theoretical concepts of M&A process and considered key components of the price paid in M&A deals. Furthermore, we have analyzed theoretical approaches to motivation for premium payments and reviewed contemporary research on motivation for premium payments. In the next step we have conducted an econometric analysis which helped us to identify factors that determine the size of the premium in M&A deals and probability of overpayment.

The findings of regression analysis confirmed the postulate of neoclassical theory: there is in fact strong positive relationship between the present value of forecasted synergies and premium paid in M&A deals.

Furthermore, we have identified other characteristics of the deal, target and acquirer to be significant in determining the size of the premium paid. Thus, we have determined the existence of positive relationship between the premium and operating performance of the acquirer; leverage of the target. Moreover, size of the acquirer and target, debt load level of the acquirer, relative importance of the deal for acquirer were found be negatively correlated to the size of the premium paid.

Regarding the probability of overpayment, we have identified robust negative relationship between the share of stock and options in the total CEO consideration of the acquirer and probability of overpayment, implying that personal interests of acquirer's CEO influence the decision whether to overpay for the target or not. The findings also confirm the existence of negative relationship between the size of the target and probability of overpayment; positive correlation of probability of overpayment to the operating performance of the acquirer.

The obtained results allowed us to accept three out of four stated hypotheses:

H1: The existence of the forecast on synergies is relevant in explaining the size of the premium.

H2: There is a positive relationship between the size of the premium and present value of forecasted synergies.

H4: There is a negative relationship between the share of stocks and options in the total consideration of CEO of acquirer and probability of overpayment.

The hypothesis H3 was rejected: the positive relationship between the share of stocks and options in the total consideration of CEO of target and probability of overpayment was not found for the considered sample.

Based on the findings of the current study, we develop a set of managerial implications, which could potentially help managers to conduct "fair" M&A deals:

- When conducting an M&A deal it is crucial to forecast synergies in order to determine a "fair price" of the target;
- It is essential to develop realistic forecasts of synergy gains in order to avoid overpayments;
- It is necessary to conduct a careful analysis of the target you are acquiring, as its characteristics do matter for the size of the payment;
- Current debt load level and operating performance of the acquirer are relevant in determining the size of payment, the acquirer can afford without incurring future losses;
- It is important to be mindful of opportunistic behavior of certain "personally interested" parties when conducting an M&A deal.

We believe, that, nevertheless, proposed managerial implications seem evident, following these simple rules could help management of the acquirer to avoid paying ambiguously high premiums for the benefit of their company.

The contribution of this study is the coherent and thorough analysis of factors that determine the size of premium paid in M&A deals and probability of overpayment. Study of motivations for premium payments typical for the developing markets could be valuable field for further research, taking into account the fact that until now most of the studies devoted to the premiums in M&A deals focused on the analysis of developed countries, namely USA.

REFERENCES

Alexandridis, G., Petmezas D., and Travlos, N. 2010. Gains from Mergers and Acquisitions around the World: New Evidence. *Financial Management* 39: 1671-1695.

Andrade, G., Mitchell, M., and Stafford, E. 2001. New Evidence and Perspectives on Mergers. *Journal of Economic Perspectives* 15: 103-120.

Arzac, E. 2005. *Valuation for mergers, buyouts and restructuring*. New York: John Wiley & Sons.

Bayazitova, D., Kahl, M., and Valkanov, R. 2010. Which Mergers Destroy Value? Only Mega-Mergers. Working Paper. University of North Carolina.

Berkovitch, E., and Narayanan, M. 1993. Motives for Takeovers: An Empirical Investigation. Berkovitch E. and Narayanan M. *Journal of Financial and Quantitative Analysis* 3: 347-362.

Bernile, G. and Bauguess, S. 2010. Do Merger Synergies Exist? Working Paper. University of Miami.

Bozos, K., Ratnaike, Y., and Alsharairi, M. 2014. How has the international harmonization of financial reporting standards affected merger premiums within the European Union? *International Review of Financial Analysis* 31: 48-60.

