

The Drivers Behind the Difference in Transaction Premium Paid by Financial and Strategic Buyers



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This paper investigates the difference in premium between a strategic and a financial acquirer. This difference is analyzed in both the cross-section and time-series regression. In the cross-section, acquirer characteristics were added. The difference remained significant and varied between 7.7% and 12.9%. Managerial ownership (+), industry-adjusted Tobin's Q (-), acquirer's leverage (-) and relative size (+) all were significant in explaining the premium. It is shown that the difference in premium paid varies over time. Market timing factors such as high yield credit spread (+) and stock market price-to-earnings (+) had a larger influence on the premium paid by financial buyers than strategic buyers indicating that financial buyers are more dependent on market conditions. Overall, this paper concludes that the difference in premium is affected by both acquirer characteristics and market timing.

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1. Introduction

The total deal value of mergers and acquisitions reached a new all-time high in 2015. With \$4.28 trillion paid, it slightly outperformed the previous record of 2007 by 16.6%¹. The total value of buyouts by Private Equity firms amounted to \$433.8 billion which is the highest annual total since the crisis. Extensive research has been done on the various effects of merger and acquisitions, for instance on the wealth effects for shareholders of both acquirers and targets (see Martynova & Renneboog, 2006), on the post-merger performance (see Healy, Palepu, & Ruback, 1992) and on the characteristics of the transactions (Rhodes - Kropf & Viswanathan, 2004). This paper will go further into the latter and particularly taking a better look at the premium paid in these transactions.

With the exception of mergers and acquisitions of banks and financial institutions, we can say that the market for corporate control is divided between strategic and financial players. Strategic players are defined as firms with their own set of operational assets and financial players as private equity firms. While research on premium paid was more prone to looking at the transaction market as a whole. Now research has embraced the difference between these two types of players and their respective processes.

1.1. Research question

Over the years, the premium has been discussed in several papers and many variables driving the premium have been identified based on either stock market reactions or premium paid. However, one puzzle has been left unsolved. The difference in the premium paid between strategic and financial acquirers. The premium for each transaction on its own can be mostly explained by the deal- and target characteristics of that transaction. But if you split the transactions into groups for each buyer type, the difference in average premium paid that is then observed between the two groups cannot be explained by differences in the those same characteristics. Several papers such as Bargeron, Schlingemann, Stulz, & Zutter (2008) and Gorbenko & Malenko (2014) have established that both strategic and financial players pursue different targets. However, the

¹ Reported by Mergermarket as of 5 January 2016.

determination of the premium is not dependent on target differentiation by both buyer types either Fidrmuc, Roosenboom, Paap, & Teunissen (2012).

The question of what drives this difference has become increasingly more interesting and relevant. In the more traditional view it was perceived that the average strategic buyer will always pay a higher amount than the average financial buyer because of the generated value from post-acquisition synergies. A private equity firm is merely a financial player that would not be able to benefit from these synergies. However, PE firms are frequently able to win auctions² even when competing against strategic buyers. Also, the flow of funds to PE firms has increased the past years³, enabling them to pay an even higher premium. Apparently, in spite of higher prices, they are still able to create value for their limited partners. Otherwise those streams of capital would have dried up. There seems to be more to explaining the difference in premium than the traditionally proposed explanation of synergies, managerial hubris and empire building. Related articles such as Barger et al. (2008) and Fidrmuc et al. (2012) found that the difference cannot be explained solely by transaction and target characteristics.

Given that the characteristics of the targets they pursue differs for both acquirer types Fidrmuc et al. (2012), these differences in target selection reflect differences in how acquirers operate and their governance structure, or acquirer characteristics. Therefore, even if the deal- and target characteristics do not explain the difference, the differences in acquirer characteristics might. Furthermore, Martos-Vila, Rhodes-Kropf, & Harford (2013) found that, on top of the fact that M&A activity fluctuates over time and comes in waves, there seems to be shifting dominance between financial and strategic firms suggesting a moving difference between the two buyer types over time. So, in trying to explain difference in premium, my main research question will be:

Can the systematic difference in transaction premium between strategic and financial buyers be driven by acquirer characteristics and market timing?

² See Gorbenko and Malenko (2014)

³ Bain & Company Global Private Equity Report

1.2. Academic relevance

In the only closely related literature by Barger, Schlingemann, Stulz, & Zutter (2008) and Fidrmuc, Roosenboom, Paap, & Teunissen (2012) the evidence whether there is a difference lies in a financial acquirer-dummy with a significant negative coefficient. Indeed confirming that the average financial firm pays a lower premium than the average strategic firm; leaving us with a *static* difference. The only way to further investigate this static difference would be to include omitted variables and consequently render the dummy-variable insignificant. Because Barger et al. (2008) and Fidrmuc et al. (2012) both did not include variables for acquirer characteristics, there is reason to believe that these variables would make up the omitted variables (at least partly). I will test whether adding acquirer characteristics to the model cause the dummy to be insignificant and therefore explain the static difference. This will be the first model and its results will answer my first research question.

Because of the shifting dominance between financial and strategic acquirers over time found by Martos-Vila, Rhodes-Kropf, & Harford (2013), there is reason to believe that the difference between premium paid by both buyer types fluctuates over time as well. I will refer to this aspect of the difference in premium as the *dynamic* difference. Where the static difference resembles the difference in premium in the cross-section of transactions in the sample, the dynamic difference resembles the difference in premium of transactions in the sample over time. I will investigate this dynamic difference in the second and third model and their results will answer my second and third research question.

1.3. Research design

As mentioned above, authors of related articles regarding the difference in premium between strategic and financial players have tried to explain the variation in the premium in the cross-section. Even by adding omitted variables, individual takeovers in the cross-section leave much room for unobservable factors and very deal specific distortions in explaining the premium, thereby refraining from filtering out factors that could explain the difference. Gorbenko and Malenko (2014) found that variation in premium paid for strategic players is mostly explained by unobservable factors and that this unobserved valuation component is twice as high as for financial players. These unobservable characteristics and deal specific distortions, for instance,

might be friendly or hostile private inter-company relations between target and acquirer management or company-specific liabilities that came up during due diligence. These unobservable characteristics and distortions might influence the premium upward or downward. In this paper I propose to approach this problem with a time-series model to attempt to let these deal specific factors cancel each other out and putting the focus back on the systematic difference between both acquirer types. Of course, there will still be unobservable factors but, more importantly, the deal specific distortions in the cross-section would vanish and I would only have to deal with period specific distortions in a time-series model which would affect both buyer types at the same time.

From an acquirer's perspective, I propose a framework to divide the build-up of the premium into three layers. The base layer will be the aggregate economic environment. A firm's investment decision is influenced by the right timing in aggregate economic conditions, for instance the availability of low-cost debt will lead to a higher premium Axelson, Jenkinson, Strömberg, & Weisbach (2013) and will drive merger activity Martos-Vila, Rhodes-Kropf, & Harford (2013). Other factors that I will use that could influence a firm's decision to make an acquisition are stock market performance and stock market price-to-earnings. The middle layer will be target and transaction characteristics. This layer includes deal-specific factors that might possibly differentiate target's relative attractiveness to one type or the other. These factors do not explain the difference but will be used as control variables (Bargeron, Schlingemann, Stulz, & Zutter, 2008), (Fidrmuc, Roosenboom, Paap, & Teunissen, 2012). Finally, the top layer will contain factors that relate to the nature of the two buyer types; the acquirer characteristics. Fundamental factors that emphasize the difference between buyer types and intrinsically could affect the price that is paid for a target. One of these factors is for instance managerial ownership. Most public bidders have managerial ownership between 0% and 5% and pay a much higher premium than public bidders with managerial ownership above 50%, which pay a similar premium as private equity bidders (Bargeron, Schlingemann, Stulz, & Zutter, 2008).

My framework and models are built with the premise that within these three layers, the difference in premium paid between strategic and financial players can be explained. Since Fidrmuc et al. (2012) and Bargeron et al. (2008) found that deal- and target characteristics explain part of the

premium but do not explain any difference between the premium paid by strategic and financial acquirers, the explanation for this must lie in the base layer and top layer of the framework. And the sub-questions and models will be arranged accordingly.

To answer my main research question I have devised three sub-questions regarding the difference in premium. The first sub-question is regards the top layer of the framework and is as follows:

Can the difference be explained by acquirer characteristics?

The first model in this paper is designed to show whether the gap that is left unexplained by transaction and target characteristics, the static difference, can be explained by acquirer characteristics such as managerial ownership, institutional ownership and industry adjusted leverage⁴ of the acquirer as well as relative size of the acquirer to the target. This model will be a model in the cross-section and will go deeper into the relation between the middle and top layer. In an extension of this model I will allow for industry fixed effects and year fixed effects. Most interesting will be the effect from including the year fixed effects because this would give an indication whether economy-wide influences, which change over time, affect the difference in premium.

Next, I need to find out whether the difference in premium is sustained over time, if it varies over time and how it varies over time. The second sub-question will address this transition from acquirer characteristics to market timing and is as follows:

Is there a systematic difference between the premium paid by strategic and financial buyers in a takeover transaction over time?

The model belonging to this sub-question will provide evidence whether there is a difference between the premium paid by strategic and financial buyers in a takeover transaction over time. It is important to examine because if there is any indication of a dynamic difference, there is reason to believe that market timing could explain the difference in premium. If the difference does not vary over time it has no use to try to explain the variation using time-series variables. I will map

⁴ Proxies for leverage room. If an acquirer has room left to take on more debt, this will drive prices in the takeover market (Axelson, Jenkinson, Strömberg, & Weisbach, 2013) (Axelson, Strömberg, & Weisbach, 2009)

out the premium paid by each buyer type separately and show how the difference moves over time.

The third and last sub-question answers the last remaining part of the main research question and is as follows:

Can the difference be explained by market timing?

In the last model belonging to the third sub-question, I will address whether the difference can be explained by market timing. For this I will build a time-series model to help explain the difference in premium paid between both buyer types. I will split the data into two subsets, one of financial players and one of strategic players. Then I will perform a regression analysis of the premium on aggregate economic factors such as high yield credit spread, overall stock market performance and stock market price-to-earnings. The results from this regression will give more insight in how the premium is influenced by the economic environment and whether one type of buyer is affected more by the economic environment than the other.

Ultimately, this paper goes deeper into what sets the financial player apart from the strategic player and how these differences lead to a difference in premium paid by both buyer types.

The results of model 1 suggest that indeed the difference in premium becomes smaller when acquirer characteristics are added but they do not fully explain the difference. The difference before acquirer characteristics are put in is approximately 13%. The inclusion of acquirer characteristics increased explanatory value of the model and reduced the difference in premium to approximately 9%. When year fixed effects were added to the model, the r-squared of the regression increased significantly. This is the first indication of varying difference in premium over time. Model 2 shows this difference graphically over time. Up until the financial crisis of 2008 the difference decreased and after the financial crisis the difference increased and became a lot more volatile. Model 3 shows that financial firms react significantly stronger to stock market and debt market conditions than strategic firms. The difference lies in the coefficients for credit spread, representing cost and availability of debt, and price-to-earnings of the stock market, representing market overvaluation.

1.4. Thesis outline

Section 2 will give an overview of relevant academic literature regarding strategic and financial firms and the transaction premium. It also motivates the hypotheses of this paper. Section 3 describes the research method, the construction of the variables and a description of the sample. Sections 4 gives the results of the models and provides an interpretation of them. Finally, section 5 will summarize the paper and conclude.

2. Academic literature review

In this chapter I will elaborate on related literature and definitions of financial and strategic buyers. Moreover, I will go deeper into how they operate i.e. their governance structure, how they receive funding, how they make investment decisions and which targets they pick and why. This chapter will serve as a foundation on which my framework is built and will go deeper into the underlying assumptions and elements of this framework.

In order to give a comprehensible overview of the surrounding research, literature and background of this paper, I will structure this chapter by consecutively answering sub-questions. First, I will address the difference between financial buyers and strategic buyers and their respective processes. Then, I will discuss the transaction premium and how this is influenced. Finally, I will tie the views found in these two parts to the framework surrounding my research. The relevance of this chapter lies in that final part. There I will show in what context this paper must be placed and how it is connected to the existing research.

2.1. Strategic firms vs. Financial firms

This section will go deeper into both acquirer types. First, I will elaborate on definitions of strategic firms and financial firms by giving a basic description of their method of operations and governance structure. Second, I will discuss how each buyer type makes investment decisions and how they differ in their investment process. Finally, I will discuss how each buyer type attempts to create value and go deeper into post-transaction performance. In the conclusion of this section it must be clear how each acquirer type operates and, more importantly, how they differ in their operations to determine if one type has an advantage over the other and under what circumstances these advantages arise.

2.1.1. Strategic firm definition

A strategic firm is characterized by its ongoing operations which provide this firm type with the capital to continue these operations. A strategic company does not regularly have to approach shareholders for additional capital. But if one of the goals of these firms is to obtain capital in order to fund future acquisitions or external growth, a private firm can then choose to become a

public firm and attract additional capital from equity markets through an initial public offering (IPO). For a strategic firm, these are the most common means to raise funds. Moreover, a strategic firm may choose another currency to acquire another firm: it can offer its own shares as consideration to target shareholders. The strategic choices these firm make are made with the assumption that their operations will be carried out indefinitely. These strategic choices are made by an executive board and a board of directors. While the executive board is in charge of operations, the board of directors looks after the interests of shareholders and can influence the decisions of the executive board.

2.1.2. Financial firm definition

The financial firm definition is that of a Private Equity (PE) firm. A core concern for a PE firm is to raise funds from limited partners (LP's) and to achieve a required internal rate of return (IRR) on the investments they make with these funds. If a PE firm is not capable of raising funds repeatedly, the firm will not succeed. General Partners (GP's) use these funds to invest directly in private companies or to buy out public companies resulting in a delisting of public equity, rendering those previously public companies private. If a PE firm does not meet the required return, it will be more difficult raise funds in the future because investors will seek out PE firms that do meet their IRR requirements. Therefore, achieving the required IRR is the core incentive of a financial firm and has a powerful impact on how they work. Also the incentive structure of the GP's aligns with limited partner interests and motivates personnel to actively seek attractive investment opportunities.

2.1.3. Investment decision

Here I will describe how both buyer types make their investment decisions and how they manage different aspects of the deal up until the actual closing of the deal. First, I will discuss how both types identify and select their targets. Then I will discuss how they approach they approach the due diligence process, their preferred valuation methods and how they finance the deal. Finally, I will discuss the completion of the deal where the negotiation and the transactions execution take place.

A strategic player is very familiar with the industry it operates in. Following its strategy, it is very likely that the strategic bidder has a good overview of potential acquisition targets. If a strategic player is looking to acquire another company, other players within this industry are probably aware of this as well. So whether a transaction is going to take place depends on the willingness of the seller or waiting for the right moment, for instance a low share price of the target. On the other hand, if target selection within the industry is limited, probably due to a given to a strategic player's geographical focus and/or an already highly consolidated market, antitrust concerns could limit a strategic buyer's acquisition opportunities.

A financial player often lacks the industry expertise and has not the same exposure to an industry as a strategic player. However, through their network of industry advisors, investment bankers, lawyers and other service providers they compensate for this and are able to identify potential targets as quickly as strategic players. Financial buyers subject their targets to an elaborate financial analysis. They focus on financials and general industry trends rather than a strategic fit like strategic buyers. As with strategic buyer within an industry, the market will often know whether a financial firm is looking for investment opportunities. Investment bankers will then approach them with pitches or they will even be approached by targets themselves as long as these potential investments coincide with the terms of the PE fund. A financial player is not limited to a certain industry and can therefore search a wide range of targets that can contribute to achieving the required IRR.

