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Determinants of Acquisition Premiums in M&A-Transactions - An Analysis of Deal Characteristics

Research Paper

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Abstract

The present study examines the acquisition premiums of M&A transactions and analyzes their deal-specific determinants. It can be shown that there are considerable group differences between countries and industries. In addition to a whole range of other significant influencing factors, the share that the acquirer owns after the transaction shows a highly significant positive influence. In other words: the more control you seek, the more you pay.

1 Introduction

When determining the offer price in the context of corporate takeovers, the board of the acquirer company is in a subtle tense relationship. On the one hand, a too low offer may result in the takeover bid being unsuccessful. On the other hand, an inappropriately high offer results in a high risk for the acquiring company and in an increased risk of being held personally liable for the board members due to directors and officer's liability (D&O). One option for the board members of the acquiring company to hedge against the personal liability are so-called fairness opinions. These are expert opinions, in particular prepared by auditors, who review the appropriateness of the company valuation underlying the takeover offer.

Acquisition premiums are a widely-discussed topic in the academic and business world. Eichner (2017) was recently able to show that expected synergies that may result from a transaction have a significant impact on the observed takeover premium. Furthermore, the immediate access to new geographic markets shows a positive impact on the acquisition premium. Rösle and Lesser (2016) present a comprehensive analysis of takeover premiums by country, sector, type, and time comparison. The present study would like to follow up to this purely descriptive study and contribute a large scaled empirical analysis of acquisition premiums based on deal specifics. On the basis of 38.446 observed transactions, takeover premiums are decomposed by Ordinary Least Squares Regression. The results can be used as a systematic reflection of earlier findings in the extant literature and define benchmarks for future takeovers in corporate practice, i.e. in fairness opinions. Accordingly, the results provide board members and their advisors with the opportunity to assess the appropriateness of takeover bids and it contributes to the scientific community a large sample replication study to underpin recent findings.

The paper is divided into two parts: (i) The review of the extant literature which provides evidence of the premium components, and (ii) the empirical analysis of acquisition premiums, which can then be used as a benchmark for practice.

2 Literature review on takeover premiums

Takeover premiums as a wave phenomenon over time

The historical development of the M&A market shows that it has taken a wave-like course, so-called M&A waves, both in terms of the number of transactions and transaction sizes and the associated premiums. M&A waves are influenced by macroeconomic factors (Meier, Boysen-Hogrefe & Spoida, 2016). There are various explanations in the literature for the occurrence of such movements. Lambrecht (2004) states that the timing of acquisitions goes hand in hand with the economies of scale in expansion phases. The so-called merger synergies increase with product demand on the market and therefore lead to procyclical M&A waves. Shleifer and Vishny (2003), Rhodes-Kropf, Robinson and Vishwanathan (2005), as well as Cai and Vihj (2007) postulate that M&A waves are triggered by the overvaluation of acquiring companies in the stock market. Mitchell and Mulherin (1996), Harford (2005), and Ovtchinnikov (2005) explain the waves through economic shocks while Goel and Thakor (2010) argue that the envy of managers in conjunction with exogenous shocks generate M&A waves. Garfinkel and Hankins (2011) describe the circumstances of risk management as a significant driver of M&A activity. The increased willingness to integrate vertical business relationships acts as an effective risk management tool and initiates M&A waves as well as rising cash flows. Chidambaran et al. (2010) indicate that takeover premiums in so-called "hot markets" are higher than in "cold markets". They define the M&A market as being "hot" ("cold") when the 12-month level of each year's M&A activity is above (below) the median of the 12-month level of all transitions. Looking at the volume of all acquisitions in hot markets, the takeover premium averages 61%. In contrast, the average premium in the cold markets is 35.1%.

Takeover premiums as a phenomenon of the national institutional framework and as a phenomenon of cross-border transactions

In a large number of studies, the influence of capital market-oriented and bank-oriented financial systems on the level of takeover premiums is addressed. In a long-term study, Levine (2002) examines the relevance of banks and financial markets for M&A transactions. According to his findings, Germany and Japan are to be distinguished as bank-oriented and the US and UK as capital market-oriented economies (also Edwards & Fischer, 1994). The overall goal of capital market-oriented financial systems is to maximize shareholder value, while bank-oriented systems tend to serve the needs of all stakeholders according to the approaches of the stakeholder value (Sutherland, 2005). It can be deduced from the two divergent approaches that higher takeover premiums are paid especially in capital market-oriented countries. Rossi and Volpin (2004) support this statement by recognizing that takeover premiums are significantly higher in countries with significant investor protection. La Porta et al. (1997, 1998) add that investor protection stimulates M&A activity. In countries with low investor protection, the ownership structure is highly concentrated. It therefore correlates negatively with the number of M&A transactions and thus also with the takeover premiums. In their working paper, Jackson and Miyajima (2007) distinguish free market economies like UK and US from coordinated market economies for example like Japan, France and Germany. They show that the 1-month premium between 2000 and 2005 is relatively larger in the US (40.8%) and the UK (34.4%), compared to the premiums in Germany (24.1%) and France (22.3%). Japan (1.78%) has significantly lower premiums. The authors argue that the low premiums in the coordinated market economy are accompanied by the protection of certain stakeholders.

