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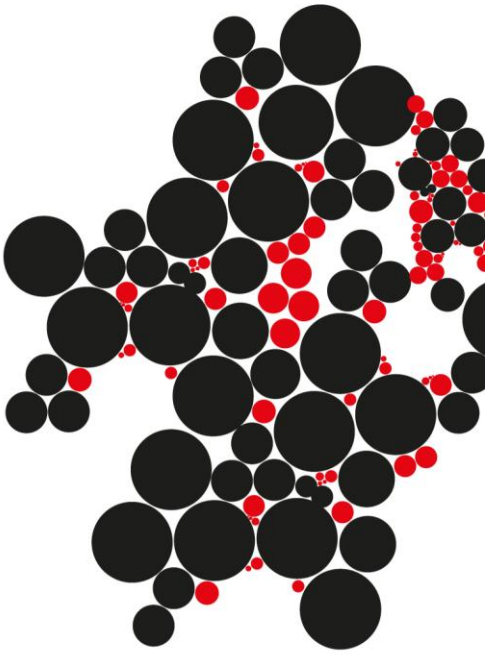

"MERGERS & ACQUISITIONS, FIRM PERFORMANCE AND CORPORATE GOVERNANCE"

THE IMPACT OF A FIRM'S BOARD STRUCTURE ON M&A AND FIRM PERFORMANCE

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Preface

This Master Thesis is the final product for receiving the Master of Science (MSc) degree in Business Administration at the University of Twente.

The objective of this research was to study, by means of secondary data, the impact of acquiring firms' board structures on M&A and firm performance. By investigating this relationship during three substantially different and distinct time periods, this research aims to link the current body of knowledge on board structures to the field of M&A and firm performance (value), thereby hopefully leading to new understandings and/or explanations in the respective theoretical fields.

Writing this duo Master Thesis has been a very interesting and instructive experience. Besides the practical advantages, writing a duo Master Thesis has proven to be particularly beneficial to the overall learning process. The advantage of working together enabled us to discuss problems and different views, thereby making the Master Thesis trajectory (in our opinion) more effective and engaging.

This Master Thesis however would not have succeeded without the help of our supervisors. In particular, we would like to thank H. (Henk) Kroon and R. (Reinoud) Joosten of the Finance and Accounting department at the University of Twente for their feedback and guidance. In conclusion, we would like to thank our parents for their support during our study.

Frans van Hoorn & Nick van Hoorn

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Part I - Introduction

Mergers and acquisitions (abbreviated M&A) are considered as important drivers of corporate performance and means by which organizations respond to changing conditions (Yena & André, 2007; Bruner, 2004). The last 100 years have been characterized by various M&A 'waves' (see table I) and increased M&A activity, both in terms of the number of transactions and their aggregate dollar value[1]. Over the last decades different studies have yielded divergent results when it comes to the profitability of M&A activity (Lang, Stulz & Walkling, 1989; Dennis & McConnel, 1986; Morck, Shleifer & Vishny, 1990; Asquith, Bruner & Mullins, 1983). However, most of the scientific literature confirms that, in general, target firm shareholders are winners while acquiring firm shareholders are not as fortunate. Acquiring firm's shareholders at best break-even, but often lose during acquisitions (Weidenbaum & Vogt, 1987; Bruner, 2004).

TABLE 1 - Waves of M&A activity

Name	*Period*	*Characteristics*
First Merger Wave	1895-1904	Horizontal mergers.
Second Merger Wave	1925-1929	Vertical mergers.
Third Merger Wave	1965-1970	Conglomerate or diversifying mergers.
Fourth Merger Wave	1981-1987	Hostile takeovers, more leverage, more going private transactions, and dominated by combinations among medium and small sized firms.
Fifth Merger Wave	1992-2000	Large M&A deals, cross-border mergers and strategic combinations.
Sixth Merger Wave	2003-2008	Shareholder activism, private equity and leverage buyouts (LBO).

Source: *Bruner (2004) and Lipton (2006).*

Drawing upon Berle & Means (1932) and Jensen & Meckling (1976), De Jong, Van der Poel & Wolfswinkel (2007) the observed negative shareholder returns can be explained by the general problem of agency:

> "*The directors of such [joint-stock] companies, however, being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own. Like the stewards of a rich man, they are apt to consider attention to small matters as not for their master's honour, and very easily give themselves a dispensation from having it. Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company*."
>
> Adam Smith, Wealth of Nations, 1776

[1] The number of M&A deals per year increased from approximately 60 to 10.000 between 1895 and 2000. The aggregate dollar value increased from approximately $1 billion in 1895 to $1 trillion in 2000 (Bruner, 2004).