For both buyer types, due diligence is an important aspect of the investment process. Due diligence is the investigation of a potential investment that reviews everything that might be relevant or could affect the deal so the buyer knows what he is actually buying before he enters into an agreement⁵. It might determine whether the acquisitions succeeds or fails. Strategic players benefit from their intimate knowledge of the industry. However, many strategic firms acquire targets for diversification reasons, for instance to enter a new sub-segment of their industry, another industry or a new geography. It is easy for a strategic player to assume he has knowledge in these cases when he actually has none. Due diligence by a strategic buyer will not

⁵ A seller can also perform due diligence on the buyer, for instance to analyze a buyer's ability to purchase the company or other items that could negatively affect the seller after completion of the deal.

be limited to the target's market and business model. Strategic buyers will also conduct specialist due diligence reviews. A few examples are regulatory due diligence, financial due diligence, legal and tax due diligence and environmental due diligence. Sometimes specialist due diligence are performed by internal teams but mostly these are carried out with help of external advisors. In general, the strategic buyer will largely focus on a target's high-value assets and to identify and quantify the synergies that can be achieved between buyer and target. Depending on whether the strategic investor wants to keep current management of the target in place there will be a management due diligence⁶. Finally, a post-closing integration plan will be prepared in which is drafted how the targets assets and business structure will be adapted to the organizational structure of the acquirer in order to fully utilize the target's high-value assets realize the potential synergies.

A financial investor may lack knowledge of the industry and business model of the target, however he will recognize this and therefore will put in a lot of effort in this area. The financial firm will gather expertise from its own network of industry advisors and may call on relevant experts already employed by other portfolio companies. Ultimately it will probably take longer for the financial firm to fully understand the target's operations and industry. In a competitive process a target might spend time to educate the financial bidder and lower the hurdle for them if it wants to attract financial bidders into the process. For instance, the information memorandum and other due diligence documents will then be drafted assuming the reader has little familiarity with the industry to facilitate the financial player's understanding of the business. Where strategic buyers focus high-value assets, the financial player needs to perform due diligence on all aspects of the target because they usually want the target to operate as a standalone business. Also, they will use their external advisors on a larger scale than strategic firms and has them available on a short notice. The due diligence process by a financial investor will be more coordinated and conducted more efficiently than due diligence by a strategic investor because this is one of the core capabilities of a financial investor. The financial investor will validate the historical financial and operational performance and the future projections of the target and focus mainly on generated cash flows. This will be important due to the heavy debt burden incurred to finance

⁶ In the case of high-tech companies, the expertise of management and people are a crucial asset of the target.

the transaction. Also, the financial investor will look for ways to operationally improve the target and the potential for external growth. The target's management will have to deliver the expected results so management due diligence is also crucial. A financial player does not hold the company in its portfolio for ever so during due diligence they also think about future potential exit routes. Eventually, the financial player will have a detailed plan that will be implemented to close the deal successfully.

Strategic buyers will base their valuation on a discounted cash flow (DCF) analysis. This analysis will include a target's standalone valuation and an analysis assuming various synergies resulting in a synergized value. The DCF analysis will expose the assets with the biggest value impact and therefore helps with identifying areas for due diligence. Because the strategic player assumes that it will make use of the new assets indefinitely, the terminal value will be determined on the basis of the perpetual growth rate. Validation of the projections is very important and often different scenarios will be prepared with the help of the strategic buyer's knowledge of the industry and trend. However, in a competition for internal top management, an internal project team might present these projections too optimistically to increase the probability that the deal succeeds and gather top management's attention. In regard of financing the deal, strategic buyers are unlikely to lever the deal to the extent of financial buyers. Larger targets might require debt financing through senior bank loans secured by assets of the acquirer but smaller targets will probably be fully financed with cash. As mentioned earlier, a strategic buyer can also offer its own shares as payment for the acquisition.

Financial buyers will base their valuation on a leveraged buy-out (LBO) model. This model may also contain a DCF analysis but in the end the focus lies on the use of multiples. Instead of using the perpetual growth rate, the terminal value will be determined by an exit EBITDA multiple. The two main features of the LBO model are the forecasts of cash flows and the target's future capacity to repay debt without strangling the company. The LBO model will also incorporate various scenarios and will analyze their impact on the IRR. The financial buyer is likely unable to make use of synergies, however, expected improvement of the target will be included in the model. To achieve the highest possible IRR the financial player will want to invest the least amount of money. Therefore, validation of the cash flow projections is essential as there will be

little room for negative surprises. These projections are also carefully discussed with the target's management because they will have to realize the cash flows. To finance the deal, financial players will arrange for leveraged financing. This poses somewhat of a disadvantage because any bid a financial player makes is dependent on obtaining the necessary financing. Some comfort comes from commitment letters from banks but in the end the final contracts still have to be negotiated. Alternatively, the higher the portion of debt in the transaction, the higher the IRR for the financial player because it reduces the equity investment portion and decreases the cost of capital for the valuation. Leverage is a key driver of value creation for a financial player's limited partners.

When entering into negotiations it requires discipline to end them successfully. A financial firm might have an advantage here because of its experience with structuring and negotiation. Their internal incentives and business structure makes them exercise more discipline. However, a complicating factor for the financial player is the need to obtain external financing. A strategic player can also use its own equity to structure the transaction along with internally generated funds and the less extensive due diligence can smoothen the negotiation. But there is a possibility that the strategic buyer has to deal with government approvals and antitrust laws which would impede the execution. A financial buyer has the ability to be swift and flexible in execution of the deal. Overall, financial buyers seem to have an advantage over strategic buyers when it comes to structuring, negotiating and finalizing the deal.

2.1.4. Value creation

It is important to take a look at the value these two types of players are able to create. The value creation is prerequisite for a strategic player to grow and for a financial player to achieve the required IRR and why they started the whole investment process in the first place. How do they make their investment worthwhile and what are the incentives for managers to engage in M&A?

A strategic player has no exit plans when it takes over a target, its long-term planning consists of integrating the target business, realizing synergies and operating the target indefinitely. On the other hand, a financial player knows it wants to exit the target when a good exit opportunity materializes within a relatively short period of about four to eight years. So planning for an exit

and considering exit opportunities are part of the process of buying the business and will be the new strategic plan after acquisition. Payoff for the financial player only comes when the exit is realized in the future, this enforces internal discipline to reach its goal of a successful exit in the form of an IPO or sale of the target for the highest possible price. But a negative aspect is that the investment horizon may be too short. Short-term strategies which support the financial firm strategy to achieve high IRR are followed while other strategies that could benefit the target more in the long-term are not executed.

A target acquired by a financial firm will most often be operated as a standalone business. Usually, it will be heavily levered with debt financing, so it will be a core concern for this target to manage its cash flows in order to service its debt repayments. Investments in R&D and capital expenditures may be cut back, because those endorse a longer term strategy than the financial firm's horizon, in order to free up as much cash as possible. However, efficiency improvements are often generated in the process of cutting costs. So in the end, the financial discipline put on the target by the heavy debt burden, forces the target to be a lean and flexible company. Existing management and culture are susceptible to realizing the required improvements in the financial situation and operations of the target. If not, the financial firm will not hesitate to implement the necessary changes within management and culture that do. Management is incentivized through stock ownership that could generate large amounts of wealth in case of success. Also, management will be supported by access the extensive network of experts of the financial player. Key elements for value creation by the financial firm are the discipline they impose on target management, as their limited partners impose on them, and the weighty incentives for management.

A target acquired by a strategic firm will most often be fully integrated into the business. Core concern will be to integrate the targets operations and culture into the acquirer's business and to realize the synergies that were planned out during the due diligence and valuation phase. This will get harder when the strategic acquirer had a diversifying motive and entered an industry too deviant from its own operations. Strategic acquirers lack the discipline of a financial type buyer. Incentive structures of the managers that have to integrate the target, and of targets themselves,

are not aligned with the incentives of the acquirer. Also, inadequate monitoring plays a role in the frequent unfavorable results of strategic M&A but more on this later.

To engage in M&A is a key element of a financial player's business to create value and consequently achieve the required IRR. Therefore financial players have a lot of experience and discipline in this field as mentioned above. Except for when it is looking for a strategic add-on for a portfolio company, the financial player is not bound to any specific industry or target depending on the terms of the investment fund and investment philosophy. Strategic firms, on the other hand, engage in M&A to generate synergies that realize a competitive advantage and thereby create value for their shareholders. There are three main theories regarding synergies and creating value for shareholders by engaging in mergers. First, *efficiency theory* suggests that only if the generated synergies are sufficient to create value for the target and acquirer combination, will they engage in an M&A transaction. Second, *market power theory* suggests that firms do M&A in order to expropriate value from the market and customers. Their takeovers result in fewer companies within the industry, giving the acquirer more control over prices leading to higher margins and raising the threshold for possible new entrants. Third, *corporate control theory* suggests that managers acquire underperforming assets in order to subsequently improve the value of the enterprise. Managers offering the highest value will be chosen by the target's shareholders. Contrary to efficiency theory, acquiring managers do not seek to realize synergies between both companies' assets but rather to capitalize additional value from underutilized assets that previous managers failed to do.

However, managers of strategic firms do not always create value and most often even destroy value by engaging in M&A. Recent research has even found a post-transaction failure rate somewhere between 70% and 90% (Christensen, Alton, Rising, & Waldeck, 2011). In literature related to managerial incentives to engage in M&A, there are two main streams. The first theory is *managerial hubris* and was introduced by Roll (1986). The other stream is composed of several other theories but comes down to managers destroying value by not acting in the interest of shareholders but rather to achieve personal gains and lack of monitoring.

As mentioned above, *hubris* was introduced by Roll (1986). The author reasons that, even though there is no value in takeovers⁷, managers still engage in M&A because they convince themselves that the market does not reflect full economic value and that their own valuations are correct. Their valuations are higher because they overestimate their own ability to operate the target's assets. So, managers overpay in order to acquire targets and thus act against the interests of shareholders. This is the hubris hypothesis and Roll (1986) finds evidence to support this theory. The authors Malmindier and Tate investigate further and argue that true managerial overconfidence cannot just be proven by overbidding. Malmindier and Tate (2005) defined overconfident managers as CEOs who “*fail to reduce their personal exposure to company-specific risk*”. They found that overconfident managers overestimate their returns on investment. Because they believe that their company is undervalued they hesitate to attract external funds but they tend to overinvest when they have more free cash flow available. Building further on this research, Malmindier and Tate (2008) finds that CEOs marked as overconfident are 65% more likely to make an acquisition and markets react significantly more negative to these than acquisitions by non-overconfident CEOs⁸. Even though these managers, infected by hubris, destroy value through their overconfidence, they do not do this on purpose to harm shareholders.

Other theories on value destruction by managers suggests that managers act out of self-interest instead of maximizing shareholder value of the company. They engage in value decreasing M&A by overpaying for a target while solidifying their own position within the company and endure too little monitoring. The conflict between managers and shareholders is analyzed by the *agency theory*. Agency costs arise when managers have too much free cash flow at hand. Managers have incentives to grow their company beyond optimal size. Their compensation is positively related to growth in sales and their power increases with more assets under their control. Because of this they will spend the excess resources on investments below cost of capital and waste it on organizational inefficiencies. Issuing (additional) debt and paying out dividends to shareholders will incur more monitoring by capital markets (Jensen, 1986). Agency theory also dictates that

⁷ Stock returns for bidder's shareholders at the announcement are mostly negative and at best slightly positive (see Bradley, Desai and Kim (1988)).

⁸ The market reaction to the announcement is -90 basis points for overconfident CEOs and -12 basis points for non-overconfident CEOs.

managers with large cash flows will most likely engage in value destroying diversifying mergers. This is one of the ways in which managerial entrenchment manifests itself. The value of the diversifying transaction, although not value maximizing, is higher under the current manager that made the transaction than the best alternative manager. By entrenching themselves, managers become valuable to shareholders making them costly to replace thereby countering disciplinary forces. Shleifer and Vishny (1989) describe how managers can entrench themselves by acquiring targets related to their own experience and background. By making these manager-specific acquisitions they reduce the probability of replacement, increase the ability to extract higher compensation and more freedom in determining corporate strategy. In contrast, Morck, Shleifer and Vishny (1990) investigate not how M&A leads to managerial entrenchment, but how managerial objectives drive bad M&A activity. They find that managers destroy value they make diversifying acquisitions, when they acquire a rapidly growing target to buy revenue growth⁹ and when managerial performance leading up to the acquisition was poor. Once the managers are entrenched they are less likely to offer equity-based consideration for targets because this is to avoid creating blockholders that would impose more monitoring. Also, they mostly destroy value by poorly selecting targets rather than just overpaying for them (Harford, Humphery-Jenner, & Powell, 2012).

That fact that managerial entrenchment establishes itself more among strategic firms than financial firms might have to do with their different governance structures. Financial players are dependent on their limited partners for cash to conduct their operations and even though their main operation is to generate returns for the limited partners, the financial firm's management benefits from a proportion of the profits as well. Managerial incentives are well-aligned with those from the limited partners so effectively you could say that managerial ownership is high. Therefore, a strategic firm with high managerial ownership would, in this regard, make similar investment decisions because high managerial ownership reduces agency costs from empire building and managerial hubris (Jensen, 1986) that would drive up the premium. Bargeron, Schlingemann, Stulz, & Zutter (2008) indeed find that the difference in premium paid is lowest when acquisitions by financial firms are compared to acquisitions by strategic firms with high

⁹ Known as empire building.

managerial ownership. This is also true for strategic firms with high institutional ownership because they have the ability and the incentive for force managers to improve on the takeover premium. However, financial firms are not free from agency costs. The option-like structure of the General Partners with the Limited Partners induces GP's to take on more risk in the form of debt and to invest more aggressively when market liquidity is high and interest rates are low (Axelson, Jenkinson, Strömberg, & Weisbach, 2013). The increase in leverage resulting in higher risk increases the option value. However, Axelson, Strömberg, & Weisbach (2009) find that adding leverage leads to funds overpaying for targets and thereby lowering fund returns.

2.1.5. Conclusion

In this section I have elaborated on the definition of strategic firms and financial firms. Also, I provided a description of how both acquirer types operate, their governance structure and how they decide to make investments and engage in M&A. Furthermore, I discussed how both types create value. Overall, many of the differences between both acquirers can be traced back to the focus of a financial firm on achieving its IRR. The financial firm is able to exercise more financial discipline, has a broad network of advisors to assist them and more experience in improving assets once they have acquired them over a relatively short term. A financial firm usually does not aim to use synergies to improve value of the target. However, it should technically be possible for a strategic firm to operate under a heavy debt burden like a financial firm. But, then the strategic firm would have to focus tremendously on financial results and cash flow management at the sacrifice of long-term synergies and plans. This will be difficult for the strategic player because of the lack of experience of operating under high leverage and increased possibility of financial distress. Finally, I have discussed theories on how strategic firms' management aim to successfully engage in mergers and realize the synergies (efficiency, market power and corporate control) and I have discussed literature on how managerial overconfidence and self-interest seem to result in value-destroying M&A. For strategic bidders, there is a lot of evidence suggesting that the value for their shareholders decreases when doing M&A. Incentives for GP's in a PE fund align better with the interests of LP's of the fund than incentives for strategic firm's management align with their shareholders' interests due to managerial hubris and personal benefits. One could say that a strategic firm with high managerial ownership resembles

the governance structure of a financial firm and therefore would be less plagued by managerial hubris and entrenchment. Overall, I believe that the financial firm has an advantage over the strategic firm in creating value by engaging in M&A¹⁰.

2.2. The transaction premium

In this section will go deeper into the transaction premium. First, the definition of the premium paid in related articles is discussed and consequently the definition used in this paper is explained. Second, I will present how the premium composition can be approached by a framework of three different layers and how factors in each of these layers affect the premium. Finally, an overview will be given of related research that investigates how strategic and financial firms differ in the premium that they pay.

2.2.1. Transaction premium definition

In this paper I define the premium as the proportion of the final offer that is paid above the share price of the target a week before the announcement of the acquisition. Across articles, authors defined and used the premium in different ways depending on how it serves the purpose of their papers. Articles which focus on stock price returns for acquirer and/or target shareholders or the market's reaction to a certain transaction are most likely to use event studies using cumulated abnormal returns (CAR)¹¹. However, the use of CAR is not compatible for this paper for two reasons. First, it is important to determine the premium for the full transaction period. CAR determines the abnormal returns at the announcement date and over a specified fixed period around the announcement date of each takeover. But the value offered at the announcement date is only the first official bid and does not necessarily have to be the final price for which the takeover is consummated. The transaction period varies among takeovers and therefore the premium measured as cumulated abnormal returns over a fixed period after the announcement differs from the actual premium calculated using the final bid value for which the deal is made

¹⁰ On average. Each strategic buyer is different and not all will suffer from bad acquisitions or other disadvantages. Similarly, not all financial buyers will be able to compete with sophisticated strategic buyers and not all will have the same resources and internal discipline.