Bradley, M., Desai, A., and Kim, E. 1988. Synergistic Gains from Corporate Acquisition and Their Division between the Shareholders of Target and Acquiring Firms. *Journal of Financial Economics* 21: 3-40.

Bruner, R.F. 2004. *Applied Mergers and Acquisitions.* 4th ed. — New Jersey, USA: Wiley Finance.

Campa, J.M., and Kedia, S. 2002. Explaining the Diversification Discount. *The Journal of Finance* 57: 1731-1762.

Copeland, T., Koller, T., and Murrim, J. 1991. *Valuation.* New York: John Wiley & Sons.

Damodaran, A. 2002. *Investment valuation.* New York: John Wiley & Sons.

Damodoran A. 2005. *The Value of Synergy*. Stern School of Business.

Datta, S., Iskandar-Datta, M., and Raman, K. 2001. Executive Compensation and Corporate Acquisition Decisions. *Journal of Finance* 56: 2299-36.

Davidson, I. 1985. Takeovers: Partitioning of Gains and Pareto Improvement in a Rational Market with Asymmetric Information. *Journal of Business Finance and Accounting* 12: 373-385.

Depamphilis, D. 2001. *Mergers, acquisitions and other restructuring activities*. San Diego: Academic Press.

Devos, E., Kadapakkam, S., and Krishnamurthy, S. 2009. How Do Mergers Create Value? A Comparison of Taxes, Market Power, and Efficiency Improvements as Explanations for Synergies. *Review of Financial Studies*: 1179-1211.

Dutordoir, M., Roosenboom, P., and Vasconcelos, M. 2010. Synergies Disclosure in Mergers and Acquisitions / Dutordoir, M., P. Roosenboom, and M. Vasconcelos. Erasmus University Working Paper, Erasmus University.

Eckbo, E., Giammarino, R., and Heinkel, R. 1990. Asymmetric Information and the Medium of Exchange in Takeovers: Theory and Tests. *Review of Financial Studies* 3: 651-675.

Faccio, M., and Masulis, R. 2005. The Choice of Payment Method in European Mergers and Acquisitions. *Journal of Finance* 60: 1345-1388.

Fama, E. 1980. Agency Problems and the Theory of the Firm. *Journal of Political Economy* 88: 288-307.

Grinstein, Y., and Hribar, P. 2003. CEO Compensation and Incentives — Evidence from M&A Bonuses. Working paper. Cornell University.

Haunschild, P. 1994. How much is that Company Worth?: Interorganizational Relationships, Uncertainty, and Acquisition Premiums. *Administrative Science Quarterly* 34: 391-411.

Hawawini, G.A., and Swary, I. 1990. *Mergers and Acquisitions in the U.S. Banking Industry: Evidence from the Capital Markets*. New York: Elsevier Science Publishers.

Hayward, M. and Hambrick, C. 1997. Explaining the Premium Paid for Large Acquisitions: Evidence of CEO Hubris. *Administrative Science Quarterly* 42 (1): 103-127.

Hietala, P., Kaplan, S.N., and Robinson, D.T. 2003. What Is the Price of Hubris? Using Takeover Battles to Infer Overpayments and Synergies. *Financial Management* 32: 5-31.

Houston, J., Janes, C., and Ryngaert M. 2001. Where Do Merger Gains Come from? Bank Mergers from the Perspective of Insiders and Outsiders. *Journal of Financial Economics* 60: 285-331.

Isidore, C. 2007. Daimler pays to dump Chrysler. CNN Money. URL: http://money.cnn.com/2007/05/14/news/companies/chrysler_sale/?postversion=2007051410 (accessed at 07.02.2016).

Ismail, A. 2011. Does the Management's Forecast of Merger Synergies Explain the Premium Paid, the Method of Payment, and Merger Motives. *Financial Management Journal*: 879 - 910.

Jensen, M.C. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics* 3: 305-360.

Jensen, M.C. 1986. Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *American Economic Review* 76: 323-329.