Jensen & Meckling (1976) argue that the relationship between shareholders and managers of a corporation fits the definition of a pure agency relationship. A relationship, according to Jensen (1986), filled with conflicting interests. While shareholders are likely to seek wealth preservation or accumulation (Bruner, 2004), managers have incentives to cause their firms to grow beyond the optimal size and preferably make non-value maximizing acquisitions because of self-interest, rather than pay out excess cash to shareholders (Jensen, 1986). An example concerns the acquisition of NCR Corporation by AT&T, in which AT&T's shareholders experienced a wealth decrease that ranged between $3.9 and $6.5 billion. This decrease in wealth was primarily attributable to managerial objectives that were not consistent with maximizing shareholder wealth, managerial overconfidence and the arguably self-serving behavior of management (Lys & Vincent, 1995).

A concept frequently referred to in the academic literature in relation to the agency problem concerns corporate governance. Corporate governance is associated with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment (Shleifer & Vishny, 1997). In other words, corporate governance entails a system of oversight and delegation of decisions that reaches from the shareholders to the board of directors, and from there to senior, middle and front-line managers (Bruner, 2004). An internal mechanism which is central to the corporate governance system concerns the board of directors (and its structure) of a firm (Yena & André, 2007). According to Jensen (1993) the directors of a board are appointed to provide not only professional advice, but also to hire and compensate the CEO and replace him or her if required. In addition, they usually serve as a check on management, are formally elected by shareholders to monitor management on their behalf and ratify major corporate decisions, such as M&A, equity issues and investment decisions (Fama & Jensen, 1983). According to Dehaene, Vuyst & Ooghe (2001), the board of directors is considered as an important and frequently used supervisory mechanism for management actions. However, complexity, size, diffuse ownership, conflicting interests of owners and agents, and moral hazard can frustrate good governance. An effective and appropriate board structure therefore acts as a mitigating factor with regards to reducing the agency problem, with the aim of improving corporate performance and maximizing long-term shareholder value (Yena & André, 2007).

1.1 Research objective and research question

The objective of this research is, by means of secondary data, to evaluate the impact of board structure as an internal corporate governance mechanism on M&A and firm performance. More specifically, this research will evaluate the impact (effectiveness) of specific pre-M&A board structures of *acquiring* firms on M&A and firm performance. This paper investigates solely acquiring firms, as these firms generally experience negative shareholder returns upon announcement. Based upon this objective, two research questions have been formulated:

1. *What is the impact of different pre-M&A board structures of acquiring firms on M&A performance around and following the M&A announcement?*

2. *What is the impact of different board structures on firm performance?*

The independent variable of the first research question is identified as (pre-M&A) *board structures* while the dependent variable is identified as *M&A performance* around and following the announcement date. In the second research question the dependent variable is indentified as firm performance, which is in principle measured over four consecutive years.

1.2 Academic and practical relevance

This research contributes to existing academic literature by increasing the knowledge base on whether corporate governance (different board structures) plays a role in M&A and how better corporate governance can improve the performance (i.e. long-term value creation) of M&As and firms. In contrast to a significant part of the literature on boards of directors that focuses mainly on empirical studies on board size, compositions and actions under specific circumstances (i.e. firing managers), this research aims to link the current body of knowledge on board structures to the field of M&A and firm performance (value), thereby hopefully leading to new understandings and/or explanations in the respective theoretical fields. A second contribution of this research is the use of data of three substantially different and distinct time periods namely: [01/01/1999 - 31/12/2002], [01/01/2003 - 31/12/2006] and [01/01/2007 - 31/12/2010]. The first time period corresponds with the climax and end of the dot-com bubble in which the U.S. M&A volume peaked at approximately $ 1400 billion and declined almost 72% to $ 400 billion in 2002. In contrast, the second time period is characterized by increased U.S. M&A volume

(J.P.Morgan, 2009). The third time period covers the recent financial crisis and converges with the sixth merger wave which is characterized, but not limited to, increased shareholder activism.