¹¹ For example see Schwert (1996).

effective. Also, another potential drawback of CAR is that it may reflect other information that could bias this measure of the premium (Boone & Mulherin, 2011). Second, in this paper I look for drivers of the premium from the acquirer's perspective and how these affect the premium offered by both buyer types. CAR only measures the market's reaction to the bid and is therefore incompatible with the goal of this paper.

Finally, I will adjust for information leakage about the deal before the announcement date. Schwert (1996) finds evidence of takeover anticipation in the stock price as far as 42 days before the announcement date. Dimopoulos & Sacchetto (2014) use 42-day pre-announcement share prices same as Fidrmuc, Roosenboom, Paap, & Teunissen (2012) however the latter find that adjusting the premium has limited impact when comparing financial and strategic players¹². I will not go as far back because other important information might also increase the stock price in the 42-day run-up to announcement of the deal. I will take the share price of one week, before the announcement date to be my denominator in calculating the premium. So to summarize, in this paper I will analyze the premium directly using the final bid value as nominator and the target share price four trading days before announcement as denominator.

2.2.2. Three layers of the transaction premium

The premium is paid on top of target value. But how do acquirers decide on how much premium they want to pay? In the pre-emptive bidding theory it is suggested that the premium reflects actual and potential takeover competition. So in single-bid takeovers, a high valuation could also reflect costs of deterring potential competition (Fishman, 1988). Bidders on firms have asymmetrical information regarding their valuation of a target. The initial bidder values the target on average 81% above pre-acquisition market value and the second bidder on average 64% above market value (Dimopoulos & Sacchetto, 2014). These results suggest that an initial bidder can already deter its ex ante weaker competition with a relatively low bid. However, Dimopoulos & Sacchetto (2014) found that 96% in their sample of takeover between 1988 and 2006 featured

¹² The difference between adjusted and SDC premium for both types is insignificant. Though the difference in premium paid by both buyer types remains significant according to Fidrmuc, Roosenboom, Paap, & Teunissen (2012)

only one bidder. Also, their analysis suggests that the average premium paid in those single-bidder contests was 48% and that the premium in 74% of those cases was only determined by target resistance¹³. Therefore, the most important factor is whether the bidding value is high enough for the target shareholders to accept the offer.

So, a target receives an offer and then target shareholders decide, based on their own private information and benefits, whether to accept or reject it. But how do acquirers come up with the value they are willing to pay and what factors influence this value? Like mentioned earlier, on top of standalone value of the target, a strategic player values the realizable synergies and relies mostly on internal funds while a financial player values operational improvements and relies on the amount of debt that can be obtained. From an observational standpoint, it is impossible to find out exactly how large these synergies and improvements are ex ante. However, I will introduce a framework of three layers based on observable factors in order to explain how the value (and consequently the premium) that both acquirer types are willing to pay for targets in takeovers varies. The base layer will be the aggregate economic environment, the middle layer consists of deal- and target characteristics and the top layer accounts for acquirer characteristics.

Starting at the base, looking at the aggregate economic environment, it can be seen that M&A occurs in waves of activity. Some authors believe and find evidence that these merger waves are due to market overvaluations (Shleifer & Vishny, 2003), (Rhodes - Kropf & Viswanathan, 2004). There are two explanations as to how overvaluation leads to merger waves. First, from a neoclassical standpoint it is argued that inefficient stock market misvaluation and the managerial ability to exploit this is the most important drive of takeover activity. Second, Q theory suggests that higher valuations reflect a higher quality firm and that high quality bidders take over and improve low quality targets, rather than the other way around, to return to an efficient market equilibrium. Evidence by Dong, Hirschleifer, Richardson & Teoh, (2006) is supportive of both theories but evidence for Q theory is stronger in the 1980's and evidence for misvaluation is stronger in the 1990's.

¹³ If the premium offered is not high enough, the target shareholders will resist the takeover. This resistance for instance could reflect future takeover opportunities or value of private benefits for shareholders.

However, merger waves do not only occur because of economic or industry shock that drives overvaluation. Results from Harford (2005) find that not all economic- and industry shocks lead to merger waves but that capital liquidity needs to be present in order to accommodate the transactions and to cause industry-level merger activity to cluster together into aggregate level merger waves. Takeovers become more leveraged when cost of debt is cheap and an abundance of debt is available (Axelson, Jenkinson, Strömberg, & Weisbach, 2013).

The middle layer comprises how deal and target characteristics affect the premium offered. The economic environment influences this layer through overvaluation (or rather undervaluation) and the availability of capital. Rhodes-Kropf, Robinson & Viswanathan (2005) broke overvaluation down in long term overvaluation, sector overvaluation and firm specific overvaluation. They find that most takeovers using stock during merger waves are done by bidders which are overvalued in the short term and that they pay a higher premium (Dong, Hirshleifer, Richardson, & Teoh, 2006). Less overvalued acquirers use cash more often. Overvalued targets are acquired using stock (Rhodes - Kropf, Robinson, & Viswanathan, 2005) and receive a lower premium (Dong, Hirshleifer, Richardson, & Teoh, 2006). Cash takeovers are a buyer's effort to acquire an undervalued target below fundamental value. Also, a better target performance over the past year leads to a higher premium (Bargeron, Schlingemann, Stulz, & Zutter, 2008) as well as firms with lower leverage (Fidrmuc, Roosenboom, Paap, & Teunissen, 2012). Larger targets receive a smaller premium on average than smaller targets (Officer, 2003). Targets receive a significantly higher premium when the bid is hostile instead of friendly (Schwert, 2000). Regarding the transaction characteristics, Fishman (1989) finds that type of consideration offered shows how much an acquirer values the target. Cash offers show a high valuation of the target by acquirers and are less likely to be rejected by the target and less likely to observe competitive bidders than securities offers. Moreover, cash offers pay a higher premium compared to securities offers¹⁴.

In the top layer are acquirer characteristics that affect the premium offered for the target. The middle layer interacts with this layer by the likeliness of accepting the offer and whether cash or securities are accepted as consideration. Acquirer characteristics are also affected by market

¹⁴ Target shareholders must immediately realize cash offers where capital gains from securities offers can be deferred and realized when sold. Thus, for personal tax costs (after-tax reservation price), the shareholder requires a premium.

valuation, availability and cost of debt and the amount of debt it can still take on. If the acquirer is already highly levered it is unlikely it will be able to obtain additional funds through debt markets. In times of overvaluation, the waves of M&A activity will coincide with a higher fraction of completed deals using stock (Rhodes - Kropf & Viswanathan, 2004). However, bidder announcement effects are less negative when cash is offered instead of stock. But cash mergers are more likely to occur in undervalued markets. Targets do know that stock is overvalued and so Rhodes-Kropf & Viswanathan (2004) find that the average target values the offer correctly. However, the greater the market overvaluation the more likely that the target still overvalues the offer. Therefore, overvaluation increases the probability of M&A using stock. Bidder announcement returns are significantly larger for smaller acquirers than for larger acquirers. This shows consistency with managerial hubris playing a bigger role in larger firms as they offer a higher acquisition premium (Moeller, Schlingemann, & Stulz, 2004). More evidence of hubris is found in Petmezas (2009). In overvalued, optimistic (bullish) markets, investor sentiment about synergy gain from M&A are reflected in significantly higher stock returns. But as investors revise their views over a longer period when the performance of the takeover is revealed, leading to a reversal of the initial short term reaction into long-term decline. The manager's incentive to engage in bad acquisitions was to take advantage of the firm's positive stock returns. Shleifer & Vishny (1989) find that hubris manifests mainly in managers with low ownership stakes and Lewellen, Loderer & Rosenfeld (1985) find a positive correlation between acquirer returns and executive stock ownership. So, management ownership might be most effective in deterring hubris and making bad acquisitions

2.2.3. Strategic premium vs. Financial premium

In this chapter I will discuss how the framework presented in the previous chapter relates to both buyer types. Also, I will discuss how the related literature defines the difference in premium paid between both buyer types. In the related literature there are only a few articles that actually focus on the difference in premium paid by financial players and strategic players.

Bargeron, Schlingemann, Stulz, & Zutter (2008) find indeed that private equity pays a lower premium and attribute this primarily to post-acquisition synergies but also to private equity being more selective in the price they are willing to pay. This might be supporting their finding that

private equity players are more inclined to walk away from a deal than strategic players¹⁵. Also, Barger et al. (2008) argue that because managers of strategic players do not bear the full cost of their decisions, they are willing to overpay for a target and have an empire building mentality. Strategic firms with higher managerial ownership are more aligned with shareholders. Their governance structure approaches the alignment found in financial companies between general partners or fund managers and their limited partners or their investors. Premium paid in acquisitions by strategic firms with high ownership might therefore not differ significantly from the premium paid by financial firms. Evidence from research by Barger et al. (2008) supports this.

In their sample, Gorbenko & Malenko (2014) indeed find that the average strategic buyer indeed pays more compared to the average PE firm due to synergies¹⁶ and that valuations by strategic buyers are much more dispersed than valuations by financial buyers. But 22.4% of the targets in their sample are valued higher by financial players than strategic players. When they look into those targets, they conclude that those targets have a higher age and perform poorly. Barger et al. (2008) do not take this perspective into account. They only investigate if there is a difference in premium paid between the sample of public and private takeovers as a whole.

So, strategic buyers mostly pay more than financial firms due to the expected post-acquisition synergies. Moreover, it seems that acquirers each have their own preference for certain target characteristics and value those differently. For instance strategic buyers have preference for growth targets with high market-to-book ratios, high R&D expenses and intangible assets in the form of growth opportunities. Financial buyers have a preference for value targets with low market-to-book ratios, high cash levels (Fidrmuc, Roosenboom, Paap, & Teunissen, 2012), steady ratio of operating cash flow over assets and a below average level of debt (Barger, Schlingemann, Stulz, & Zutter, 2008). Overall, (Gorbenko & Malenko, 2014) find that strategic buyers value targets with investment opportunities higher while financial buyers are more

¹⁵ However it could also be that private equity players are more often willing to make an offer. Either way, in the case of a withdrawal, managers of public firms will have shown part of their strategy. This and the potential loss of reputation will drive strategic manager to completion of the deal albeit at higher costs.

¹⁶ Strategic buyers paid an average of 46.4%, whereas PE buyers paid an average of 36.5%.

drawn to poorly performing targets and that strategic buyers look for specific assets that would result in higher synergies while private equity looks for targets with generally redeployable assets which they manage more efficiently. Dittmar, Li, & Nain (2012) find that financial bidders are superior in finding targets with high potential for value improvement. Strategic bidders competing with financial buyers for the same target earn higher abnormal returns and pay a lower premium than when strategic bidders compete each other. These abnormal returns cannot be explained by observable acquirer-, deal- and target characteristics so it must be due to the superior financial discipline of financial firms in finding targets. Apart from their suggestions of a segmented market, Gorbenko & Malenko (2014) estimated bidder valuations from all bids in takeover auctions. They estimated that strategic buyers on average pay 14.9% less than their valuations. Given that on average strategic acquirers have little to no abnormal gains in a takeover. This finding suggests that either takeovers are already accounted for in the acquirer's share price or these 'gains' come to the private benefit of the acquiring managers.

Fidrmuc et al. (2012) found that the selling mechanism choice by a target reflects its observable characteristics and in turn influences the buyer type. The target knows its own characteristics and, because Fidrmuc et al. (2012) and Gorbenko & Malenko (2014) concluded that each buyer type has its own preferences, target management wants to attract the buyer type which preferences match their firm's characteristics to receive the highest offer and chooses a selling mechanism to favor that type.

Axelson, Jenkinson, Strömberg, & Weisbach (2013) investigate how both buyer types decide on the level of buyout leverage. They find that strategic buyers make their leverage decision based on industry effects while financial players make their leverage decision based on debt market conditions and take on more debt when it is cheap. Axelson et al. (2013) also find this for pricing in the transactions i.e. that availability of cheap debt leads to a higher valuation multiple for financial buyers. In their working paper, Martos-Vila, Rhodes-Kropf, & Harford (2013) wanted to gain deeper understanding on why strategic and financial players have shifting dominance in M&A activity over time. They attribute the shifting dominance from strategic to financial buyers to debt misvaluation in combination with their respective governance structures. Gorbenko & Malenko (2014) find that valuations of financial and strategic players react differently to changes

in economic environment. When explaining the variation in valuation with their models, Gorbenko & Malenko (2014) find that for financial bidders these variations are mostly captured by observable target characteristics and economic circumstances. Where on the other hand, variations in strategic bidders' valuations are explained less by observables and the standard deviation of the unobserved component is twice as high as the unobserved component for financial bidders. This suggests that strategic firms indeed seek unique synergies whereas PE firms seem to stick to similar (interchangeable) strategies. Financial bidders seem to be more willing to pay higher premiums after a period of low stock market returns and when borrowing costs are lower while strategic bidders remain unaffected by these economic circumstances.

2.2.4. Conclusion

In this chapter I discussed how the premium is defined across articles. For my models I will use the direct premium approach using the final bid and target stock price a week prior to the takeover announcement. Also, I introduced a framework of three layers that each encompass factors affecting the premium. The base layer of economy-wide factors shows how overvaluation drive merger waves, the middle layer shows how economy-wide factors influence transaction characteristics and how target characteristics can influence the premium. The top layer shows acquirer characteristics influence the completion of the deal and how merger waves influence the premium offered.

The key points to take away from this section is that cash transactions offer a higher premium, that cheap debt fuels M&A activity and drives the takeover premium upwards and that target characteristics do not explain the difference in premium between strategic and financial bidders.

Also, I discussed the differences between buyer types and how those affect the premium. Buyer type influences target selection, they both prefer different targets and they value target characteristics differently. Finally, I discussed how both buyer types reacted differently to market conditions.

2.3. Hypotheses

In the overview of academic literature above, I elaborated on what strategic and financial firms are, how they operate and, most importantly, how they differ from each other. Then, I elaborated on how the transaction premium is defined and how transaction premium is influenced. To do this, I introduced a framework of three layers: the base layer of economy-wide factors, the middle layer of deal- and target characteristics and the top layer of acquirer characteristics. Finally, I addressed how both buyer types differ in the premium they pay and how the premium they pay is influenced.

The goal of this paper is to investigate whether and why a strategic buyer pays on average a higher premium than a financial buyer. Their respective investment processes have been discussed extensively and it is clear how they are intrinsically different. This intrinsic difference at how both acquirers determine the value of the target and the price they are willing to pay, lies at the root of the main research question. Therefore, the hypotheses are drawn up assuming an acquirer's perspective.

As discussed, the average strategic buyer pays a higher premium than the average financial buyer. Fidrmuc, Roosenboom, Paap, & Teunissen (2012) - using a sample of 205 matched deals between 1997 and 2006 and Bargeron, Schlingemann, Stulz, & Zutter (2008) - using a sample of 1,667 cash-only deals between 1980 and 2005 resulting in 100% ownership, both find that the premium paid by a financial buyer is significantly lower in a cross-sectional multivariate regression, even when controlled for deal- and target characteristics. The difference is shown by a dummy variable in that has value one if the acquirer is financial and zero if the acquirer is financial. This method only shows us that there is a difference but nothing more. Therefore I will refer to this difference as the *static* difference. The only way one could try to explain what would explain the difference is to include omitted variables so that the dummy-coefficient will be rendered insignificant. When this is related back to the three layer framework, only the middle layer is accounted for and only as control variables. However, the top layer consisting of acquirer characteristics has not yet been applied to examine whether the static difference can be explained across transactions. Even though they acknowledge acquirer preferences, they have neglected to account for these in their models. For instance, as hinted earlier, financial firms might pay less for

a target than a strategic firm because ownership is more concentrated. So, it might be expected that the difference in premium paid decreases for strategic firms with higher managerial ownership concentration. Also, other acquirer characteristics will be tested. Therefore, the first sub-question will be:

Can the difference be explained by acquirer characteristics?