KPMG LLP. 2016. *U.S. executives on M&A: full speed ahead in 2016.*

Moeller, S., Schlingemann, F., and Stulz, R. 2004. Firm Size and the Gains from Acquisitions. *Journal of Financial Economics* 73: 201-228.

Morris, J. 2000. *Mergers and acquisitions, business strategies for accountants.* New York: John Wiley & Sons.

Nielsen, J.F., and Melicher, R.W. 1973. A financial analysis of acquisition and merger premiums. *Journal of Financial and Quantitative Analysis.*

Officer, M. 2003. Termination Fees in Mergers and Acquisitions. *Journal of Financial Economics* 69: 431-467.

PR Newswire. URL: http://www.prnewswire.com/news-releases/ (Accessed1February 3, 2016).

Rappaport, A. 1998. *Creating shareholder value*. New York: The free press.

Reed, S.F., Lajoux, A., and Nesvold, H.P. 2007. *The Art of M&A: A Merger Acquisition Buyout Guide*. 4th ed. McGraw-Hill.

Rhodes-Kropf, M., and Viswanathan, S. 2004. Market Valuation and Merger Waves. *Journal of Finance* 59: 2685-2718.

Rhodes-Kropf, M., Robinson, D., and Viswanathan, S. 2005. Valuation Waves and Merger Activity: The Empirical Evidence. *Journal of Finance* 77: 561-603.

Roll, R. 1986. The Hubris Hypothesis of Corporate Takeovers. *Journal of Business* 59: 197-216.

Ross, S.A., Westerfield, R.W., and Jaffe, J. 2010. *Corporate finance. International edition*. McGraw-Hill.

Roumeliotis, G., and Barbaglia, P. 2015. Second-quarter M&A close to record amid mega deals. Reuters News Agency. URL: http://www.reuters.com/article/us-deals-m-a-idUSKCN0P92WN20150629 (accessed February 1, 2016).

Ruback, R. 2002. Capital Cash Flows: A Simple Approach to Valuing Risky Cash Flows. *Journal of Financial Management* 31: 85-103.

Sharma, V. 2009. Do Bank Mergers create Shareholder Value? An Event Study. Introduction to econometrics. *Journal of Finance* 65: 2-21.

Sherman, A., and Hart, M. 2006. *Mergers and acquisitions from A to Z*. New York: AMACOM.

Shleifer, A., and Vishny, R. 2003. Stock Market Driven Acquisitions. Journal of Financial Economics 70: 295-311.

Slusky, A.R., and Caves, R.E. 1991. Synergy, Agency, and the Determinants of Premia Paid Mergers. *Journal of Industrial Economics* 39: 277-296.

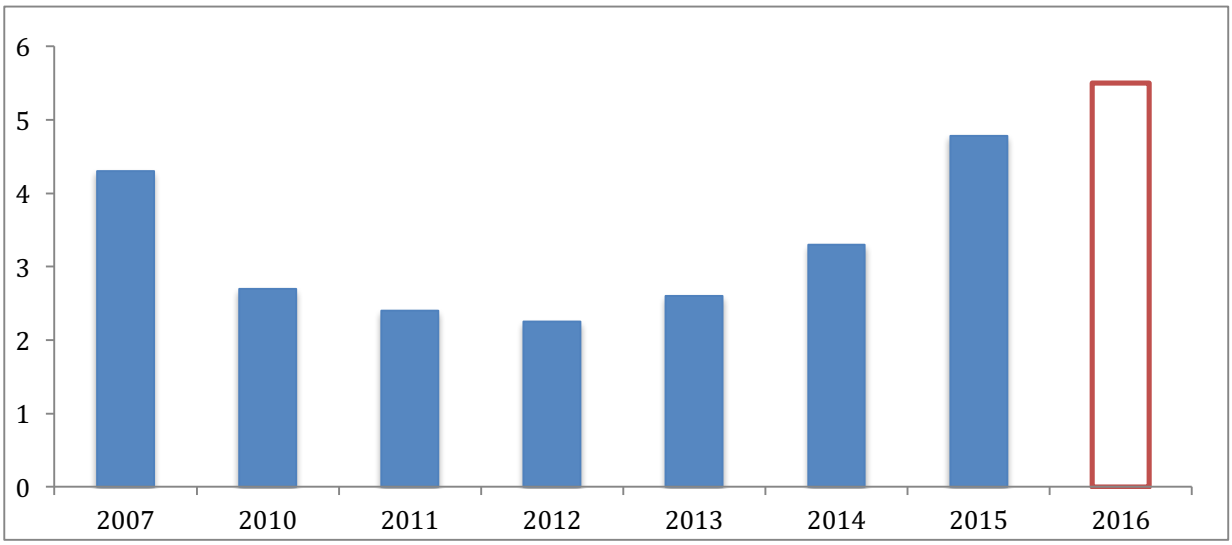
U.S. Securities and Exchange Commission. URL: https://www.sec.gov/