Swenson (1993) examines the impact of overseas buyer companies on the takeover premium of U.S. companies. The author shows that the premium for cross-border transactions is significantly higher (10.9%) compared to domestic transactions. Rossi and Volpin (2004) find that cross-border transactions are associated with higher takeover premiums in general. Dyck and Zingales (2004) state that high premiums are due to underdeveloped capital markets and the degree of ownership concentration. Goergen and Renneboog (2004) postulate that the takeover premium depends on the location of the target company. They also mention owner concentration, takeover regulation, investor protection and transparency as key features. In addition, the authors show that in all European countries, apart from the Benelux countries, higher premiums are paid for cross-border transactions than

for domestic transactions. In addition to European countries, Zhu and Jog (2009) analyzed the emerging markets and associated takeover premiums. The authors show that foreign acquiring companies pay significantly higher premiums (8.2%) than domestic acquiring companies (7.2%). The authors argue that buyer companies pay lower takeover premiums if they have experience with the target nation. They conclude that the level of the takeover premiums is positively correlated with the degree of existing information asymmetry. The premium is therefore paid to obtain information that is not available on the market.

Takeover premiums as an industry-specific phenomenon and as a cross-industry phenomenon

Donbolt (2004) examines British companies and divides them into counter-cyclical and cyclical sectors. The author states that higher premiums are paid for counter-cyclical consumer goods companies compared to cyclical companies. Both, Dutz (1989) and Meschi (1997) examine stagnating industries. They show that horizontal transactions in stagnant industries show higher premiums due to a more efficient allocation of resources using free cash flow. Cakici, Hessel and Tandon (1991) as well as other authors compared the takeover premiums of various industries in the US. The comparison shows that the highest premiums were paid in the manufacturing sector (62%) and in the oil and gas industry (59%). Their findings justify the different accounting approaches with any tax benefits. Gaspar, Massa and Matos (2005) show in their study that the target companies achieve a higher premium in intra-industry transactions. Alexandridis (2013) as well as other authors, on the other hand, found no statistical significance between the industry and the level of the takeover premium. Zhu and Jog (2009) show that the average takeover premium for cross-border intra-industry transactions is 12.6 percentage points higher than domestic transactions. Domestic acquisitions therefore correlate significantly negatively with the takeover premium.

Takeover premiums as a phenomenon of the public status of the companies

According to Shelton (2000), the transaction-specific determinants have the strongest impact on the takeover premium. In terms of public status, Zhu and Jog (2009) make a distinction between private and listed companies. The authors postulate in their study that private buyer companies pay a lower takeover premium than listed buyer companies. In doing so, they confirm the findings of Barger et al. (2008), who show that private buyer companies pay a lower premium (22.2%) than listed companies (31.7%). The authors explain the difference with different ownership structures. According to Demsetz and Lehn (1985), listed companies have a lower degree of owner concentration than private buyer companies. Alexandridis et al. (2013) confirm the finding that takeover premiums in conjunction with private buyer companies have a statistically significant negative regression coefficient.

Takeover premiums as a phenomenon of increasing acquisition of control

Obviously, acquiring a controlling majority requires a higher takeover premium than acquiring minority interests (Ouimet, 2013). Walking and Edmister (1985) state in their study that the takeover premiums for majority shares are 9 percentage points higher than the premiums paid in the acquisition of minority interests. Zhu and Jog (2009) and further authors support the finding of a positive correlation between the acquisition of the controlling majority and the takeover premium (Williamson, 1971; Williamson, 1983; Williamson, Wachter & Harris, 1975; Teece, 1980; Damodaran, 2012).

Takeover premiums as a phenomenon of takeover behavior

In the M&A literature, a distinction is made between friendly and hostile takeovers. Franks and Mayer (1996) found that the average takeover premium is 18% in the case of a friendly takeover, while the premium on a hostile takeover is estimated at 30% on average. The authors explain the difference due to high competition between buyer companies in hostile takeovers. Jensen (1988) also concludes that premiums in hostile takeovers are significantly higher. Goergen and Renneboog (2004) observe much higher mark-ups on hostile takeovers. An

effective means to protect against hostile takeovers are defensive measures such as the so-called "poison pills" or "golden parachutes". Among other measures, "poison pills" embrace capital increases or the purchase of small companies with own shares (Wachtell et al. 1998). Golden parachutes are lucrative severance commitments that must be paid to the management of the target company in the event of a takeover, if the previous management leaves the company (Dombret, Krahnert & Stehle, 2006). In his study, Varaiya (1987) examines the relationship between the premium paid and the use of such defensive measures. The author states that the stronger the target company uses defensive measures, the higher the premium. Resistance to hostile takeovers in connection with the takeover premium was also examined by Flanagan and O'Shaughnessy (2003). The authors conclude that poison pills have a significant impact (+ 14.16%) on the premium level. Healy, Palepu and Ruback (1997) do not only consider the takeover behavior but also the payment method with which the takeover was financed. The authors point out that cash-financed, hostile takeovers paid on average higher premiums (50%) than equity-financed friendly takeovers (29%).