Bargeron et al. (2008) made samples in which the level of strategic managerial ownership differs across samples. They found that the difference in premium is highest when managerial ownership is less or equal to 1% and lowest when it exceeds 50%. However, they do not test whether managerial ownership has a direct effect on the premium and that is what will be tested in this paper.

So the top layer consists of variables that try to explain the static difference in the cross-section. These variables vary for each acquiring company. However, Martos-Vila, Rhodes-Kropf, & Harford (2013) found a shifting dominance in financial and strategic takeover activity over time. Indicating that the difference in premium paid varies over time and possibly could be explained by time-series variables. I will refer to this time varying aspect of the premium as the *dynamic* difference. In order to try to explain this difference, variables that change for each time-period are needed. These can be found in the base layer of the framework. But, first it needs to be shown that indeed the difference in premium fluctuates over time to consequently explain the variance with base layer factors. Therefore, the second sub-question will be:

Is there a systematic difference between the premium paid by strategic and financial buyers in a takeover transaction over time?

The model belonging to this sub-question will show how the overall premium paid moves over time and premium paid by both buyer types separately. It is important to examine because if there is any indication of a dynamic difference, there is reason to believe that market timing could explain the difference in premium. This brings us to the final sub-question:

Can the difference be explained by market timing?

Overvaluation does seem to have an effect on the premium paid in transactions. In answering this question it will be shown if financial buyers react differently to economy-wide circumstances than strategic buyers. The variables that proxy aggregate economic factors in which overvaluation can take place come from the base layer of the framework. Factors regarding debt market conditions and equity market conditions will be investigated. Axelson, Jenkinson, Strömberg, & Weisbach (2013) used a time series regression to investigate aggregate economic factors on the average EV/EBITDA-multiple for leveraged buy-outs in every period from Q4 1992 and Q2 2008. However, they did not compare between strategic buyers and financial buyers and they did not investigate the effect of the economic environment on the premium paid. That will be researched in this paper.

3. Data and methodology

In this paper I am interested in the difference in premium paid that originates from difference in nature of two types of acquirers: Strategic firms and financial firms. What sets them apart and could that explain what drives the (systematic) difference in the premium that they pay for a target firm in a transaction? This paper builds further on related literature by incorporating acquirer characteristics and a market timing approach. I will show whether the difference between strategic and financial buyers can be explained by acquirer characteristics, how the difference in premium paid evolves over time and whether the difference can be explained by market timing factors. In order to compare better amongst buyer types, the sample will consist of privately negotiated, cash-only transactions in which 100% ownership is acquired.

In this section I will discuss the research methods and the composition of my sample used for answering the three sub-questions drafted in the previous section. In the first model, the sample will be analyzed in the cross-section. Because acquirer characteristics are only observed for public acquirers, the non-listed or private strategic acquirers are not incorporated in the sample. The second model will show how the premium paid and the difference in premium between both buyer types moves over time. The third and final model incorporates the entire sample, however it will be divided into two groups based on buyer type. This model is a multivariate time-series regression in which the transactions will not be analyzed individually, like in model 1, but will be bundled into groups for each period in the time-series. The regressions will be run for each group separately and compared afterwards. The independent variables that will be used in these models will be discussed later in this section.

3.1. Research method

To investigate whether the difference in premium can be explained by acquirer characteristics, I will use a cross-sectional multivariate regression model. In this model, I will incorporate the acquirer characteristics from the top layer of the framework. As mentioned, concentrated ownership structures, such as high managerial ownership¹⁷ and institutional ownership, reduce

¹⁷ In (Bargeron, Schlingemann, Stulz, & Zutter, 2008) an indication was made that the premium did not differ much between public and private firms in case of high managerial ownership of the public firm.

managerial hubris and thereby the risk of overpaying. Also, overvalued acquirers are more likely to overpay for a target. More overvalued acquirers are more likely to pay with shares and less overvalued acquirers to pay with cash. Takeover waves are stimulated by overvaluation and availability and cost of capital. An acquirer with a pre-transaction high debt burden is less likely to receive additional capital from banks to finance the deal. Therefore, I will look at the room for leverage that is left through industry adjusted leverage. Larger targets receive a lower premium. However, strategic acquirers take over larger targets and pay a higher premium. I think this puzzle can be solved by looking at relative size instead of just acquirer or target size. The premium will be explained by a dummy variable for private equity transactions and transaction and target characteristics as control variables. When the private equity dummy is insignificant, the difference in premium will have been explained by the acquirer characteristics. I will perform multiple regressions in which the constituents of this model will vary. The regression model corresponding to the above looks as follows:

$$(1) \quad Premium_i = \alpha + \beta_1 Financial + \beta_2 X_1 + \dots + \beta_9 X_8 + \beta_{10} X_9 + Controls + \varepsilon$$

Where:

<i>Premium_i</i>	= The premium paid by the acquirer	(%)
<i>Financial</i>	= Dummy, equals 1 for financial acquirers and 0 for strategic acquirers	
<i>X₁</i>	= Managerial Ownership of the acquirer	(%)
<i>X₂</i>	= Institutional Ownership of the acquirer	(#)
<i>X₃</i>	= Institutional Ownership of the acquirer	(%)
<i>X₄</i>	= Industry-Adjusted Tobin's Q of the acquirer	
<i>X₅</i>	= Leverage Net Debt/ Enterprise Value of the acquirer	
<i>X₆</i>	= Leverage Net Debt/ EBITDA of the acquirer	
<i>X₇</i>	= Relative Size of the acquirer to the target	
<i>X₈</i>	= High Yield credit spread	(%)
<i>X₉</i>	= Interaction variable High Yield credit spread*Financial	
<i>Controls</i>	= Control Variables, target- and transaction characteristics	

This same method is used by Bargeron, Schlingemann, Stulz, & Zutter (2008) and Fidrmuc, Roosenboom, Paap, & Teunissen (2012) but without the acquirer characteristics. The target

characteristics from their multivariate regressions which were significant are the ones I will also use as controls in Model 1. These were target size, industry-adjusted Tobin's Q, leverage¹⁸ for Barger et al. (2008) and profitability, market-to-book, R&D, intangible assets and cash for Fidrmuc et al. (2012).

Expanding on this model I will put in fixed year effects. If there is added explanatory value from these fixed year effects, then this is the first step of investigating whether the difference in premium is affected by economy-wide effects that differentiate over time and is the bridge to the question whether market timing has any effect on the difference.

In order to get a proper image of the systematic difference, it is interesting to see if it differentiates over time. In order to explain a systematic difference, it needs to vary over time. By looking at the variation of the factors in the model, one might be able to explain why or how this change in the dependent variable has occurred. This is essentially what happens in a statistical regression. By looking at a cross-sectional regression model, you can show that there is a difference. A static difference if you will. However, as long as this difference remains static, there is no variability to explain. Therefore, a crucial part in explaining the difference in premium paid between both buyer types is that this difference varies over time. Once this variability over time of the difference in premium is established, I can make progress in trying to explain it using bidder characteristics and economy-wide factors¹⁹ in a time-series regression model.

For showing how the premium difference moves over time, I will use a test used by Martynova & Renneboog (2006) with a few adjustments. They present a model which calculates the cumulative average abnormal returns (CAAR) in a takeover process. So they look at all the takeovers in their sample, calculate the cumulative abnormal returns and take the average of that to show how abnormal returns behave during the event window based on a certain characteristic. For this paper I adjust the CAAR method by using the premium paid by the acquirer and not the returns to the shareholders. In order to calculate the premium I use the accepted offer price and the target's

¹⁸ Barger et al. (2008) used target abnormal returns to measure the premium. So, leverage in this model reflects more of a risk premium than actual need for acquirers to pay more.

¹⁹ I will control for deal and target characteristics. Already mentioned that these are not sufficient in explaining the difference in premium paid between the two buyer types.

closing price 5 days before the announcement date²⁰, thereby excluding any stock price reaction from leaked inside information.

$$(2) \quad Premium_t^{s,f} = \frac{1}{N} \sum_{i=1}^N Premium_{it}^{s,f}$$

Where:

$Premium_t^{s,f}$ = The average premium paid by strategic or financial acquirer in period t

$Premium_{it}^{s,f}$ = The premium paid by strategic or financial acquirer

t = year in sample period (1, 2, 3...etc.)

Probability of deal success and information during run-up period bias the use of abnormal return during announcement to measure gains to target shareholders. Also, I do not look at different time steps within the takeover process but I calculate the average premium of the takeovers that occurred in a time period. Taking this model as a basis, I will make adjustments as to discern the path of the average premium over time. The average premium over time will be separated for both buyer types, showing the difference in premium paid for the average strategic and financial buyer.

For the model that will investigate the market timing hypothesis, I will factor in variables that reflect the situation of the aggregate economic environment which might affect investment decisions by either strategic or financial players such as debt valuation (Axelson, Jenkinson, Strömberg, & Weisbach, 2013), (Martos-Vila, Rhodes-Kropf, & Harford, 2013), market over- or undervaluation represented by stock market price-to-earnings (Dong, Hirshleifer, Richardson, & Teoh, 2006) and overall stock market performance (Gorbenko & Malenko, 2014). Until now, research only has been done in the cross-section to determine what drives the premium and which buyer type is attracted to which target. This model will show that the premium is affected by economy-wide variables and how investment decisions by both buyer types are affected by the economic environment. Gorbenko & Malenko (2014) found that a large part of the premium paid in individual transactions is explained by unobservable characteristics. The advantage of this

²⁰ Also used Bargaron et al. (2008) but they use multiple measures.

model is that part of these unobservable characteristics, that influence the premium either upwards or downwards, will be cancelled out in this sample because I will take the average premium in a certain period. Thereby reducing the influence of unobserved characteristics of individual transactions. To answer this question I will create two subsets: one with strategic buyers and one with private equity buyers. The results of the regressions for each subsample will be compared and from that conclusions can be drawn. The time-series model consists of the following variables.

$$(3) \quad \text{Premium}_t^{s,f} = \alpha + \beta_1 X_1 + \beta_2 X_2 \dots + \beta_7 X_7 + \beta_8 X_8 + \text{Controls} + \varepsilon$$

Where:

$\text{Premium}_t^{s,f}$	= The average premium paid by strategic or financial acquirer in period t	
X_1	= High Yield credit spread	(%)
X_2	= High Yield rate	(%)
X_3	= LIBOR 6 months	(%)
X_4	= S&P returns	(%)
X_5	= S&P price-to-earnings	
X_6	= S&P minus High Yield rate	(%)
X_7	= Market Liquidity	(#)
X_8	= GDP growth	(%)
<i>Controls</i>	= Control Variables, target- and transaction characteristics	

Axelsson et al. (2013) use a similar model but not to investigate pricing in M&A transactions. They are interested in the effects of economy-wide variables on the use of debt for acquisitions by public firms and leveraged buy-outs by private equity. Still, the distinction between two sample groups and the use of economy-wide variables correspond to what I am trying to analyze here.

The results from this model will give further insights in how the premium paid by both buyer types is influenced by the conditions of the market. The difference in the coefficients of both regressions which factors influence the transaction market as a whole and which factors affect one type more than the other. The latter should give more insight whether the economic

environment affects the prices and whether the economic environment affects the timing of an acquisition by a strategic or financial buyer, thereby coming closer to explaining the difference in premium.

3.2. Variables

Here I will describe the variables used in the models. The factors for which the variables proxy are elaborately discussed in the literature overview of section 2 in this paper. First, I will discuss the variables used in model 1 to proxy the acquirer characteristics that, based on theory, might explain the difference in premium paid between the strategic buyers and financial buyers in the cross-section. Then I will discuss variables that represent economy-wide factors to which strategic and financial acquirers both react differently and therefore might explain the difference in premium in the time-series. Finally, I will discuss deal- and target characteristics that are used as control variables in model 1 and 3.

The dependent variable in all models is the premium paid. The definition of premium that I will use throughout this paper is substantiated in the literature review and is defined as follows:

$$(4) \quad \text{Premium} = \frac{\text{Share Price paid} - \text{Target Share Price 5 days prior announcement}}{\text{Target Share Price 5 days prior announcement}}$$

3.2.1. Acquirer characteristics

The variables mentioned in this chapter are related to the top layer of the framework that I presented in the literature review and will be used in model 1. Theoretically, the most important acquirer characteristic to be incorporated in this model is *managerial ownership*. Firms with low managerial ownership are more likely to make bad acquisitions and to pay a higher premium for the target because incentives of management and shareholders are not aligned. Strategic firms with high managerial ownership come close to the governance structure of financial firms and similarly pay a lower premium. Managerial ownership is measured as percentage of shares held by management. I exclude options from this measurement. Options might induce a manager to engage in M&A to increase his option value in the short-term which is counterintuitive to the

point I am trying to make with the managerial ownership variable. Also, active monitoring by institutional shareholders might influence the premium paid so I will put in variable *institutional ownership*, both by the number of institutional shareholders and the percentage of outstanding shares that institutions possess. These three variables will reflect the ownership concentration in an acquiring strategic firm.

Further, as mentioned in the literature review, acquirer overvaluation drives takeover activity and the premium. To account for overvaluation in the model I will use *Tobin's Q* as a variable constructed by taking the market value of assets, calculated as the sum of market value of equity and total liabilities, over the book value of assets of the acquirer. However, Harford (2005) found that industry shocks drive M&A activity and Rhodes - Kropf, Robinson, & Viswanathan (2005) found that, for an individual firm, M&A activity and pricing is driven by short-run deviations from the industry shock. Therefore, Tobin's Q needs to be corrected for sector overvaluation. So, I will construct *industry adjusted Tobin's Q* variable in which the Tobin's Q variable is adjusted for the industry median of firm overvaluation.

Since it is paramount that the acquirer is able to obtain all the financing for the deal, I will have to put in a variable for *leverage*. The ability of an acquirer to obtain additional funds from banks depends on how high their current debt burden is. The lower the debt burden, the more room for additional funds in the form of debt. I will use two measures of leverage. Net Debt over Enterprise Value and Net Debt over EBITDA. Enterprise value is calculated as the sum of market value of equity and total debt. These variables do not have to be adjusted for industry levels of debt²¹ because there is no evidence to suggest that these vary across industries. As Net debt over EBITDA is a common measure used by banks to issue funding, I think that it will be the most significant variable to represent leverage.

Finally, this model needs to account for size of the acquirer because larger acquirers pay a higher premium for a target. However, evidence from Officer (2003) states that target shareholders receive a lower premium when their firm is larger. And at the same time, Barger et al. (2008)

²¹ For instance, if one would use Debt over Assets because industries with more tangible assets would be able to take on more debt with their assets serving as security. Therefore, in that measure one would have to correct for industry levels of debt in order to compare companies across industries.

finds that public acquirers, which pay higher premiums than private acquirers, take over larger firms. I think this puzzle can be solved by looking at *relative size* of a strategic player to a target. Relative size is constructed by the strategic acquirer's market value of equity divided by the target's market value of equity. The acquirer variable characteristics are presented in table 1.