A third contribution relates to the fact that although good governance is valuable, as recent corporate scandals remind us of the importance of good systems of corporate oversight and control (Bruner, 2004), this idea has received scant attention in M&A practice and literature. This research aims at uncovering the impact of an internal corporate governance mechanism (the board structure of acquiring firms) on M&A performance around and following the M&A announcement date. Given the increased M&A activity, both in terms of the number of transactions and their aggregate dollar value (Bruner, 2004), the research findings in this study should not only be of interest to acquiring and target organizations (i.e. managers, executives and board of directors), but also to practicing managers involved in M&A processes, shareholders, stakeholders and society as a whole. Identifying the impact of specific pre-M&A board structures of acquiring firms can potentially increase M&A and firm performance (value) and hence contribute to maximizing shareholder and social wealth.

Part II - Literature review

This part entails a review on historical and current literature regarding the impact of different pre-M&A board structures of acquiring and target firms on M&A performance around and following the M&A announcement and on firm performance. The next section covers subsequently: 1) a theoretical definition of the research variables board structure, M&A and firm performance; 2) theoretical arguments for the relation between the variables; 3) how the variables are measured empirically; 4) findings for the relation between the variables, most relevant issues in the literature, propositions and hypotheses; and 5) methods and data sources used in other studies.

2.1 Theoretical definition of the research variables

Board structure

In their research, which focuses on the impact of board attributes on corporate performance in Turkey, Arslan, Karan and Eksi (2010) posit that board structure is comprised of three variables namely: board size, board independence and board ownership respectively. Whereas board ownership represents the total ownership of the board members in the firm, board size relates to the total number of members of the board. In comparison to Arslan, Karan and Eksi (2010), Dehaene, Vuyst and Ooghe (2001) argue that board structure is defined by the following three variables: the number of directors (i.e. board size), the relative proportion of outside (versus inside) directors (i.e. board independence) and the separation of the functions of chief executive officer (CEO) and chairman of the board. Finally, in their study on the relationship between board structure and firm performance in the U.K., Vafeas and Theodorou (1998) analyzed the boards of 250 publicly traded firms with the following board characteristics: the number of non-executive board members, director stock ownership and the selection of an independent board chairman. As these studies indicate, the theoretical definition of the research variable board structure is relatively homogeneous.

M&A performance

According to Bruner (2004), M&A performance is usually measured by taking into account the intention of the merger or acquisition itself. Bruner (2004) argues that M&A performance generally relates to benchmarking the outcome of M&A transactions against at least seven measures which include but are not limited to: market value creation, financial stability,

improved strategic positioning and increased organizational strength. In this sense, it can be concluded that M&A performance depends in great part on the idea on which a firm's management undertakes a merger or acquisition. As may be evident, the aim of M&A should always be focused on long-term value creation. Ideally, the whole (the business after the merger or acquisition) should always be worth more than the sum of its parts. In this sense, we primarily measure M&A performance from the perspective of a firm's shareholders. However, it must be noted that firms have many stakeholders who have different views on performance (what constitutes good practice) and divergent interests.

Firm performance

Koller, Goedhart and Wessels (2010) argue that value can be regarded as the defining dimension of measurement in a market economy: "*People invest in the expectation that when they sell, the value of each investment will have grown by a sufficient amount above its cost to compensate them for the risk they took. This is true for all types of investments, be they bonds, derivatives, bank accounts, or company shares. Indeed, in a market economy, a company's ability to create value for its shareholders and the amount of value it creates are the chief measures by which it is judged*". In order to create value, companies should therefore invest the capital raised from investors at rates of return that exceed the required rate of return: the rate (cost of capital) investors require to be paid for the use of their capital (Koller, Goedhart and Wessels, 2010). Additionally, Koller, Goedhart and Wessels (2010) state that: "*The faster companies can increase their revenues and deploy more capital at attractive rates of return, the more value they create. The combination of growth and return on invested capital (ROIC) relative to its cost is what drives value. Companies can sustain strong growth and high returns on invested capital only if they have a well-defined competitive advantage. This is how competitive advantage, the core concept of business strategy, links to the guiding principle of value creation*". In this sense, value creation can be seen as an important measure of firm performance. Again, performance is measured primarily from the perspective of a firm's shareholders.

2.2 Theoretical arguments for the relation between the variables

As was stated earlier, this study aims to explain the impact of different board structures of acquiring firms on M&A performance around and following the M&A announcement and on firm performance.