Takeover premiums as a phenomenon of the payment modality

The selection of a particular payment method can be explained by the existence of information asymmetries (Hansen, 1987; Travlos, 1987). Furthermore, the choice of the payment method allows for certain conclusions about the current situation of the buyer company. In the extant M&A literature it is assumed that overvalued acquirers tend to choose a share swap, whereas undervalued acquirers prefer cash offers. In the boom period of the dot-com bubble between mid-1999 and early 2000, M&A transactions were predominantly made with shares due to high stock prices (Dombret, 2002). The following empirical studies come to the conclusion that takeover premiums are significantly higher for cash-based transactions than for equity-based transactions. Wansley, Lane and Yang (1983) could empirically demonstrate that the shareholders of the target company received takeover premiums of up to 34% per share for cash-based transactions. In their study Davidson and Cheng (1997) showed premium differences between 39.9% for cash-based and 29.3% for equity-based transactions and thus showed significantly higher premiums for cash-based transactions. Goergen and Renneboog (2004) were also able to demonstrate significantly higher takeover premiums for such activities. Wansley, Lane and Yang (1987) explain the premium divergence with tax aspects. As a result, lower premiums are paid for stock-based transactions because the stock swap generates unrealized gains for the shareholders of the target company. This goes hand in hand with Davidson and Cheng's (1997) explanation, which blames the compensation of the tax burden of the target company's shareholders for the premium amount in cash-based acquisitions. Goergen and Renneboog (2004) on the other hand argue, that the cash payment is associated with an undervaluation of the acquirer company. As a result, acquirers pay high premiums in order not to let the shareholders of the target company participate in the evaluation of their company. Another explanation is provided by Stulz (1988), by Amihud, Lev and Travlos (1990), and by Ghosh and Ruland (1998). According to the authors, the choice of payment methodology is related to the shareholding of the managers in their own company. The more shares the managers own, the more likely the buyer companies are to pay cash to secure their position in the company.

Takeover premiums as a phenomenon of corporate and transaction size

The larger the target company in terms of transaction volume, the fewer interested parties enter the market to finance such acquisitions and integrate the companies (Gorton, Kahl & Rosen, 2009, pp. 1291). Alexandridis et al. (2013) postulate that the size of the target company is negatively correlated with the level of the takeover premium. Regression analysis shows that the premium decreases by 6.8 percentage points when the standard deviation of the logarithmized deal volume is increased by one. In addition, large companies often have a low owner concentration of managers (Demsetz & Lehn, 1985), which in turn results in managers being more likely to accept a lower takeover premium (Bauguess, Moeller, Schlingemann & Zutter, 2009). Zhu and Jog (2009), on the other hand, state that the takeover premium correlates positively with the size of the deal. They argue that acquisitions with relatively high transaction volumes have greater economic relevance for the buyer companies and are therefore willing to pay higher premiums. Moeller, Schlingemann and Stulz (2004) also show significantly higher takeover premiums for large companies. The authors explain the difference with the above mentioned

hybris of the managers. The results are confirmed by the work of Morck, Shleifer and Vishny (1990), Loderer and Martin (1990), Grinstein and Hribar (2004), and Herford and Li (2007). These authors find that managers pay a higher premium for large companies, as these correlate positively with their private benefits.

Further empirical determinants of takeover premiums

Further empirically proven determinants of the level of takeover premiums are the use of different valuation approaches (Varaiya, 1987), such as: the market value-to-book ratio (Tobin's Q) (Jovanovic & Rousseau, 2002), the relative undervaluation of the target company to the paid takeover premium (Walkling & Edmister, 1985; Varaiya, 1987; Weston, Chung & Hoag, 1990), the leverage ratio of the target company (Walkling & Edmister, 1985), the personal interest of the managers (Empire-Building) (Müller, 1969; Shleifer & Vishny, 1989; Berle & Means, 1932; You, Cave, Smith & Henry, 1986), the overconfidence of the managers (manager-hubris) of the buying company (Roll, 1986; Hayward & Hambrick, 1997; Hayward & Hambrick, 1997; Hayward & Hambrick, 1997; Goergen & Renneboog, 2004; Varaiya, 1988), the existence of high free cash flows according to Jensen's free cash flow hypothesis (Jensen, 1986; Slusky & Caves 1991; Nielsen & Melicher, 1973), takeover-related synergy effects (Varaiya & Ferris, 1987; Flanagan & O'Shaughnessy, 2003), the exclusivity of the contract negotiations (Walkling & Edmister, 1985; Slusky & Caves, 1991; Stackelberg, 1934; Varaiya, 1987; Walkling & Edmister, 1985; Flanagan & O'Shaughnessy, 2003; Slusky & Caves, 1991, and the present offer type (merger offer / merger offer or tender offer tender offer) (Offenberg & Pirinsky, 2015).

3 Hypothesis Formulation

For the present study, based on the empirical results of Chidambaran and other authors, that the merger marked underlies waves, it can be expected that in certain years of the investigation period the premium will be significantly different if compared to other years. Accordingly, there is a cluster-alike behaviour well measurable as yearly differences (*Hypothesis 1*). Referring to the statements of Rossi and Volpin, Dyck and Zingales, and Goergen and Renneboog concerning different ownership structures and different concepts of corporate governance in individual countries, it can be assumed that the effects of countries differ at the premium level. The assumption is confirmed by the results of Jackson and Miyajima, who show that premiums in countries with market economies (UK, USA) are higher than in countries with coordinated market economies (Germany, France, Japan). Based on the analyses of Swenson and Rossi and Volpin, a significant positive correlation between the premium and cross-border transactions can be assumed (*Hypothesis 2*). Considering the findings of Dutz, Meschi, and Donbolt regarding growth prospects and the impact of economic cycles on specific industries, we can assume various effects of the premium for takeover in industries. According to a Gaspar, Massa and Matos study, intra industry transactions have a significant impact on the level of premiums (*Hypothesis 3*). According to the papers of Zhu and Jog, Bargeron, and Alexandridis and further authors, private buyers of the company have a negative impact on the level of premium for takeover (*Hypothesis 4*). A study conducted by Walkling and Edmister indicates a positive degree of efficiency in terms of the level of premium and the amount of the acquired share (*Hypothesis 5*). In addition, according to the findings of Franks and Mayer, Jensen, and Goergen and Renneboog, it can be assumed that during hostile takeovers, relatively high takeover premiums are paid (*Hypothesis 6*). The empirical findings of Wansley, Lane and Yang, Davidson and Cheng, and Goergen and Renneboog support the thesis that payment methods have a significant impact on the takeover premiums (*Hypothesis 7*). Finally, against the background of personal motives, as the studies of Morck, Shleifer and Vishny, Moeller, Schlingemann and Stulz, Harford and Li, and Zhu and Jog showed, the transaction volume as an indicator of the size of the target company suggests a positive impact on the takeover premium. (*Hypothesis 8*).