Table 1
Acquirer Variable Characteristics

This table presents the acquirer descriptive statistics for strategic public buyers. The premium is the percentage of the price per share paid that exceeds the target's share price five days prior to the announcement of the transaction. Market Value of Equity is the acquirer's shares outstanding times the share price at the time of the announcement. Managerial Ownership is the percentage of outstanding shares held by management. Institutional Ownership is the amount of institutional owners with at least 5% stake in the acquirer. Institutional Ownership % is the percentage of shares held by institutional owners. Industry-Adjusted Tobin's Q is calculated by the acquirer's MVE and liabilities divided by the book value of assets to get Tobin's Q and subsequently subtracting the acquirer's industry median Tobin's Q. Net Debt is calculated as total interest bearing debt minus cash. Enterprise Value is calculated as MVE and net debt. Relative Size is calculated by acquirer's MVE divided by the target's MVE. *Winsorized at the 95%-level

	Mean	Median	Std. Dev.	Max.	Min.	Obs.
Premium %	54.86	43.82	39.82	164.62	3.48	250
Log Market Value of Equity*	8.36	8.29	2.19	12.28	3.94	250
Managerial Ownership %	1.25	0.00	3.95	32.34	0.00	250
Institutional Ownership	1.89	2.00	1.33	6.00	0.00	216
Institutional Ownership %	67.76	72.43	21.86	96.66	0.51	216
Industry-Adjusted Tobin's Q*	0.31	0.10	1.08	3.38	-1.37	250
Leverage Net Debt/EV*	-0.04	-0.01	0.27	0.47	-1.00	250
Leverage Net Debt/EBITDA*	-0.89	-0.76	3.98	7.18	-11.39	250
Relative Size*	216.08	31.42	495.25	2215.69	0.43	250

3.2.2. Economy-wide factors

Economy-wide factors entail variables that can indicate merger waves and overall economic conditions that might influence the premium and are related to the base layer of the framework. The variables mentioned here are related to the base layer of the framework presented in the literature review. Merger waves are driven by the availability and cost of capital. *High Yield Credit Spread* will proxy for the cost and availability of debt. It is constructed by taking the difference between the BofA Merrill Lynch High Yield rate and the 6-month LIBOR rate. In this variable, the High Yield component is relates more to the cost of debt and the LIBOR component relates more to the availability of debt. If LIBOR-rate is low, it means there is more debt capital

available for lending. A higher credit spread means that lenders demand a higher premium for the risk they are taking making debt more costly. Therefore, it is expected that the credit spread is negatively correlated to the premium.

Furthermore, *stock market performance* is included. The returns of the S&P 500 index will be used as a variable to proxy stock market performance. High previous stock market performance drives activity by strategic buyers but if recent stock market performance was poor it means that more funds will flow to financial acquirers from investors. Combined with the stock market performance, I will include S&P500 price-to-earnings variable to proxy for relative overvaluation of the market. Another important variable for indicating a takeover wave is *market liquidity*. Conditions must be right to engage in transactions and the proxy for market liquidity is the amount of transactions in a given year with many transactions indicating good market conditions for takeovers. Also, I add a variable consisting of the difference between the S&P500 returns and the high yield index. This will measure the difference in relative attractiveness between public equity and debt markets. A low value would indicate that debt is relatively cheap and should be positively related to private equity fundraising driving capital from public equity markets to debt markets. Finally GDP growth is added as a measure increase and decline of overall economic activity.

3.2.3. Control Variables

Control variables comprise deal- and target characteristics which are found significant by related literature like Bargaron et al. (2008), Fidrmuc et al. (2012) and Gorbenko & Malenko (2014) are related to the middle layer of the framework. Overvaluation will be accounted for through *industry-adjusted Tobin's Q*. Tobin's Q is also constructed as market value of equity and total liabilities over assets and corrected for industry median Tobin's Q. Especially, because all transactions are cash-only, undervalued targets will receive a higher premium. All targets in the sample are publicly listed so *performance* over the past year can be included. The performance variable is constructed as the market adjusted return over the year before the deal of the target. According to Gorbenko & Malenko (2014), financial buyers have a preference for underperforming targets. Also, strategic buyers prefer more profitable firms, so *profitability* is also controlled for in the models. Profitability is constructed as EBIT over assets. Same goes for a

target's *R&D expenses*, *intangible assets*, *operating cash flow* and *cash*. The first two are positively correlated to premium paid by strategic players and the last two are more positively related to premium paid by financial players (Bargeron, Schlingemann, Stulz, & Zutter, 2008), (Fidrmuc, Roosenboom, Paap, & Teunissen, 2012). Intangible assets and cash are normalized by assets and R&D expenses and operating cash flow are normalized by sales.

In the restrictions posed on the sample there is already controlled for some deal characteristics like acquiring full ownership, that the deal is privately negotiated without competition and that payment must be cash only. These restrictions on deal characteristics make transactions comparable between strategic and financial buyers. However, there are still some deal characteristics that influence the premium regardless of comparability. These consist of *deal value*, whether the deal is made in a *diversifying* industry and whether the acquisition is structured as an *LBO*²². The target variable characteristics are presented in table 2a.

Table 2a
Control variable characteristics

This table represents the deal- and target characteristics for all transactions in the sample. The premium is the percentage of the price per share paid that exceeds the target's share price five days prior to the announcement of the transaction. Market Value of Equity is the target's shares outstanding times the share price at the time of the announcement. Industry-Adjusted Tobin's Q is calculated by the target's MVE and liabilities divided by the book value of assets to get Tobin's Q and subsequently subtracting the target's industry median Tobin's Q. Performance is calculated as the target's stock price returns over the year before the announcement of the transaction. R&D Expenses and Operational Cash Flows are normalized by sales and Intangible Assets and Cash are normalized by total assets. Dealvalue is the total amount paid for all the target's outstanding shares.
*Winsorized at the 95%-level

	Mean	Median	Std. Dev.	Max.	Min.	Obs.
Premium %*	50.22	39.29	38.80	164.62	3.48	769
Log Market Value of Equity*	4.54	4.54	1.62	9.90	-1.05	769
Industry-Adjusted Tobin's Q*	-0.11	-0.27	0.94	3.35	-1.57	769
Performance %	-1.16	3.59	84.30	399.80	-746.92	712
Profitability*	-0.01	0.04	0.19	0.25	-0.71	769
R&D Expenses*	0.09	0.00	0.17	0.83	0.00	769
Intangible Assets*	0.11	0.01	0.17	0.60	0.00	769
Operational Cash Flows*	-0.01	0.08	0.75	1.32	-3.06	769
Cash*	1.70	0.63	2.73	12.80	0.00	769
Log Dealvalue	4.92	4.87	1.56	10.14	-0.35	769

²² Observations in my sample on whether a transaction was hostile or friendly were unreliable and therefore not taken into account here.

The differences in the average target characteristics preferred by both buyer types are represented in table 2b. The median is shown in brackets underneath the mean. Except for target size and deal value, deal- and target characteristics differ significantly between both buyer types. The difference in premium is also significant and about 10.5%. This difference is comparable with the difference found by Gorbenko & Malenko (2014) who found that strategic buyers pay on average a premium of 46.4% and financial buyers an average of 36.5%, which is a 9.9% difference.

Table 2b
Target characteristics differences by type

This table shows the differences in average and median target characteristics between strategic and financial bidders. The median values are between brackets. The mean difference is tested by t-test and anova F-test. The median difference is tested by Kruskal-Wallis-test. The P-values are given in the outer right column.

	All Bidders	Financial Bidders	Strategic Bidders	Difference	P-value
Premium	50.22 [39.29]	42.60 [32.26]	53.08 [42.67]	-10.48 [-10.41]	0.001 0.000
Size	4.54 [4.54]	4.55 [4.53]	4.53 [4.54]	0.02 [-0.02]	0.875 0.952
Industry Adjusted Tobin's Q	-0.11 [-0.27]	-0.38 [-0.39]	-0.01 [-0.19]	-0.37 [-0.19]	0.000 0.000
Performance %	-1.16 [3.59]	1.53 [7.85]	-2.17 [2.92]	3.70 [4.93]	0.602 0.660
Profitability	-0.08 [0.04]	0.03 [0.05]	-0.02 [0.04]	0.06 [0.01]	0.000 0.008
R&D	0.09 [0.00]	0.04 [0.00]	0.11 [0.01]	-0.08 [-0.01]	0.000 0.000
Intangible	0.11 [0.01]	0.13 [0.01]	0.10 [0.01]	0.03 [0.00]	0.013 0.210
Operational Cash Flows	-0.01 [0.08]	0.15 [0.10]	-0.07 [0.05]	0.22 [0.05]	0.000 0.001
Cash	1.70 [0.63]	1.33 [0.37]	1.84 [0.78]	-0.51 [-0.41]	0.020 0.000
Log Dealvalue	4.92 [4.87]	4.89 [4.81]	4.94 [4.91]	-0.04 [-0.11]	0.737 0.675

3.3. Sample

For my sample I collect takeover transactions of public and non-public operating targets from the period 2000 to 2015 for which all information is publicly available. This period entails the crash and aftermath of the dotcom bubble, a merger wave with its high point in 2007 right before the credit crisis emerged and, after recovering from this crisis, another surge in takeover activity. All transactions come from the SDC database through Thomson One and all fundamental data needed to construct the acquirer and target characteristics came from Wharton's Compustat and Execucomp. Economy-wide variables come from Bloomberg.

In order to make the observations for both buyer types more comparable, I will impose some restrictions onto my sample. Fidrmuc, Roosenboom, Paap, & Teunissen (2012) made comparable pairs of transactions, i.e. for each transaction of one type they tried to find a matching transaction of the other type. I think this is a naïve approach which omits a lot of data points²³ and assumes that there are two, somewhat identical, deals of which one with a strategic and one with a financial acquirer. This approach fails to recognize that, although comparable on observable characteristics, there are unobservable characteristics which could render the transactions very different. The restrictions imposed on my dataset are that the consideration offered must be cash only, that the acquirer must obtain 100% ownership of the target (Bargeron, Schlingemann, Stulz, & Zutter, 2008) (Gorbenko & Malenko, 2014) and that the sale must occur in the setting of a private negotiation.

The main reason why the sample is restricted to all cash transactions is that private equity firms are not able to use their own stock as currency. So including deals with a mix of cash and equity or all equity would bias the sample for finding the difference in premium because most of the time acquiring managers use equity as a currency because they believe it is overvalued. Therefore they would acquire the target more cheaply, creating a bias in the premium calculated in this paper and the actual premium. And for calculation purposes, this way the premium does not have to be corrected for the extra premium that target shareholders get for having to convert payment

²³ Fidrmuc et al. (2012) only have 205 transactions in their dataset.

into cash themselves and the extra premium to account for when overvalued acquirer's stock returns to fundamental value which is not intrinsically motivated by the acquirer.

Also, only transactions that obtain full ownership are included. Because financial firms mostly take full ownership of the target firm and a different premium might be paid for full ownership than stakes of less than 100% due to financing constraints.

Furthermore, I exclude auctions and controlled sales from my transaction. Apart from the fact that private negotiations are most regularly used (Dimopoulos & Sacchetto, 2014)²⁴, I do not want any pollution by bidding reflected in the premium. Looking only at private negotiations should provide an image of the premium that truly stems forth from the nature of the buyer type and prevents the premium from being driven by the bidding competition.

Finally, I exclude transactions that could significantly bias the sample. These biases are mostly caused by transactions that involve penny stock and transactions with a deal value of less than US\$ 5 million. So, I exclude these deals and transactions in which a premium of more than 1000% is paid. The remainder of the sample is winsorized at the 95% level. The sample consists of 769 observed transactions.

After selecting the transactions and imposing the restrictions, there are three groups of transactions which are comparable and where all transaction information is public. These groups are distinguished on whether the acquirer is a public strategic company, a private strategic company or a financial firm. Still, all targets in the sample remain public companies with available information. However, acquirer characteristics of the private strategic acquirer group are not available. Hence, the subsample of these transactions will be excluded from the sample analyzed in model 1. In model 2 and 3, the analysis will be done using the full sample. In table 3 the number of deals and the aggregate deal values for each year are presented. The table indicates that the percentage of financial deals and the total financial deal value is around 27 percent for both. This is curious as this would point out that the average deal value paid by financial buyers is around the same as the average deal value paid by strategic buyers. As long as strategic buyers

²⁴ (Dimopoulos & Sacchetto, 2014) find in their sample that 94% of all transactions does not involve more than one bidder.

buy larger targets, there might still be a difference in average premium paid between the two buyer types. However, this comparability in absolute amounts paid support the premise that financial buyers are more frequently able to compete with strategic firms in auctions as found by Gorbenco & Malenko (2014). Especially in 2007 and 2013 financial players achieve a very high total deal value with a relatively low amount of deals.

Table 3
Premium and deal value descriptive statistics

This table shows the number of deals and total deal value per year of all transactions in the sample. In the first two columns, number of deals and deal value of all bidders are given. Then number of deals and deal value of financial bidders only and the proportions relative to all deals. Then follow the strategic bidder transactions. These are split into a group of public bidders and their percentage relative to strategic bidders and the final two columns are private strategic bidder transactions.

Year	All Bidders		Financial Bidders					Strategic Bidders						
	N	Dealvalue	N	As percentage of all deals			Public bidders		As percentage of strategic deals			Private bidders		
				Dealvalue	N	Dealvalue	N	Dealvalue	N	Dealvalue	N	Dealvalue	N	
2000	70	37,462	22	7,768	31%	21%	48	29,694	31	9,896	65%	33%	17	19,798
2001	65	13,745	11	1,323	17%	10%	54	12,422	27	8,454	50%	68%	27	3,968
2002	47	6,960	11	1,370	23%	20%	36	5,590	25	4,689	69%	84%	11	901
2003	59	23,094	20	3,248	34%	14%	39	19,846	31	19,292	79%	97%	8	554
2004	50	17,185	9	6,940	18%	40%	41	10,245	30	8,056	73%	79%	11	2,190
2005	66	37,477	16	9,199	24%	25%	50	28,278	30	19,788	60%	70%	20	8,491
2006	84	68,905	24	17,857	29%	26%	60	51,048	35	39,618	58%	78%	25	11,430
2007	82	71,577	23	32,997	28%	46%	59	38,580	37	26,394	63%	68%	22	12,186
2008	51	38,271	15	10,641	29%	28%	36	27,630	26	26,603	72%	96%	10	1,027
2009	16	4,412	5	237	31%	5%	11	4,175	7	3,899	64%	93%	4	276
2010	51	13,967	14	1,525	27%	11%	37	12,441	15	6,598	41%	53%	22	5,843
2011	46	26,504	16	7,410	35%	28%	30	19,094	10	8,492	33%	44%	20	10,602
2012	29	7,621	7	1,889	24%	25%	22	5,732	11	4,572	50%	80%	11	1,160
2013	19	4,681	8	2,997	42%	64%	11	1,684	7	538	64%	32%	4	1,146
2014	13	1,722	2	354	15%	21%	11	1,368	5	831	45%	61%	6	537
2015	21	18,831	7	1,413	33%	8%	14	17,417	5	15,440	36%	89%	9	1,977
Total	769	392,414	210	107,169	27%	27%	559	285,245	332	203,158	59%	71%	227	82,087

4. Results

In this section I will discuss the results of the tests. The regressions run for model 1 and model 3 are checked for heteroskedasticity, serial correlation and non-normality in the distribution of the residuals. The results of the robustness checks are found in the appendix.

4.1. Cross-section with acquirer characteristics

This model belongs to the first research question of whether the static difference between premium paid by financial and strategic acquirers can be explained by acquirer characteristics. I test this using an OLS multivariate regression across M&A transactions. The dependent variable is the takeover premium paid and the independent variables consist of the acquirer characteristics and control variables mentioned earlier. Transactions in which the acquirer is a private strategic firm are excluded because information on observable acquirer characteristics is unavailable. Up until now, research regarding the difference in premium has only been done using the deal- and target characteristic that I use as controls. The financial dummy in this model indicates whether there is a significant static difference in premium paid between both buyer types. The dummy has value 1 for transactions in which the acquirer is a financial buyer and value 0 if the acquirer is a strategic buyer. Adding the acquirer characteristics has the goal of bridging the gap in premium by trying to explain the higher premium for those transactions. If they do so successfully, the financial dummy will be rendered insignificantly different from zero and the static difference will have been explained by acquirer characteristics. Eventually, year fixed effects and high yield credit spread will be added to the model to investigate whether there is reason to believe that the difference in premium is affected by market timing.