As stated by Yena & André (2007), an important driver of corporate performance over the last decade has been without a doubt the level of M&A. In addition, they argue that takeovers are larger than ever, with firms investing billions of dollars in M&A. Besides what has been discussed in the introduction, a study performed by Franks & Harris (1989) indicates, that around the M&A announcement date targets gain approximately 25 to 30 percentage points while bidders earn discrete to almost no gains. Or as Yena & André (2007) put it: *'shareholders of acquiring firms experience wealth destruction on average or at best break even'*.

An internal mechanism which is central to the corporate governance system concerns the board structure of a firm (Yena & André, 2007). According to Jensen (1993), the directors of a board are appointed to provide not only professional advice, but also to hire and compensate the CEO and replace him or her if required. In addition, following Fama & Jensen (1993), boards of directors also ratify major corporate decisions such as M&A, equity issues and investment decisions. According to Dehaene, Vuyst & Ooghe (2001), the board of directors is considered an important and frequently used supervisory mechanism for management actions. An effective and appropriate board structure therefore acts as a mitigating factor with regards to reducing agency costs (i.e. the agency problem) and thus aims at maximizing shareholder value (Yena & André, 2007).

Obviously, M&A success and value creation in general does not solely depend on a firm's management and its board of directors but is dependent on many variables. Success in M&A and business itself is always to some extent uncertain as it is impossible to know everything upfront. Even the most promising M&A transaction on paper can turn bad if market conditions unexpectedly worsen, and resistance among employees to integrate/change grows.

2.3 Measuring the variables empirically

Board structure

To gain insight into board structures, Dehaene, Vuyst & Ooghe (2001) have measured board composition by means of an empirical study of 122 Belgian companies. To do so, the authors sent a written questionnaire to all firms in order to discover how their board of directors was composed. To measure empirically the board's composition, the questionnaire contained questions about the number of directors, the relative importance of executive and non-executive directors and whether the company's CEO was also chairman of the board of directors. In addition, there are numerous empirical studies that have tried to find the optimal size of a board

of directors of a firm. For example, by means of a panel study of 473 listed firms (from 1988 till 1999) using the Center for Research in Security Prices (CRSP) database, Ning, Davidson & Wang (2010) conducted a time-series and cross-sectional examination on board size. Their study indicates that, for average U.S. publicly traded firms, the target number of directors on board of directors' lies between eight and eleven directors.

M&A performance

Zollo & Meier (2008) argue that although the study of M&A performance has been part of the strategic management, corporate finance and organizational literature for decades, there is yet little or no agreement within and across the disciplines on how to measure M&A performance. Based on 88 journal articles published between 1970 and 2006, the authors argue that approaches to measuring M&A performance varies along several dimensions: from subjective (i.e. qualitative assessments of degrees of synergy realization) to objective measurement methodologies (i.e. accounting performance); from short-term (i.e. several days before and after the M&A announcement) to long-term time horizons and from an organizational level of analysis (i.e. improvement of firm performance) to a process or transaction level (i.e. premium paid). It therefore seems that measuring M&A performance is not unambiguous.

Firm performance

Two of the most widely used proxies to measure the unobservable true underlying firm performance within the academic literature are accounting based measures (which capture historical performance) and market based measures (which capture future performance) (Leung, 1999; Van Ees, Postma & Sterken, 2003). According to Van Ees, Postma & Sterken (2003), traditional accounting based measures include, but are not limited to: return on assets (ROA), return on equity (ROE), return on investment (ROI) and return on sales (ROS). Modern accounting based measures include, but are not limited to: cash flow return on investment (CFROI) and economic value added (EVA). These modern accounting based measures often separate operating performance from nonoperating items and incorporate the financing obtained to support the business (i.e. EVA incorporates the full cost of capital/financing costs), hence they provide more insight into the true performance of a firm (Koller, Goedhart and Wessels, 2010). In contrast, market based measures encompass, but are not limited to: Tobin's q, market-to-book ratio and market-adjusted stock market return. It must be noted however that real-world accounting systems leave considerable room for managers to influence financial statement data.

The result is that information in corporate financial statements is often distorted and biased, even in the presence of accounting regulation and external auditing (Palepu, Healy & Peek, 2010).
In his study on the impact of board size on firm performance, Guest (2009) employed three measures of firm performance: 1) ROA (the ratio of operating profit before depreciation and provisions divided by total assets) which served as the main measure of firm performance; 2) Tobin's q (proxied by book value of total assets plus market value of equity minus book value of equity divided by book value of total assets following Chung & Pruitt (1994), Perfect & Wiles (1994), Agrawal & Knoeber (1996) and Hartzell & Starks (2003)); and 3) Share return (the annual share return over the 12 months preceding the financial year end). The latter two measures were employed for robustness. Similarly, Cheng et al. (2008) measured firm performance using Tobin's q and ROA (calculated as the income before extraordinary items divided by book value of total assets at the beginning of the fiscal year).