4 Methodology and Sample

This study is based on 314,623 transactions in the M&A database of Thomson Reuters Dealscreener, which were announced between January 1990 and December 2018 and subsequently completed. All transactions in which the specified company was listed as a target company were taken into account. In addition, only those transactions could be considered where one-day ahead premium as the dependent variable is given. Share repurchases were excluded from the sample as well as very small deals with a deal size below one million USD. 38.747 transactions remained in the sample whereof 38.446 were complete cases for the analysis. Due to the small number of missing values (0,77%) we abstain from analysing the missing specifically as the risk of a selection bias is rather low.

The estimated premium (PREM) in terms of the following analysis is the result of the relationship between the paid purchase price and the closing price four weeks prior the announcement of a takeover intention. Additionally, and for the purpose to check for robustness we also apply the 1-week and 1-day prior announcement premium. The latter two may already embrace traces of information leakages in the market price as the denominator, so that the premium offered is already included in the stock price. Due to the fact that these dependent variables induce a very high number of influential observations identified by Cook's distance, we winsorize these variables on the 1% and 99%-interval instead of case wise deletion.

As explanatory variables we use due to our *hypothesis 1* the year of announcement (YEAR) as a factor variable on the factor levels 1990 to 2018. The year 1990 is considered as benchmark. Due to our *hypothesis 2*, the acquirer's nation (ACQN) and the target's nation (TARN) were both included as factor variables with the levels Africa, Asia, Australia-New Zealand, Austria, Belgium-Netherlands-Luxemburg (BeNeLux), China, other Europe, France, Germany, India, Italy, Japan, Middle- and South Americas (MSA), Poland, Scandics, Spain,

Switzerland, UK, USA-Canada, and unknown. Germany is considered as benchmark here. Further we include the dichotomic variable Equal Nation (EQUN). Due to our *hypothesis 3* we include the factor variables Consumer Cyclicals, Basic Material, Consumer Non-Cyclicals, Cyclical Consumer Goods and Services, Energy, Financials, Governmental Services, Healthcare, Industrials, Non-Cyclical Consumer Goods and Services, Non-Profit/Private Organizations/Services, Technology, Telecommunications Services, Utilities, and unknown for both, acquirer (ACQI) and target (TARI). Consumer Cyclicals are used as benchmark here. Equal Industry (EQUI) is further included as a dummy. Furthermore, we included due to the other hypotheses: Acquirer Public Status (APUB) and Target Public Status (TPUB) with public as benchmark and private as well as unknown as factors, Acquired Share (ACQS), Percent Acquirer is Seeking (PEAS), and Percent owned after Transaction (POAT). The Takeover Behaviour (TAKB) as a factor with friendly as benchmark and hostile as well as neutral/unknowns as factors, and Payment Terms (PAYT) as factor with mixed payment as benchmark and full cash as well as full stock swap as factors. To take into account the size of completed transactions, the log deal volume (\ln_DV) is additionally included into the analysis. Accordingly, the following linear regression model is estimated using the ordinary least squares estimation:

$$\begin{aligned}
 PREM = \beta_0 & + \beta_{YEAR} \cdot YEAR & (1) \\
 & + \beta_{ACQN} \cdot ACQN + \beta_{TARN} \cdot TARN + \beta_{EQUN} \cdot EQUN \\
 & + \beta_{ACQI} \cdot ACQI + \beta_{TARI} \cdot TARI + \beta_{EQUI} \cdot EQUI \\
 & + \beta_{APUB} \cdot APUB + \beta_{TPUB} \cdot TPUB \\
 & + \beta_{ACQS} \cdot ACQS + \beta_{PEAS} \cdot PEAS + \beta_{POAT} \cdot POAT \\
 & + \beta_{TAKB} \cdot TAKB + \beta_{PAYT} \cdot PAYT + \beta_{\ln_DV} \cdot \ln_DV + \varepsilon
 \end{aligned}$$

5 Results

The descriptives of the non-winsorized and non-logarithmized metric variables are displayed in table 1. The sometimes considerably high takeover premiums are hardly explainable and bias the statistics severely.