The first specification of the model is the basic model of only the financial dummy and the control characteristics, as used by other authors, to establish that indeed there is a significant difference of 12.9% in premium to begin with. As seen in table 4, the financial dummy is significantly negative as expected. Across all further specifications in this model the difference remains significant and varies between 7.7% and 12.9%. So controlled for target characteristics, financial acquirers do pay a significantly lower premium compared to strategic acquirers. Depending on the target characteristics used, Fidrmuc et al. (2012) found a difference in premium

paid varying between 10.8% and 14%. Within the control variables for this specification and the other specifications in table 4, it can be seen that overvalued targets receive a lower premium by targets to compensate for the overvaluation. Targets involved in the largest deals receive a lower premium. This is as expected because larger targets receive a lower premium. A target with more cash on their balance sheets receives a premium which is a bit lower because acquirers are not willing to pay for cash. Targets with a higher portion of intangible assets also receive a lower premium probably because they can rarely pose as security for funds and because they might be less valuable to the new owner. For all except the first specification, targets with higher R&D expenses receive a higher premium. This might be because R&D might signal future growth through innovation. Strategic buyers would be eager to buy this growth and financial buyers can cut the R&D expenses after takeover to pay off debt instead.

The second specification introduces ownership concentration for strategic acquirers to the model. Institutional ownership does not seem to have a significant effect on the premium but managerial ownership is positively related to the premium at the 5%-level. This is curious as I would have expected managerial ownership to have a negative effect. However, the gap between strategic and financial buyers has been significantly reduced to 9% by adding the managerial ownership variable so in this fact does help to explain the difference.

Specifications 3 and 4 add market valuation, leverage and relative size to the model. Acquirer industry-adjusted Q is negative and significant. Normally, it is expected that a higher valuation relative to the market should be positively related to the premium. However, this sample is restricted to consideration of cash only for comparability. Rhodes-Kropf et al. (2005) found that acquirers in cash only M&A are less overvalued than acquirers in stock only deals. This might suggest that target management's inability to assess an acquirer's overvaluation leads to demanding cash payment at a too low premium. Furthermore, pre-acquisition leverage is negatively related to the premium. A lower pre-acquisition leverage leaves more room to obtain funding for the takeover. As expected, net debt over EBITDA seems to be the better predictor being the only one of the two to be significant. Relative size accounts for the size puzzle in the takeover premium. This result is also as expected, the higher the relative size of the acquirer to

Table 4
Model 1 Results

This table represents the results of the multivariate regressions used in Model 1. The regressions are OLS and performed in the cross-section. Dependent variable is the premium paid by the acquirer calculated as the proportion of the share price paid exceeding the target's share price five days before the announcement of the deal. The transactions included are privately negotiated, acquire 100% ownership and are paid in cash only between 2000 and 2015. Transactions in which the acquirer was strategic and private are excluded since there is no observable acquirer information available. Significance: *10%-level, **5%-level, ***1%-level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Financial dummy	***-12.944	-8.997	** -7.731	** -8.887	***-10.023	** -8.832	*-12.899
	3.763	6.014	3.725	3.805	3.772	3.640	7.167
Acquirer Managerial Ownership		**1.503	**1.613	**1.603	*1.204	*1.386	*1.407
Acquirer Institutional Ownership		0.586	0.720	0.722	0.693	0.736	0.736
		-0.321					
		2.311					
Acquirer Institutional Ownership %		4.170					
		10.430					
Acquirer Industry-Adjusted Q			*-4.363	** -5.085	** -6.145	** -5.429	** -5.353
			2.566	2.519	2.694	2.560	2.573
Acquirer Leverage (Net Debt/EV)			-0.826				
			10.305				
Acquirer Leverage (Net Debt/EBITDA)				** -1.548	** -1.945	** -1.492	** -1.494
				0.772	0.785	0.759	0.760
Relative Size			**0.024	**0.025	**0.025	***0.025	***0.025
			0.010	0.009	0.010	0.009	0.009
High Yield credit spread						***2.372	**2.100
						0.703	0.867
High Yield credit spread*Financial							0.662
							1.153
Constant	***70.973	***66.866	***66.418	***68.282	***81.768	***48.643	***50.343
	6.304	7.896	7.410	7.586	9.333	8.837	8.968
Year Fixed Effects	No	No	No	No	Yes	No	No
R-SQUARED	0.120	0.135	0.172	0.182	0.248	0.210	0.211
ADJ R-SQUARED	0.101	0.109	0.146	0.156	0.195	0.183	0.182
OBSERVATIONS	423	423	423	423	423	423	423
CONTROL							
Target Industry-Adjusted Q	***-8.083	***-8.525	***-7.771	***-8.073	***-7.641	***-8.113	***-8.188
	1.970	1.981	1.952	1.993	1.975	2.093	2.086
Target Performance	-2.849	-2.463	-2.305	-2.459	*-4.165	-3.593	-3.580
	2.281	2.284	2.268	2.238	2.265	2.317	2.308
Target Profitability	-15.196	-18.797	-16.571	-17.724	-5.788	-8.480	-8.512
	14.298	14.361	15.414	14.309	14.784	14.805	14.883
Target R&D expenses	25.251	*27.582	*28.063	*26.723	**33.183	**30.545	**31.173
	15.934	15.908	15.044	14.578	14.784	14.782	14.820
Target Intangible Assets	** -25.794	***-28.517	***-27.462	***-29.030	-11.197	***-25.312	***-25.418
	10.226	10.251	9.339	9.518	8.761	9.172	9.173
Target Operational Cash Flows	-2.100	-1.578	-0.175	0.176	0.011	-0.078	-0.126
	3.649	3.670	3.663	3.709	3.736	3.909	3.900
Target Cash	** -1.506	** -1.614	***-1.705	***-1.735	***-1.680	***-1.877	***-1.904
	0.717	0.720	0.632	0.626	0.632	0.648	0.652
Deal Size	** -2.759	** -2.666	***-2.842	***-2.948	*-1.826	** -2.095	** -2.010
	1.087	1.083	1.038	1.030	1.030	1.030	1.031

the target, the higher the premium that is paid. Adding Tobin's Q, leverage and relative size also adds significant explanatory value to the model.

Specification 5 is a pooled cross section model, meaning that year fixed effects have been added to investigate whether there is reason to believe that timing factors influence the difference in premium. The year fixed effects are added to the specification 4 which has the best predictors and highest explanatory value of the previous specifications. After adding the fixed effects, the predictors remain significant and of the same sign. However, explanatory value as increased significantly and the financial dummy became significant at the 1%-level, suggesting that indeed there is reason to believe that the difference in premium fluctuates significantly over time.

To investigate this further, I added high yield credit spread and an interaction term of high yield credit spread and the financial dummy in specification 6 and 7. It would be expected that the high yield credit spread, representing the costs of borrowing and availability, would be negatively correlated to the premium but the sign of this predictor is significantly positive. For the moment this remains a puzzle and I do not have an explanation as to why this is the case. The same goes for the interaction variable however this coefficient is not significantly different from zero. The results from model 3 might give a better answer to this question.

4.2. Difference in premium over time

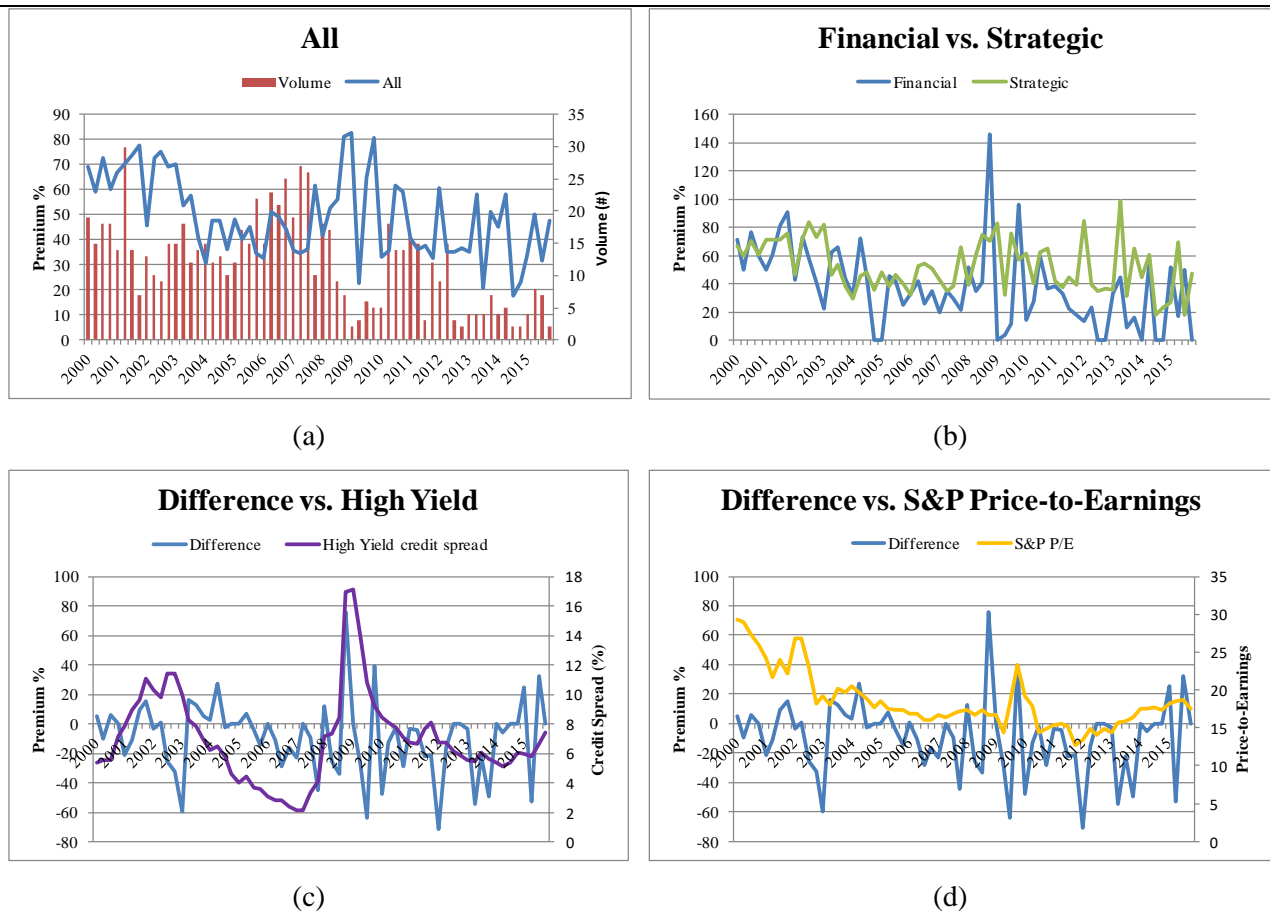
This model will graphically show how the difference in premium moves over time. The correlation between the variables in the graphs and their significance are shown in graph (h). The first graph (a) shows how the premium for all transactions in the sample behaves over time along with a measure of market liquidity. The build-up towards the financial crisis at the end of 2008 is clearly discernible. From 2002 until 2008 the volumes keep rising to a high in 2007. However, the premium stays relatively stable during this period. From the point that the crisis has started the amount of deals drops massively and premium varies more heavily. Over the whole sample period, a downward trend is observed.

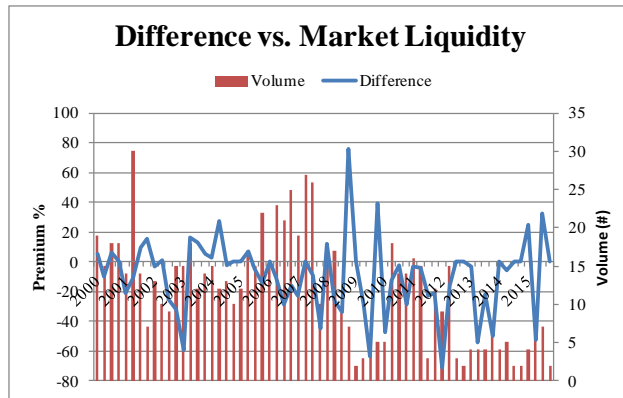
Graph (b) shows how the premium is composed when accounted for both buyer types. It is interesting to see that up until the crisis both buyer types seem to behave fairly similar. Their correlation is 0.25 and significant at the 10%-level. However, during the financial crisis there is a

high peak in the financial buyer's average premium. This is probably due to their financial discipline through which they are able to pick up targets relatively cheap after their value has shrunk enormously right after the crisis. After this period, the premium seems to stabilize again for both buyer types.

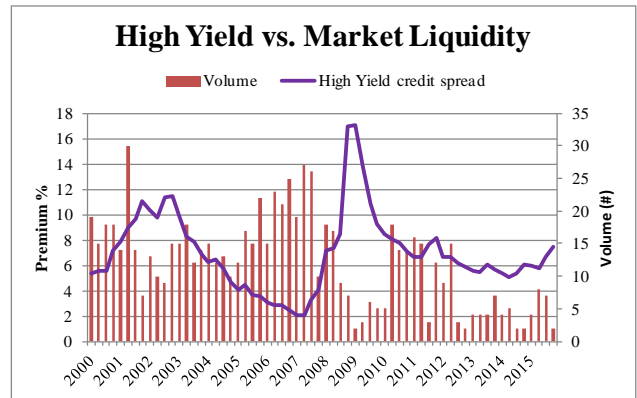
Table 5
Model 2 Results

This table shows graphically how the premium moves over time between 2000 and 2015. The transactions included are privately negotiated, acquire 100% ownership and are paid in cash only between 2000 and 2015. The premium is calculated as the average premium paid in each quarter. The premium is shown alongside the number of deals in a year and other variables depicting market conditions such as the High Yield credit spread and S&P 500 price-to-earnings ratio. The correlation between the variables in each graph are given in (h). Significance: *10%-level, **5%-level, ***1%-level

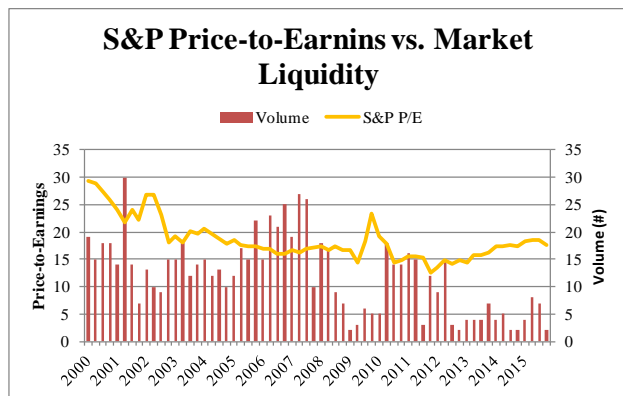




(e)



(f)



(g)

Graph	Correlation
(a)	0.07
(b)	*0.25
(c)	0.15
(d)	**0.27
(e)	0.09
(f)	***-0.37
(g)	0.18

(h)

In graph (c), the difference between both buyer types is plotted against the high yield credit spread. A negative value for difference means financial buyers pay on average a higher premium in that period. The high yield drops to a low point in the period building up to the crisis, thereby stimulating that massive M&A activity as shown in graph (a). After the crisis the credit spread stays low and financial players seem to take more advantage of that than strategic buyers.

In graph (d), the difference between both buyer types is plotted against the S&P500's price-to-earnings ratio. The price-to-earnings ratio serves as a measure of market overvaluation. This can be seen at the beginning of the sample during the dotcom bubble when markets were highly overvalued because of the listed tech-companies. From about 2004 until the end of the sample the the price-to-earnings ratio of the S&P500 seems to be positively correlated to the difference. The overall correlation between both variables is 0.27 and significant at the 5%-level.

Graph (e) shows the difference in premium and market liquidity. It is interesting to see that the difference in premium becomes more volatile when market liquidity decreases. In the years before the financial crisis of 2009 the market liquidity does not differ that much and after the outbreak of the financial crisis the market liquidity drops and the difference in premium increasingly varies until the second half of 2010.

Graph (f) shows the high yield credit spread and market liquidity. The credit spread has a negative correlation with the market liquidity which is significant at the 1%-level. This seems logical since fewer deals would take place if the cost of debt capital is high.

Graph (g) shows the price-to-earnings ratio of the S&P 500 and the market liquidity. This graph is interesting because normally one would expect that higher market valuation would lead to more M&A activity. However, the sample in this paper only contains cash deals. During periods of overvaluation, most of the deals are paid in acquirer's shares. So here it can be clearly seen that cash deals mostly occur in periods of lower market valuation. Although the correlation is insignificant and positive, the correlation between the first difference of price-to-earnings and market liquidity is insignificantly negative.