2.4 Findings for the relation between the variables

Given the overall tendency of (shareholder) value destruction resulting from M&A for acquiring firms and under the premise that this is partly due to agency problems, which can be mitigated by a proper and effective board of directors, this part is specifically dedicated to the relationship between board structure and firm performance.

Board structure

Within the corporate finance literature there are a vast amount of studies that aim to explain the relationship between board structure and corporate performance (Arslan, Karan & Eski's (2010). In addition, as was evident from the introduction, M&A are among the largest and most readily observable forms of corporate investments (Masulis, Wang & Xie, 2007). Based upon research by Berle & Means (1932) and Jensen & Meckling (1976), Masulis, Wang & Xie (2007) posit that these types of investments tend to intensify the conflicts of interest between shareholders and their agents (managers) in large public organizations. Jensen's (1986) research showed, based on the free cash flow hypothesis, that managers realize large personal gains from empire building. Furthermore, he predicted that managers who operate in organizations which are characterized by vast amounts of free cash flows and a limited amount of positive NPV investment opportunities, are more likely to make value-destroying acquisitions than to return the excess cash flows to shareholders. Lang, Stulz & Walkling (1991) found support in favor of Jensen's (1986) hypothesis. Finally, besides reinforcing Jensen's (1986) findings, Morck,

Shleifer & Vishny (1990) identified several acquisition types that, while beneficial to managers, destroy shareholder wealth.

As stated by Masulis, Wang & Xie (2007), there are a number of corporate governance mechanisms that help to mitigate the agency conflict between managers and shareholders. This research focuses primarily on the board of directors as an internal corporate governance mechanism. In the words of Fama (1980), the board of directors can be seen as: "*…the ultimate internal monitor of the set of contracts called a firm, whose most important role is to scrutinize the highest decision makers within the firm…*". In the next part findings for the relationship between the major board characteristics examined in the scientific literature and M&A and firm performance are reviewed and summarized.

Board composition

Up till now, studies examining the relationship between board composition, the number of inside versus outside directors, and corporate performance have produced mixed results (Dehaene, Vuyst & Ooghe's, (2001). A study conducted by Pfeffer (1972) and Vance (1968) found that corporate performance was negatively related to the percentage of outside directors. Contrary to Pfeffer (1972) and Vance (1968), Baysinger & Butler (1985) found that corporate performance is higher where the board is dominated by outsiders (non-executive directors). Klein (1998) found a positive relationship between corporate performance, stock market performance and the presence of inside directors. In addition, Byrd and Hickmann (1992) found than when an acquisition is announced the share price reaction is larger in organizations where at least half of the directors are completely independent. Lee, Rosenstein and Rangan (1992), posit that if the acquisition takes the form of a management buy-out shareholder wealth is best served when the board of directors contains a significant number of independent directors. However, Kesner's & Johnson's (1990) research revealed a more negative market reaction with the announcement of protection mechanisms (i.e. poison pills to protect the board against hostile takeovers), only when more outsiders are present on the board.

According to Dehaene, Vuyst & Ooghe (2001), the relationship between corporate performance and the number of outside directors on the board reveals itself in the frequency of dismissals of directors. Research of both Coughlan & Schmidt (1985) and Warner, Watts and Wruck (1988) found a positive relationship between bad corporate performance and CEO replacement. In organizations where the percentage of outside directors on the board is larger, it is more likely that top managers will be fired because of bad corporate performance (Weisbach, 1988).

Furthermore, empirical evidence found by Franks, Mayer & Renneboog (1996) states that changes in the composition of the board, because of bad corporate performance, increases with the number of outsiders in the board. It therefore seems that more outsiders are hired as board members of organizations that experience bad performance (Dehaene, Vuyst & Ooghe, 2001). These outsiders (i.e. independent or non-executive directors) are of particular importance when it comes down to monitoring management (Vafeas & Theodorou, 1998). Vafeas & Theoforou (1998) reason that non-executives (outsiders) have invested their reputation in an organization, and thus will most likely also have incentives to guard and act in the shareholder's best interests. Lipton & Lorsch (1992) argue that the ratio of independent (one with no connection to the organization) to non-independent directors should at least be two to one. This however does not automatically assume that executive directors do not add value. On the contrary, executive directors have a vast amount of inside knowledge about an organization and therefore serve as a crucial link in the flow of information between top management and non-executive directors (Vafeas & Theodorou, 1998).