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max
Premium...1.Day.Prior.to.Announcement	38,446	70.788	4,142.66	-100	-2.7	10	31.1	655,208
Premium...1.Week.Prior.to.Announcement	38,446	75.189	4,315.86	-100	-1.5	12.5	34.6	694,924
Premium...4.Weeks.Prior.to.Announcement	38,446	80.235	4,630.18	-100	-0.8	15.7	39.5	777,384
Percent.of.Shares.Acquired	38,446	48.554	39.863	0	10	33.8	100	102
Percent.of.Shares.Acquiror.is.Seeking.to.Purchase	38,446	50.044	39.855	0	10.6	38	100	102
Percent.of.Shares.Owned.after.Transaction	38,446	60.227	39.786	0	16.3	70	100	102
Deal.Value	38,446	579.727	3,324.15	1.001	8.69	39.962	201.011	202,785.10

Table 1: Descriptive Statistics

Accordingly, the mean value cannot be considered as a realistic benchmark. Since the median does not respond to outliers, it can therefore be considered to give a more realistic picture here. The median is 15.7% for the four-week ahead premium, 12.5% for the 1-week ahead premium, and 10,0% for the 1-day ahead premium. It is clearly observable here that leaked information and rumours lead to a price adjustment of the stock price and that the unannounced premium gets successively included in the stock price.

The distribution of the winsorized 4-week ahead premium is displayed in figure 1. The range of premiums paid remains significant.

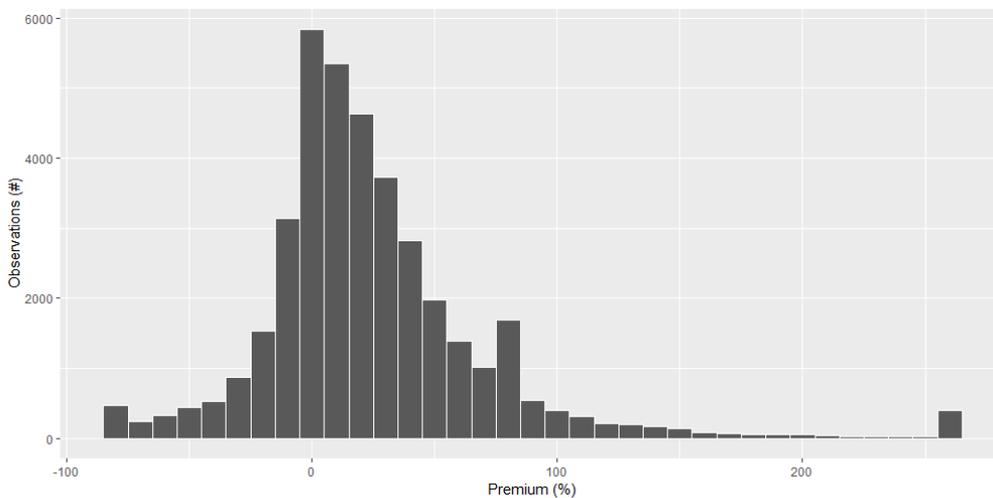


Figure 1: Histogram of the 4-week ahead Premia

The frequency of observations across the calendar years is shown in figure 2. Wave patterns with a simultaneous increase in the number of transactions are clearly visible. However, at least the increase in transactions may also be due to the fact that the underlying database Thomson Reuters is increasingly better managed.

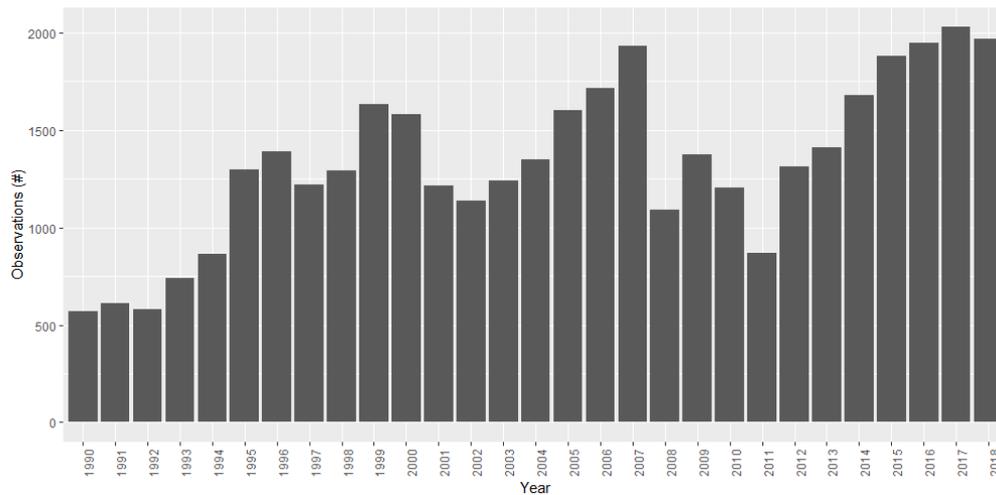


Figure 2: Frequencies of M&A-Transactions over Time

The acquirers/targets of the present analysis come from Africa (331/300), Asia (7,147/7,267), Australia & NewZealand (1,601/2,168), Austria (80/92), Belgium, Netherlands and Luxemburg (BeNeLux 874/407), China (2,284/2,185), other Europe (679/644), France (1,245/1,241), Germany (665/506), India (624/914), Italy (488/472), Japan (3,815/3,801), Middle- and South Americas (MSA, 916/560), Poland (180/303), Scandics (1,047/1,115), Spain (341/303), Switzerland (326/170), UK (2,334/2,335), USA & Canada (13,304 / 13,964), and unknown (466/0). The nation of the acquirer equals in 31,674 cases the nation of the target. Accordingly, 7,073 cases are cross-border transactions.