4.3. Time-series with economic environment characteristics

This model belongs to the third research question and investigates whether the difference in premium can be explained by market timing. The model performs multivariate OLS regression over time. The dependent variable will be the average premium paid in a certain time period. The independent variables consist of time-series variables and the control variables will be the average deal- and target characteristics for a certain period. The regressions are performed on two subsamples, one containing the average premium paid by financial acquirers in each period and one containing the average premium paid by strategic acquirers in each period from the Q1 2000 to Q4 2015. The coefficients of the regression will shed light on what factors from the market environment influence the premium paid by one or the other. Therefore, the difference in the coefficients between the two regression groups gives an indication of what influences the difference in premium over time. The first five specifications of the model are from the financial

firm subsample and the second five specifications belong to the strategic firm subsample. Specification one through five of each subset will be compared consecutively.

Specifications 1 and 6 focus on how the high yield spread influences the premium paid for both subsets. The premium paid by financial players reacts much stronger to high yield credit spread than the premium paid by strategic players. For both types the credit spread is positive and significant. Again, this is curious because one would expect a lower premium at a higher cost of debt. It might be that high yield spread proxies for more than just debt market conditions such as economy-wide discount rates or risk premium. The fact that the public target's premium, and thereby the valuations, are significantly related to the credit spread could suggest this. It is also interesting to note that target performance is negative and significant within the control variables for the financial subset. Here it can be seen clearly that private equity firms pay a higher premium for targets that performed worse during the year before the takeover because the target can be acquired relatively cheap. Moreover, bad target performance indicates that improvements can be made in managing the target's business operations.

In specifications 2 and 7, the premium paid is regressed separately on the high yield rate and 6-month LIBOR rate. The LIBOR rate does not have a significant effect however they have opposite signs. The high yield rate coefficients are both significant and have the same sign but the coefficient for the financial subset is again much larger and more significant. The puzzle remains why the high yield rate, effectively the cost of debt, seems to have a positive effect on the premium as it would be costlier to obtain funds for the takeover and thereby pressing on deal value and premium paid. However, when M&A activity rises and acquirers pay a higher premium to take over a target, the demand for additional funds increases thereby increasing the price of those funds. So, at the point where the highest premium is paid, it could be that the cost of debt has risen along with it.

In specifications 3 and 8, the overall stock market performance and an market overvaluation measure are accounted for. The LIBOR coefficient in this model again has opposite signs and is insignificant. Financial players seem to pay a higher premium after negative stock market performance than strategic firms but this is insignificant. The price-to-earnings coefficient representing overvaluation in both subsets has a positive significant effect on the premium.

Table 6
Model 3 Results

This table shows the result of the regressions used in model 3. The regressions are OLS and performed in the time-series. Dependent variable is the average premium paid by a strategic or financial acquirer with premium paid calculated as the proportion of the share price paid exceeding the target's share price five days before the announcement of the deal. All transactions in the sample are divided into two subsets. One for financial type buyers and one for financial type buyers. Specifications 1 through 5 belong to the financial subset and specifications 6 through 10 belong to the strategic subset. The transactions included are privately negotiated, acquire 100% ownership and are paid in cash only between 2000 and 2015. Significance: *10%-level, **5%-level, ***1%-level

	Financial					Strategic				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
High Yield Spread	***4.496				**3.456	**2.037				**2.036
	1.401				1.293	0.769				0.784
High Yield rate		***5.587					**2.098			
		1.597					0.915			
LIBOR 6-month		-1.888	-0.271	-0.456			0.538	1.221	1.102	
		2.004	1.698	1.704			1.411	1.146	1.274	
S&P Performance			-0.298					-0.166		
			0.195					0.117		
S&P Price-to-Earnings			***2.965	***2.904	***2.408			**1.083	*1.057	**0.967
			0.765	0.760	0.715			0.535	0.536	0.465
S&P Performance - High Yield rate				*-0.305					-0.171	
				0.181					0.108	
Market Liquidity	0.673				0.461	0.404				0.419
	0.514				0.465	0.480				0.498
GDP Growth		0.296	-0.838	-0.675			-0.777	-1.820	-1.657	
		1.942	1.864	1.867			1.355	1.142	1.137	
Constant	18.921	-3.799	17.069	13.043	-17.575	9.546	13.147	18.157	17.010	-7.073
	25.774	29.403	21.448	21.986	25.509	11.215	15.275	14.893	14.886	14.441
R-SQARED	0.519	0.557	0.595	0.600	0.623	0.445	0.479	0.468	0.472	0.471
Adjusted R-SQUARED	0.404	0.438	0.474	0.480	0.522	0.340	0.368	0.343	0.348	0.359
Observations	53	53	53	53	53	64	64	64	64	64
CONTROL										
Target Industry-Adjusted Q	-11.680	-14.845	-5.682	-6.401	-8.250	-11.850	*-10.277	-7.277	-7.485	-12.154
	9.419	9.299	8.971	8.980	8.499	7.495	5.732	6.663	6.686	7.735
Target Performance	***-18.526	** -15.751	***-23.381	***-22.808	***-19.712	1.021	-1.124	-2.341	-2.390	-0.549
	5.788	6.354	5.730	5.755	5.197	3.798	4.506	4.980	4.956	4.167
Target Profitability	-5.824	-0.433	-16.848	-16.721	-15.683	-76.252	** -80.478	-75.886	-75.412	*-80.628
	44.916	42.996	41.817	41.547	40.344	47.753	33.438	48.720	48.612	47.848
Target R&D expenses	87.802	63.827	4.535	7.364	49.679	51.393	48.474	49.141	49.169	*53.823
	75.942	73.726	70.445	70.090	68.970	31.536	33.567	29.982	30.328	30.735
Target Intangible Assets	** -57.043	-30.367	-7.321	-6.952	-18.335	-37.058	-24.066	-26.944	-25.041	-14.830
	25.414	28.401	28.745	28.542	25.506	26.697	30.110	24.965	24.987	27.408
Target Operational Cash Flows	2.948	-2.465	5.051	4.562	3.592	-1.987	0.296	3.721	3.803	2.556
	14.899	14.245	13.571	13.505	13.349	9.311	7.296	9.493	9.408	9.569
Target Cash	*-4.602	-3.280	-3.594	-3.592	***-3.903	***-4.175	-3.852	-2.644	-2.680	** -3.516
	2.605	2.577	2.496	2.480	2.343	1.523	2.520	1.852	1.792	1.487
Deal Size	-3.613	0.134	-8.547	-7.796	-4.510	10.866	9.428	7.945	7.754	8.729
	7.447	7.302	6.195	6.246	6.677	5.215	5.721	5.551	5.496	4.969

It seems that financial buyers seem to react more strongly to market valuation, adjusting faster to the economic environment and balancing M&A activity with achieving required IRR. However, it must be kept in mind that the sample is restricted to cash-only deals. If deals paid in stock would be included, the coefficient for strategic acquirers would probably be a lot higher than for financial acquirers because in periods of overvaluation it is relatively cheap to pay with shares.

Therefore, strategic buyers are willing to offer a higher premium and target shareholders want to be compensated for the overvaluation of the stock.

In specifications 4 and 9, the difference in S&P performance and the high yield rate is added to the regressions. This variable shows relative attractiveness between equity and debt capital markets. For the financial subset this coefficient is significantly negative and for the strategic subset this coefficient is insignificant. This variable shows again how financial buyers are aware and are able to take advantage of economic circumstances and market conditions. If relative attractiveness of equity markets diminishes, more funds will flow towards financial firms.

Finally in specifications 5 and 10, I perform a regression analysis on the average premium on the high yield credit spread, the S&P price-to-earnings ratio and market liquidity. These variables comprise the most significant economic factors that affect the premium. The financial subset has the highest and most significant coefficients. Measuring conditions on the equity and debt capital market, the premium paid by financial buyers seems to react more strongly. Indicating that financial buyers are able to detect and adjust better to market conditions but, also, that strategic buyers do not pay much attention to and are less affected by market conditions than financial buyers. This is also shown by the difference in explanatory value of all specifications between both subsets. Financial buyers are more reliant and have better ability to deal with market conditions and economic circumstances. Strategic buyers are less affected and might not even need the same ability as financial buyers to deal with the same market conditions and economic circumstances. This might be due to the fact that strategic buyers have the ability to generate internal funds through their operations and therefore are less reliant on external funds and the costs of additional capital. Of course, the main drive for financial players is to generate the returns for their investors and they are therefore very reliant on capital market to obtain debt capital leverage the returns on the equity capital in their funds.

4.4. Robustness

All the regressions of the models in this section are subjected to robustness tests to check whether the results of the regression are biased by serial correlation, heteroskedasticity or non-normal distribution of the residuals. The Breusch-Godfrey-test is used to detect serial correlation and the

White-test to detect heteroskedasticity. Whenever serial correlation or heteroskedasticity is found, the regression will be adjusted for this using the HAC Newey-West algorithm. In model 1, specifications 3 to 7 have corrected standard errors through this algorithm and specifications 6, 8, 9 and 10 in model 3. The Jarque-Bera test is used to check whether the residuals are normally distributed. The results of the regression in which the distribution of the residuals is not normal are less robust and therefore the coefficients will provide weaker evidence for interpretation. In model 1, all specifications are troubled by non-normal distributions of the residuals. In model 3, the residuals are normally distributed for all specifications except specification 1 and 2. The results of the robustness tests are given in the appendix.

5. Conclusion

This is the concluding section of the paper. First, I will give a short summary of the paper. Then, I will answer the sub-questions and consequently the main research question. Furthermore, I will discuss limitations of this study and I will give suggestions for area's covered in this paper for which further research could prove fruitful.

5.1. Summary

The goal of this paper was to investigate the difference in premium paid by financial and strategic acquirers. In related literature like Bargeron, Schlingemann, Stulz, & Zutter (2008) and Fidrmuc, Roosenboom, Paap, & Teunissen (2012), it was found that financial players paid on average a significantly lower premium. Both acquirers pursue different target but this difference could not be explained by deal- and target characteristics. Given that those researchers sought the effect of buyer type on premium paid, the difference in premium between both buyer types might be explained by acquirer characteristics. Moreover, in auction type sales, financial players are frequently able to make the winning bid (Gorbenko & Malenko, 2014), (Fidrmuc, Roosenboom, Paap, & Teunissen, 2012) and Martos-Vila, Rhodes-Kropf, & Harford (2013) found that dominance in M&A activity shifted between strategic and financial players over time. Both of these observations give rise to the suspicion that acquirer characteristics and how acquirers react to market environment and economic circumstances influences their investment decisions and consequently the premium paid for a target.

Therefore, the main research question of this paper is:

Can the systematic difference in transaction premium between strategic and financial buyers be driven by acquirer characteristics and market timing?

In support of this question, I introduced a theoretical framework of three layers that maps in what ways the premium paid in transactions is affected. The base layer consists of aggregate economic factors, the middle layer of deal- and target characteristics and the top layer consists of acquirer characteristics. In order to provide evidence, I used three models corresponding to three research questions. The first model investigates whether acquirer characteristics are able to explain the difference between the premium paid by strategic and financial acquirer. The main characteristic

tested in this model is managerial ownership as high managerial ownership resembles the alignment that the GP of the financial player has with his LP's. Acquirer overvaluation, pre-acquisition leverage and relative size are also added to the model. Finally, the first steps towards analyzing the premium over time are made. First, year fixed effects are added to the model to see if explanatory value of the regression increases significantly. Second, high yield credit spread and an interaction variable between high yield credit spread, both time-series variables, are added. The second model shows whether and how the premium varies over time. The average premium for each period is shown for both buyer types and the difference in premium is plotted against market factors to show how the difference moves compared to economic circumstances. This model lays the foundations for the analysis in the third model. The third model analyzes the average premium for each period and regresses it on time-series factors that reflect market conditions and economic circumstances. Independent variables consist of debt market conditions such as high yield credit spread, high yield rate and 6-month LIBOR rate and equity market conditions through previous stock market performance and stock market price-to-earnings ratio. I also added a variable showing relative attractiveness between both capital markets measured by the difference between stock market performance and the high yield rate. The sample is divided in two subsets for each buyer type to investigate the difference in premium by the difference in coefficients between the two regression models.

Because the main research question approaches this problem from an acquirer's perspective and I want to investigate how the intrinsic motivation to engage in M&A activity and to investigate determination of offer value, I composed my sample in a way that makes the transactions comparable between buyer types and excludes pollution of the final offer by selling mechanisms. The sample consists of 769 cash-only and privately negotiated deals from Q1 2000 to Q4 2015 in which 100% ownership is acquired. Transactions with a deal value less than five million dollars and involving penny stock are excluded.

5.2. Conclusions

The answer to the first sub-question of whether the difference in premium paid can be explained by observable acquirer characteristics, is yes. When controlled for deal and target characteristics, strategic buyers pay approximately a 13% higher premium than financial buyers. The

unexplained difference in premium when ownership concentration in the form of managerial ownership and institutional ownership are added to the model decreases to approximately 9%. However, managerial ownership had a positive relation with the premium paid when instead a negative relation was expected based on theory. A significant improvement in explanatory value comes from adding year fixed effects but the difference returns to approximately 10%. So acquirer characteristics do explain part of the difference but there are still too many omitted variables which are not observable.

The second sub-question of whether there is a systematic difference in premium paid over time can be answered with yes. The difference is mapped out over time and it can clearly be seen that in the run-up to the crisis, the difference between strategic and financial buyers becomes smaller and that in certain periods financial buyers even pay a higher premium than strategic buyers. It can also be seen that volatility in the difference increases after the financial crisis of 2008. So the difference becomes smaller, larger, alternates sign and increasing and decreasing volatility.

The third sub-question of whether the difference in premium can be explained by market timing can be answered with yes. The models generate significantly different coefficients for each subset and the model for the financial subset has significantly higher explanatory value. This means that financial buyers are much more susceptible to market timing than strategic buyers. This holds both for debt markets as market environment in equity markets.

The answer to the main research question is that the difference in premium is explained by both acquirer characteristics and market timing. However there are still parts of the difference left unexplained but I think the range of variables explaining the static difference in the cross-section have been exhausted and more research into aggregate economic factors explaining the dynamic difference would be more lucrative. Of course, in the end, the difference will be left largely unexplained by unobserved factors unique to each transaction.

5.3. Limitations and recommendations for further research

Potential limitations of this study are that I have taken a small subsample of the total population of transactions. Of course, in order to investigate the difference in premium that is paid you want the transactions in the sample to be as comparable as can be but by excluding deals in which

strategic acquirers pay with stock, I have excluded a significant part of the strategic buyer's investment decision. If there would be a way to correct the premium so one would be able to include transactions which are paid for in stock, that would give more insight into how both buyer types differ in their investment decisions and valuations of the target. Another possible limitation could be that the coefficients for acquirer characteristics in model 1 also show other effects from other unobserved acquirer characteristics. As explained in the literature review, the part of the premium paid explained by unobserved components is larger for strategic players than for financial players. Therefore, some of the effects of these unobserved factors could indirectly be shown through the coefficients though I think that most of the unobserved factors are captured by the constant and the residual. Furthermore, the sub-samples for model 3 contain 64 observations. This sample is not too small but more observed periods would make the results more reliable, especially to get a better estimate for the relationship between the credit spread, price-to-earnings ratio of the stock market and the premium. The more merger waves and economic cycles are in the sample the better.

Recommendations for future research would be to go deeper into how strategic and financial buyers determine the premium they are willing and are able to pay and how this varies over time. It would be interesting to incorporate another pricing measure. Multiples are often used by acquirers in determining an offer value. So using multiples instead of the premium as a pricing or valuation measure could add explanatory values to the models. This study is performed on transactions that took place from Q1 2000 to Q4 2015 in North America. Incorporating transactions for the 90's might give better results for how the premium is influenced by market timing. It might also be interesting to add fixed industry dummies to the time series regressions to see if target firm industry affects the premium paid by strategic or financial buyers over time. In my sample I have excluded deals in which acquirer's shares were considered as payment. It would be interesting to see how that would impact the results from the regressions if a proper way could be found to incorporate them into the models. Another study using a European sample could have interesting results as cross-country transactions could be incorporated and because the private equity sector in Europe is a lot smaller than in the US. Moreover, it is not unlikely that a private equity fund's reputation could affect the premium paid by financial firms. A better reputation would make it easier to attract investors and additional debt funds for takeovers

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thereby increasing the premium. Fund age, transactions in previous period and number of funds could account for PE fund reputation. Finally, the positive relation between managerial ownership and high yield rate with the premium found in this paper requires further inquiry. Going deeper into the relation between shareholder alignment with management and the premium paid and whether managerial entrenchment could still be present at certain levels of managerial ownership. Similarly, it would be interesting to go deeper into the relationship and causality between high yield rate and the premium.