Weston, F., Chung K., and Siu, J. 1998. *Takeovers, restructuring and corporate governance*. Prentice Hall.

Winer, B. 2002. Quaker Oats and Snapple. Case № 1-0041. Tuck School of Business at Dartmouth.

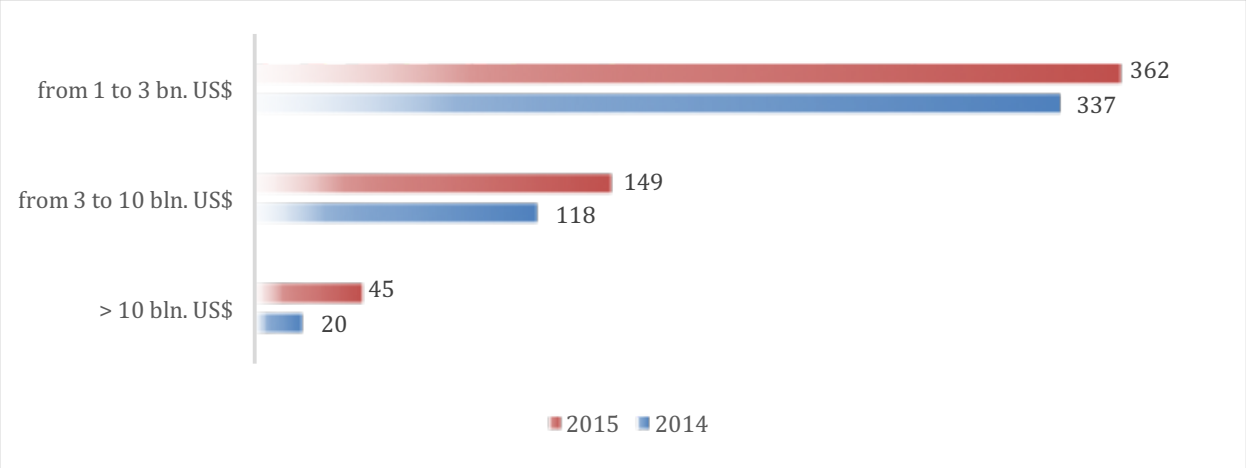
APPENDIX

Appendix 1. Global M&A activity worldwide, trln. US $.



Source: Based on KPMG report on M&A activity.

Appendix 2. Number of "mega" deals conducted in 2014 and 2015.



Source: Based on data from Thomson Reuters Database.

Appendix 3. Calculation of independent variables.