The acquirer/target of the sample belong to the following industries: Consumer Cyclical (1,124/2,751), Basic Material (2,797/4,571), Consumer Non-Cyclical (540/1,164), Cyclical Consumer Goods and Services (2,446/4,251), Energy (1,321/1,861), Financials (15,348/7,056), Governmental Services (185/2), Healthcare (1,550/2,753), Industrials (3,905/6,863), Non-Cyclical Consumer Goods and Services (929/1,357), Non-Profit/Private Organizations/Services (27/3), Technology (2,420/4,615), Telecommunications Services (670/767), Utilities (541/727), and unknown (4,944/6).

20,511 transactions were fully cash settled, while 4,635 were stock swaps. In 13,601 cases the settlement was mixed or unknown. 17,362 Acquirer were public companies, while 12,184 were private. In 9,201 cases the status was unknown. On the target side, 37,933 companies were public, while 339 were private, and in 475 cases the status was unknown. In 31,072 observed transactions the takeover was officially announced as friendly takeover. Only 327 were documented as hostile. In 7,248 cases the takeover was neutral or unknown.

Table 2 below shows the results of the OLS-Regression.

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	3.215	4.247	0.757	0.449	
<i>Hypothesis 1: Takeover premiums as a wave phenomenon over time</i>					
Year1991	3.971	2.677	1.483	0.138	
Year1992	5.915	2.717	2.177	0.030	**
Year1993	0.081	2.564	0.032	0.975	
Year1994	- 4.801	2.483	- 1.933	0.053	*
Year1995	- 1.901	2.314	- 0.822	0.411	
Year1996	- 6.546	2.293	- 2.855	0.004	***
Year1997	- 7.211	2.343	- 3.078	0.002	***
Year1998	- 4.022	2.326	- 1.729	0.084	*
Year1999	- 1.209	2.265	- 0.534	0.593	
Year2000	- 2.736	2.277	- 1.202	0.230	
Year2001	- 7.100	2.364	- 3.003	0.003	***
Year2002	- 8.060	2.390	- 3.372	0.001	***
Year2003	- 11.868	2.361	- 5.028	0.000	***
Year2004	- 22.636	2.334	- 9.699	0.000	***
Year2005	- 15.845	2.282	- 6.943	0.000	***
Year2006	- 16.782	2.263	- 7.415	0.000	***
Year2007	- 14.752	2.238	- 6.592	0.000	***
Year2008	- 2.826	2.440	- 1.158	0.247	
Year2009	- 3.160	2.345	- 1.348	0.178	
Year2010	- 5.851	2.391	- 2.448	0.014	**
Year2011	- 7.010	2.530	- 2.771	0.006	***
Year2012	- 6.212	2.364	- 2.628	0.009	***
Year2013	- 5.805	2.346	- 2.474	0.013	**
Year2014	- 12.371	2.303	- 5.372	0.000	***
Year2015	- 8.991	2.275	- 3.951	0.000	***
Year2016	- 6.925	2.268	- 3.053	0.002	***
Year2017	- 8.442	2.260	- 3.735	0.000	***
Year2018	- 10.130	2.261	- 4.480	0.000	***

	Estimate	Std. Error	t value	Pr(> t)	
<i>Hypothesis 2: Takeover premiums as a phenomenon of the national institutional framework and as a phenomenon of cross-border transactions</i>					
Acquirer Nation: Africa	- 4.058	4.277	- 0.949	0.343	
Acquirer Nation: Asia	2.626	2.505	1.048	0.295	
Acquirer Nation: AustraliaNZ	- 0.668	2.945	- 0.227	0.820	
Acquirer Nation: Austria	3.064	6.286	0.487	0.626	
Acquirer Nation: BeNeLux	1.538	2.683	0.573	0.567	
Acquirer Nation: China	- 7.800	3.035	- 2.570	0.010	**
Acquirer Nation: Europe	4.191	3.070	1.365	0.172	
Acquirer Nation: France	3.025	2.750	1.100	0.271	
Acquirer Nation: India	- 1.535	3.637	- 0.422	0.673	
Acquirer Nation: Italy	4.359	3.678	1.185	0.236	
Acquirer Nation: Japan	8.385	2.871	2.921	0.003	***
Acquirer Nation: MSA	0.659	2.815	0.234	0.815	
Acquirer Nation: Poland	7.069	5.353	1.321	0.187	
Acquirer Nation: Scandics	1.280	2.970	0.431	0.666	
Acquirer Nation: Spain	2.946	3.949	0.746	0.456	
Acquirer Nation: Switzerland	5.601	3.392	1.651	0.099	*
Acquirer Nation: UK	1.495	2.485	0.602	0.547	
Acquirer Nation: unknown	2.634	3.230	0.816	0.415	
Acquirer Nation: USA-Canada	2.386	2.312	1.032	0.302	
Target Nation: Africa	2.215	4.596	0.482	0.630	
Target Nation: Asia	3.008	2.755	1.092	0.275	
Target Nation: AustraliaNZ	7.300	3.018	2.419	0.016	**
Target Nation: Austria	- 1.093	6.042	- 0.181	0.856	
Target Nation: BeNeLux	3.566	3.431	1.040	0.299	
Target Nation: China	- 7.614	3.288	- 2.316	0.021	**
Target Nation: Europe	2.971	3.330	0.892	0.372	
Target Nation: France	0.002	2.996	0.001	0.999	
Target Nation: India	10.080	3.451	2.921	0.003	***
Target Nation: Italy	- 5.072	3.900	- 1.301	0.193	
Target Nation: Japan	- 12.357	3.110	- 3.973	0.000	***
Target Nation: MSA	6.177	3.367	1.834	0.067	*
Target Nation: Poland	- 0.542	4.514	- 0.120	0.904	
Target Nation: Scandics	1.707	3.161	0.540	0.589	
Target Nation: Spain	6.008	4.290	1.400	0.161	
Target Nation: Switzerland	- 8.096	4.405	- 1.838	0.066	*
Target Nation: UK	6.966	2.783	2.503	0.012	**
Target Nation: USA-Canada	7.851	2.612	3.006	0.003	***
Equal Nation	- 3.808	0.721	- 5.281	0.000	***