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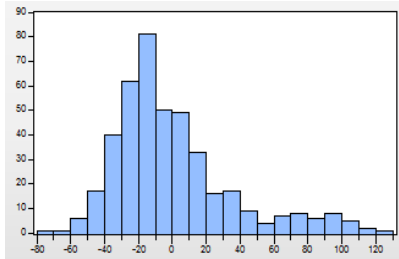
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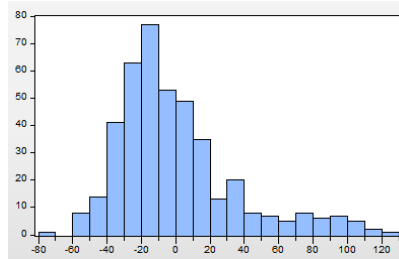
7. Appendices

7.1. Robustness tests Model 1

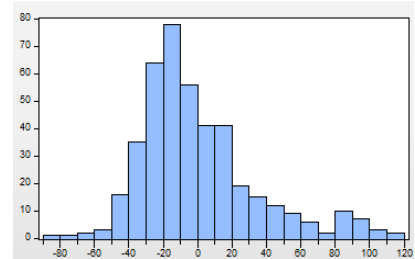
7.1.1. Normality of residuals



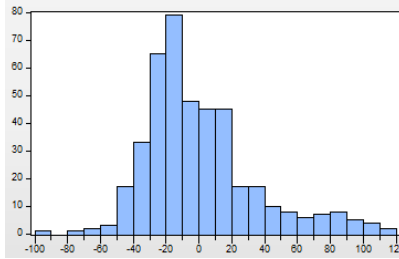
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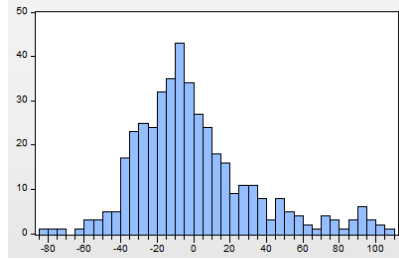
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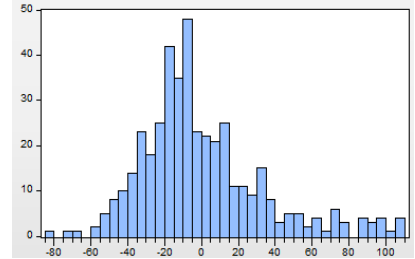
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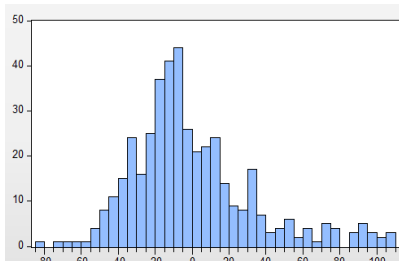
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(5)



(6)



(7)

Jarque-Bera test for Normality

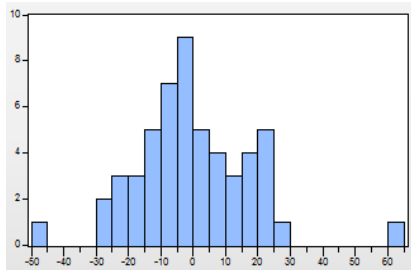
	Statistic	P-value
(1)	155.1	0.000
(2)	157.5	0.000
(3)	120.8	0.000
(4)	107.7	0.000
(5)	100.5	0.000
(6)	109.9	0.000
(7)	108.5	0.000

7.1.2. Serial correlation and Heteroskedasticity

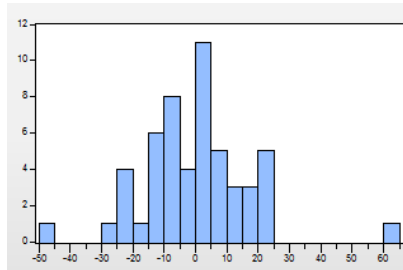
	Breusch-Godfrey Serial Correlation F-test			White Heteroskedasticity test	
	F-statistic	P-value		F-statistic	P-value
(1)	0.250	0.991	(1)	1.240	0.268
(2)	0.904	0.492	(2)	0.984	0.464
(3)	0.652	0.689	(3)	2.354	0.005
(4)	0.825	0.551	(4)	1.935	0.025
(5)	1.042	0.388	(5)	1.817	0.008
(6)	0.836	0.543	(6)	2.095	0.011
(7)	0.853	0.530	(7)	2.055	0.011

7.2. Robustness tests Model 3

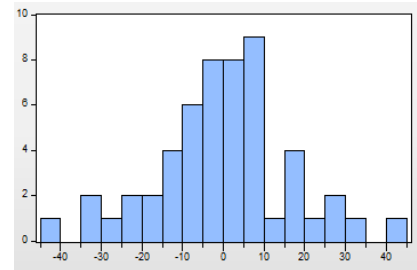
7.2.1. Normality of the residuals



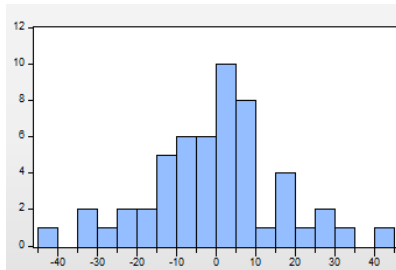
(1)



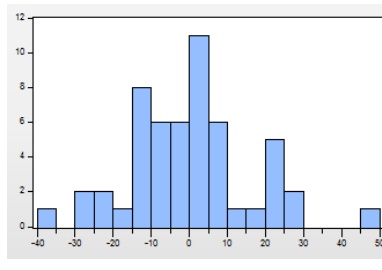
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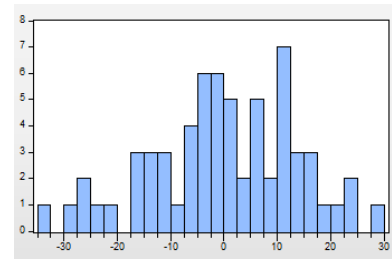
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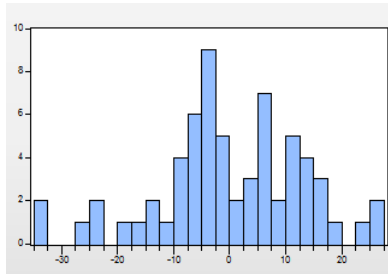
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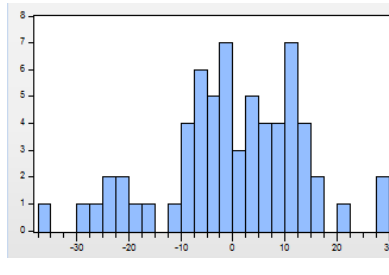
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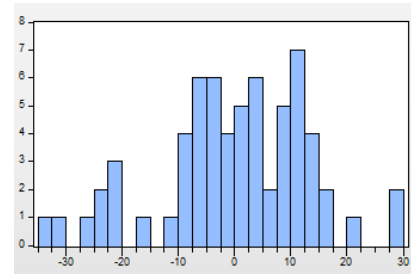
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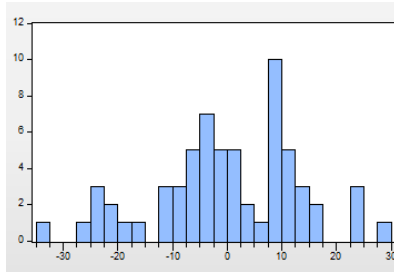
(7)



(8)



(9)



(10)

Jarque-Bera test for Normality

	Statistic	P-value
(1)	9.828	0.007
(2)	19.941	0.000
(3)	0.252	0.881
(4)	0.314	0.855
(5)	2.349	0.309
(6)	1.114	0.573
(7)	1.134	0.567
(8)	2.069	0.355
(9)	2.157	0.340
(10)	0.939	0.625

7.2.2. Serial correlation and Heteroskedasticity

Breusch-Godfrey Serial Correlation F-test			White Heteroskedasticity test		
	F-statistic	P-value		F-statistic	P-value
(1)	0.756	0.609	(1)	1.296	0.264
(2)	0.989	0.448	(2)	1.178	0.331
(3)	-	1.000	(3)	1.405	0.204
(4)	-	1.000	(4)	1.372	0.219
(5)	0.859	0.534	(5)	1.141	0.205
(6)	0.872	0.523	(6)	2.560	0.013
(7)	0.525	0.787	(7)	1.930	0.056
(8)	0.426	0.858	(8)	2.430	0.014
(9)	0.437	0.850	(9)	2.310	0.019
(10)	0.717	0.636	(10)	2.901	0.005

7.3. Correlation Matrices

7.3.1. Correlation matrix Model 1

	Premium	AMO	AIO	AIO %	AIA Q	D/EV	D/EBITDA	RS	TIA Q	T Perf	T Prof	T R&D	T IA	T OCF	T CASH	Deal Size
Premium	1.00															
Acquirer ManagerialOwnership	0.10	1.00														
Acquirer Institutional Ownership	0.06	-0.03	1.00													
Acquirer Institutional Ownership %	0.05	0.11	0.69	1.00												
Acquirer Industry-Adjusted Q	-0.02	0.09	-0.18	-0.15	1.00											
Acquirer Leverage (Net Debt/EV)	-0.05	-0.06	-0.16	-0.07	-0.06	1.00										
Acquirer Leverage (Net Debt/EBITDA)	-0.10	-0.02	-0.04	-0.08	-0.12	0.42	1.00									
Relative Size	0.27	0.01	-0.16	-0.09	0.30	0.00	0.01	1.00								
Target Industry-Adjusted Q	-0.17	0.08	-0.03	0.12	0.12	-0.13	-0.09	-0.03	1.00							
Target Performance	-0.04	-0.06	-0.01	-0.09	0.09	-0.06	-0.06	-0.02	0.11	1.00						
Target Profitability	-0.16	0.09	0.00	0.09	-0.10	0.31	0.04	-0.17	-0.01	-0.01	1.00					
Target R&D expenses	0.12	-0.02	-0.01	0.01	0.12	-0.33	-0.10	0.15	0.19	-0.08	-0.63	1.00				
Target Intangible Assets	-0.03	0.11	0.02	0.09	-0.13	0.05	-0.06	-0.08	-0.12	-0.02	0.12	-0.08	1.00			
Target Operational Cash Flows	-0.17	0.01	0.07	0.09	-0.09	0.23	0.06	-0.20	0.05	0.07	0.77	-0.66	0.15	1.00		
Target Cash	0.05	0.02	-0.09	-0.03	0.06	-0.19	-0.05	0.12	0.00	-0.09	-0.45	0.70	-0.17	-0.48	1.00	
Deal Size	-0.12	-0.03	-0.08	-0.08	-0.06	0.13	-0.03	0.02	-0.10	-0.01	0.08	-0.13	0.09	0.06	-0.08	1.00

7.3.2. Correlation matrix Model 3

Financial Subset

	Premium	HY CS	HY	L 6M	SP Perf	SP P/E	SP - HY	M LIQ	GDP G	TIA Q	T Perf	T Prof	T R&D	T IA	T OCF	T CASH	Deal Size
Premium	1.00																
High Yield Credit Spread	0.41	1.00															
High Yield rate	0.55	0.74	1.00														
LIBOR 6-month	0.17	-0.40	0.33	1.00													
S&P Performance	-0.28	-0.66	-0.66	0.04	1.00												
S&P Price-to-Earnings	0.48	0.19	0.50	0.42	-0.09	1.00											
S&P Performance - High Yield rate	-0.33	-0.71	-0.74	-0.02	0.99	-0.16	1.00										
Market Liquidity	-0.02	-0.44	0.02	0.64	0.14	0.08	0.13	1.00									
GDP Growth	0.01	-0.62	-0.23	0.55	0.42	0.12	0.41	0.58	1.00								
Target Industry-Adjusted Q	-0.19	0.16	0.17	0.00	-0.28	-0.09	-0.27	0.05	-0.17	1.00							
Target Performance	-0.38	0.14	0.07	-0.10	-0.12	0.08	-0.12	-0.15	-0.41	0.21	1.00						
Target Profitability	-0.05	-0.28	-0.15	0.19	0.17	0.06	0.18	0.33	0.33	-0.16	-0.09	1.00					
Target R&D expenses	-0.03	-0.24	-0.29	-0.07	0.13	-0.20	0.16	-0.05	0.03	0.14	-0.34	-0.29	1.00				
Target Intangible Assets	-0.19	-0.11	-0.39	-0.39	0.20	-0.47	0.24	-0.10	-0.18	0.09	-0.22	-0.04	0.49	1.00			
Target Operational Cash Flows	-0.18	-0.02	0.00	0.02	0.03	0.08	0.03	0.00	0.01	-0.11	0.33	0.43	-0.46	-0.23	1.00		
Target Cash	-0.15	0.05	0.00	-0.08	-0.09	0.00	-0.08	-0.01	-0.01	0.19	0.02	-0.29	0.12	-0.19	0.14	1.00	
Deal Size	-0.30	-0.68	-0.58	0.15	0.45	-0.16	0.49	0.40	0.49	-0.03	-0.27	0.44	0.23	0.24	0.21	0.03	1.00

Strategic Subset

	Premium	HY CS	HY	L 6M	SP Perf	SP P/E	SP - HY	M LIQ	GDP G	TIA Q	T Perf	T Prof	T R&D	T IA	T OCF	T CASH	Deal Size
Premium	1.00																
High Yield Credit Spread	0.41	1.00															
High Yield rate	0.50	0.78	1.00														
LIBOR 6-month	0.14	-0.33	0.34	1.00													
S&P Performance	-0.45	-0.68	-0.71	-0.05	1.00												
S&P Price-to-Earnings	0.30	0.15	0.45	0.45	-0.11	1.00											
S&P Performance - High Yield rate	-0.48	-0.72	-0.78	-0.10	0.99	-0.16	1.00										
Market Liquidity	0.01	-0.37	0.09	0.68	0.03	0.18	0.02	1.00									
GDP Growth	-0.24	-0.66	-0.34	0.48	0.48	0.12	0.47	0.49	1.00								
Target Industry-Adjusted Q	-0.16	-0.05	0.01	0.08	0.08	-0.05	0.07	0.32	0.18	1.00							
Target Performance	0.11	0.42	0.36	-0.09	-0.25	0.25	-0.28	-0.26	-0.51	-0.16	1.00						
Target Profitability	-0.43	-0.34	-0.20	0.20	0.32	-0.02	0.31	0.21	0.25	-0.06	0.01	1.00					
Target R&D expenses	0.40	0.19	0.16	-0.05	-0.24	-0.02	-0.24	-0.03	-0.08	0.09	-0.19	-0.69	1.00				
Target Intangible Assets	-0.30	-0.27	-0.44	-0.26	0.18	-0.45	0.23	-0.06	-0.01	0.28	-0.24	0.15	-0.06	1.00			
Target Operational Cash Flows	-0.25	-0.16	-0.23	-0.10	0.24	-0.20	0.24	-0.14	0.04	-0.16	0.12	0.62	-0.57	0.07	1.00		
Target Cash	0.29	0.22	0.23	0.01	-0.22	0.04	-0.23	-0.02	-0.04	0.00	-0.10	-0.62	0.72	-0.20	-0.58	1.00	
Deal Size	0.03	-0.26	-0.02	0.36	-0.04	-0.03	-0.04	0.51	0.34	0.16	-0.27	0.32	0.01	0.24	0.25	0.04	1.00