№	Name	Abbreviation in Stata	What it represents	Method of calculation
Deal characteristics				
1.	Relative size	*relsize*	Relative size of the target to the acquirer	MV of equity of the target 1 month prior to deal announcement / MV of equity of the acquirer 1 month prior to deal announcement Used by Ismail, 2011
2.	Relative deal size	*reldealsize*	Relative size of the deal to the size of the acquirer	Deal value/ MV of equity of the acquirer 1 month prior to deal announcement Used by Ismail, 2011
3.	Length of negotiations	*length*	Length of negotiations	The difference in days between the date effective and announcement date
4.	SIC	*sic*	Similarity of sectors according to SIC classification	Binary variable: target and acquirer are from the same sectors according to SIC (Standard Industrial Classification) – 1, otherwise – 0
5.	Deal attitude	*att*	Shows whether acquisition was friendly or hostile	Binary variable: friendly acquisition – 1, hostile acquisition - 0
6.	Competition	*comp*	Shows whether there was one or several potential buyers	Binary variable: if there was one potential acquirer – 0, more than 1 potential acquirer - 1
7.	Payment	*cash* *shares*	Shows whether the payment was done in cash(shares) or not	Binary variable: if the payment is done in cash(shares) – 1; if not – 0 Applied by Eckbo, Giammarno and Heinkel, 1990; Sheilfer and Vishny, 2003

Characteristics of the acquirer				
1.	Forecast	*forecast*	Shows whether the management of the acquirer has numerically forecasted and published expected synergies.	Binary variable: if the management of the acquirer has forecasted synergies – 1, otherwise 0.
2.	LN (Assets MV)	*lnassmvac*	Variable represents the size of the acquirer	Natural logarithm of Market Value of assets of the acquirer; $MV\ assets = BV\ of\ assets - BV\ of\ equity + MV\ of\ equity$ Applied by Ismail, 2011
3.	M/B	*mbac*	Perception of the company by the market	Market value of equity 1 month prior to announcement of the deal/ Book value of equity (last available prior to deal announcement) Applied by Rhodes-Kropf et al., 2005; Rhodes-Kropf and Viswanathan, 2004
4.	Debt/MV Assets	*debtassmvac*	Variable reflects the leverage of the company	Debt/ Market Value of Assets
5.	OCF/MV Assets	*ocfassmvac*	Variable represents the operating performance of the use of company	Operating Cash Flow (last available prior to deal announcement) / Market Value of Assets Applied by Moeller et al., 2004
6.	CEO compensation	*ceoac*	Total CEO compensation relative to Book Value of assets	Total CEO compensation for the last year before the deal announcement / Book value of assets (last available prior to deal announcement)

7.	Options and Shares compensation	*stockoptceoac*	Share of Stock and Options in CEO's compensation	Value of Stock and Options awards/ Total CEO compensation for the last year before the deal announcement Applied by Datta et al, 2001; Ismail, 2011
8.	Synergy ratio	*pvsynmveqt*	Shows the amount of forecasted synergies resulting from the deal relative to the size of the target	Explained in the methodology part.
Characteristics of the target				
1.	LN (Assets MV)	*lnassmvt*	Variable represents the size of the acquirer	Natural logarithm of Market Value of assets of the target; $MV\ assets = BV\ of\ assets - BV\ of\ equity + MV\ of\ equity$ Applied by Ismail, 2011
2.	M/B	*mbt*	Perception of the company by the market	Market value of equity 1 month prior to announcement of the deal/ Book value of equity (last available prior to deal announcement) Applied by Rhodes-Kropf et al., 2005; Rhodes-Kropf and Viswanathan, 2004
3.	Debt/MV Assets	*debtassmvt*	Variable reflects the leverage of the company	Debt/ Market Value of Assets
4.	OCF/MV Assets	*ocfassmvt*	Variable represents the "efficiency" of the use of assets	Operating Cash Flow (last available prior to deal announcement) / Market Value of Assets Applied by Moeller et al., 2004

5.	CEO compensation	*ceoac*	Total CEO compensation relative to MV of equity	Total CEO compensation for the last year before the deal announcement / Book value of assets (last available prior to deal announcement)
6.	Options and Shares compensation	*stockoptceoac*	Share of Stock and Options in CEO's compensation	Value of Stock and Options awards/ Total CEO compensation for the last year before the deal announcement Applied by Datta et al, 2001; Ismail, 2011