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	Estimate	Std. Error	t value	Pr(> t)	
<i>Hypothesis 3: Takeover premiums as an industry-specific phenomenon and as a cross-industry phenomenon</i>					
Acquiror Industry: Basic Mate	2.170	1.800	1.205	0.228	
Acquiror Industry: Consumer N	- 4.004	2.573	- 1.557	0.120	
Acquiror Industry: Cyclical C	- 0.653	1.809	- 0.361	0.718	
Acquiror Industry: Energy	0.681	2.171	0.313	0.754	
Acquiror Industry: Financials	- 4.120	1.549	- 2.660	0.008	***
Acquiror Industry: Government	- 14.312	3.851	- 3.716	0.000	***
Acquiror Industry: Healthcare	7.098	2.101	3.379	0.001	***
Acquiror Industry: Industrial	0.960	1.645	0.584	0.559	
Acquiror Industry: Non-Cyclic	2.471	2.363	1.045	0.296	
Acquiror Industry: Non-Profit	12.057	8.887	1.357	0.175	
Acquiror Industry: Technology	2.286	1.771	1.291	0.197	
Acquiror Industry: Telecommun	2.292	2.488	0.921	0.357	
Acquiror Industry: unknown	- 7.457	1.718	- 4.341	0.000	***
Acquiror Industry: Utilities	- 5.729	2.819	- 2.032	0.042	**
Target Industry: Basic Materi	1.775	1.267	1.401	0.161	
Target Industry: Consumer Non	1.831	1.722	1.064	0.288	
Target Industry: Cyclical Con	- 0.354	1.297	- 0.273	0.785	
Target Industry: Energy	- 4.205	1.666	- 2.524	0.012	**
Target Industry: Financials	0.418	1.227	0.340	0.734	
Target Industry: Governmental	65.748	32.107	2.048	0.041	**
Target Industry: Healthcare	1.594	1.478	1.079	0.281	
Target Industry: Industrials	2.196	1.119	1.962	0.050	**
Target Industry: Non-Cyclical	2.736	1.847	1.481	0.139	
Target Industry: Non-Profit/P	20.440	26.159	0.781	0.435	
Target Industry: Technology	2.713	1.194	2.272	0.023	**
Target Industry: Telecommunic	- 2.443	2.118	- 1.154	0.249	
Target Industry: unknown	- 21.135	18.518	- 1.141	0.254	
Target Industry: Utilities	- 2.722	2.305	- 1.181	0.238	
EQ.Economic.SectorTRUE	0.496	0.630	0.787	0.431	

	Estimate	Std. Error	t value	Pr(> t)	
<i>Hypothesis 4: Takeover premiums as a phenomenon of the public status of the companies</i>					
Acquirer Public Status: unknown	1.937	0.703	2.754	0.006	***
Acquirer Public Status: Private	- 0.323	0.760	- 0.425	0.670	
Target Public Status: unknown	11.485	2.561	4.484	0.000	***
Target Public Status: Private	1.082	3.335	0.325	0.746	
<i>Hypothesis 5: Takeover premiums as a phenomenon of increasing acquisition of control</i>					
Percent Acquired	0.031	0.034	0.909	0.363	
Percent Acquirer is seeking	0.060	0.033	1.811	0.070	*
Percent owned after Transaction	0.185	0.012	15.770	0.000	***
<i>Hypothesis 6: Takeover premiums as a phenomenon of takeover behavior</i>					
Deal Attitude: Hostile	5.390	2.569	2.098	0.036	**
Deal Attitude: Neutral or Unknown	1.385	0.703	1.968	0.049	**
<i>Hypothesis 7: Takeover premiums as a phenomenon of the payment modality</i>					
Full Cash Payment	2.246	0.536	4.194	0.000	***
Full Stock Swap	- 7.498	0.877	- 8.553	0.000	***
<i>Hypothesis 8: Takeover premiums as a phenomenon of corporate and transaction size</i>					
ln Deal Value	0.181	0.139	1.296	0.195	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 45.25 on 38,338 degrees of freedom

Multiple R-squared: 0.116

Adjusted R-squared: 0.114

F-statistic: 47.13 on 107 and 38338 DF, p-value: < 2.2e-16

Table 2: Model Results of OLS Analysis

Analysing the takeover premium as a phenomenon over time and its inherent wave motions, it is striking that premiums have decreased significantly in almost all years compared to the benchmark year 1990. But it is well perceptible that the premiums are subject to considerable wave motions. In the late 1990s, premiums rose noticeably in the run-up to the dot-com bubble, to fall sharply from 2001 onwards. By contrast, the financial market crisis does not seem to have such a pronounced impact on premiums. Although premiums will increase noticeably again in 2008, they will not fall to that extent during the subsequent crisis. However, it remains to be noted that the wave movements in the M&A market have a major impact even after adjusting for the influence of other variables. Our hypothesis 1 can, thus, be considered as being supported by the data. This result is fully in line with Chidambaran and other authors.

Analysing the national legislation framework, one will immediately notice the clear difference between the individual countries in the height of the payed premiums. Beneath a weak positive significance for Switzerland, it

is striking that acquirers from China pay significantly lower premiums, while acquirers from Japan pay highly significant higher premiums.

In Australia / New Zealand, India, Middle and South America (MSA), UK, and USA-Canada, significantly higher premiums were paid for the acquisition of a company than in Germany. At the same time, significantly lower premiums were paid in China, Japan and the Switzerland. The premiums are significantly lower within the same country compared to cross-border acquisitions. Our hypothesis 2 can thus be supported. Despite minor differences, our findings are in line with the findings of Rossi and Volpin, Dyck and Zingales, and Goergen and Renneboog. Based on our analysis, we cannot fully support the findings of Jackson and Miyajima, who show that premiums in countries with market economies (UK, USA) are higher than in countries with coordinated market economies (Germany, France, Japan). In our analysis we find a more differentiated picture, when it comes to Japan. Japanese acquirers show highly significant higher premiums, while Japanese targets are highly significant cheaper.

The same behaviour as in the analysis of the countries is also recognizable when examining the industry of acquirers and targets. Healthcare acquirers pay significantly higher premiums than acquirers from the benchmark industry consumer cyclical, while acquirers from the financials, government services, and utilities industry pay significantly lower premiums when acquiring another company. Significantly lower premiums were also paid by those companies that could not be assigned to any of these industries (“unknown”).

Targets from the energy industry were comparably and significantly cheaper than the benchmark targets from consumer cyclicals, while targets from governmental services, industrials, and technology industry were comparably and significantly more expensive when being acquired.

It is no noticeable difference between intra- and inter-industry transactions. This is a remarkable result. An argument based on asymmetric information between different industries cannot be justified based on the data and analysis performed here. But this also eliminates the similar reasoning in international takeovers. Our hypothesis 3 is, thus, supported by our analysis and the data. Our findings of industry specifics are in line with Dutz, Meschi, and Donbolt. We cannot support the findings of Gaspar, Massa and Matos who find that intra industry transactions have a significant impact on the level of premiums.

We find that private acquirers show lower premia when acquiring compared to public acquirers. Nevertheless, the difference is not significant, while those acquirers with an unknown status show significantly higher premiums. The same is true for the target side. Accordingly, our analysis is not fully in line with the papers of Zhu and Jog, Bargeron, and Alexandridis and further authors and our Hypothesis 4 cannot be supported by the data. This result might be due to a different mapping of other possible status and needs further analysis.

The percentual share owned by the acquirer after the transaction shows a highly significant positive impact on the premium. In other words: the more control an acquirer wants to have, the more he has to pay. At a weak significance level, we also could find this result for the announced percentage the acquirer is seeking. Our Hypothesis 5 is supported by the analysis and the data. As Walkling and Edmister indicate a positive degree of efficiency in terms of the level of premium and the amount of the acquired share, we assume, that this information is included in our variables. Nevertheless, this result also needs further analysis.

Even though we found a very little number of hostile takeovers, these show significant higher premiums if compared to friendly ones. The same is true for neutral or unknown takeovers. Accordingly, our hypothesis 6 can be supported by the analysis and the data. These findings are in line with Franks and Mayer, Jensen, and Goergen and Renneboog.

Transactions with cash payments if compared to mixed payments show highly significant higher premiums, while full stock swaps show highly significant lower premiums. This finding supports our hypothesis 7 based on the analysis and data and is full in line with the findings of Wansley, Lane and Yang, Davidson and Cheng, and Goergen and Renneboog.

Finally, we find a positive relation of deal value and premium payed. Nevertheless, this result is not significant and, thus, does not support our hypothesis 8 based on our analysis and data. Nevertheless, the sign is still in line with the findings of Morck, Shleifer and Vishny, Moeller, Schlingemann and Stulz, Harford and Li, and Zhu and Jog.

6 Summary

The empirical study examines potential factors affecting the level of the takeover premium. It has been shown that M&A waves have a significant effect on the takeover premium. In addition, the results show that acquirer and target countries have significant explanatory power. Furthermore, there were significantly lower premiums for domestic transactions compared with cross-border transactions. In the case of industry variables, the picture is mainly the same. There are certain industries where acquirers pay higher / lower premiums and there are those industries where targets are purchased at higher / lower premiums. The intra-industry variable does not show any significant effect. Moreover, the authors can show, that those acquirers with an unknown status show significantly higher premiums. This result is also observed for the target side. Private buyers pay lower premiums as a public company, but the difference is not significant. This result has not been fully expected according to the present literature and may require further consideration. The percentual share owned by the acquirer after the transaction shows a highly significant positive impact on the premium. In short: if the buyer aims for more control, he must pay more. Hostile takeovers, neutral or unknown takeovers show significant higher premiums if compared to friendly ones. Significant higher premiums show transactions with cash payments, while full stock swaps show highly significant lower premiums. Lastly, a positive relationship could be observed between the value of the transaction and the amount of the premium. This relationship is not significant according to the present data.

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