As the scientific literature shows, evidence on the added value of non-executive directors on U.S. boards is mixed (Vafeas & Theodorou, 1998). For example, a study conducted by Rosenstein & Wyatt (1990) shows that when an organization makes an announcement with regards to the appointment of a non-executive director to the board of directors, this is usually results in a positive excess return. In a later study, Rosenstein & Wyatt (1997) find a similar outcome for appointed executive directors with a relatively large amount of equity investments in the firm. Byrd & Hickman (1992) find evidence that tender offer bids and poison pill adoptions elicit significantly more positive market responses when non executives have voting control of the board. Contrary to the supportive and value adding effect of non-executive directors, Hermalin and Weisbach (1991), find no significant relationship between the value of the firm and the number of non-executives serving on the board of directors. Furthermore, Agrawal & Knoeber (1996) find empirical evidence that U.S. based firms may have too many non-executive directors on their boards. Stressing the conflicting management and control roles of non-executive directors, Ezzamel & Watson (1997) argue that this could be an explanation for their potential failure to enforce proper governance in public firms. As this literature review on board composition shows there is no consensus on whether a more independent board leads to better overall firm performance (Bhagat & Black, 1999; Hermalin & Weisbach, 2003). There is however empirical evidence that boards of directors consisting of a majority of independent

directors make major corporate decisions (such as M&A) in the best interest of shareholders (Vafeas & Theodorou, 1998). Based upon prior literature and research concerning the relationship between board composition and firm performance (value), the first proposition is defined as:

> *Proposition 1: In line with Vafeas & Theodorou (1998) we assume that outsiders (i.e. independent or non-executive directors) are of particular importance when it comes down to monitoring management; outsiders have invested their reputation in an organization, and thus will likely have incentives to guard and act in the shareholder's best interests. Similarly, in line with Baysinger & Butler (1985) and Byrd & Hickmann (1992), we expect M&A returns and firm performance to increase as the number of independent directors increases. We therefore expect a positive relationship between board composition and M&A/firm performance.*

Board ownership

In this section we will, on the basis of scientific literature, discuss another important aspect of an organizations' board structure namely board ownership. Vafeas & Theodorou (1998) argue that stock ownership by members of the board may reduce the agency conflicts between shareholders and the agents (managers). They reason that when executive board members own a part of the firm, they are not likely to engage in behavior which negatively impacts shareholder wealth. They therefore conclude that managerial ownership is inversely related to agency conflicts between managers and shareholders. Contrary to Vafeas & Theodorou (1998), Demsetz & Lehn (1985) do not find any significant relationship between ownership structure and corporate performance. In addition, they attest that there is hardly any support with regards to the different interests between principals and their agents. Demsetz' & Lehn's (1985) findings are refuted by a research conducted by Morck, Shleifer & Vishny (1988). They posit that, as equity ownership rises to approximately five percentage points, corporate performance tends to improve. As equity ownership increases to and beyond 25 percentage points corporate performance tends to decline/worsen and increase respectively. According to Vafeas & Theodorou (1998), these authors show that managers tend to distribute a firm's resource in their own self-interest, thereby focusing less on creating shareholder wealth. A study performed by McConnel & Servaes (1990), finds a significant 'curved' relationship between Tobin's q and the percentage of stocks hold by executive directors (insiders). This curved relationship depicts that firm value (Tobin's

q) increases at first as the percentage of stocks hold by executive directors increases, then reaches an optimum, and ultimately decreases. According to Vafeas & Theodorou (1998) more equity ownership by managers is likely to result in more entrenched managers leading to less effective corporate governance mechanisms (the board of the directors). In addition, they stress that not only the equity ownership of executive directors (insiders) has to be examined, but specifically stress the importance of stock ownership of outsiders (non-executive board members). The same reasoning about executive directors and equity ownership can be applied to non-executive directors. This means that a higher ownership in the company (by means of stocks) by non-executive directors will most likely lead to a better alignment between managers and shareholder's interests. In addition, it is assumed that increasing stock ownership with regards to non-executive directors improves director's independence and should be positively related to firm value (Vafeas & Theodorou, 1998). In their study however, Hermalin & Weisbach (1991) find empirical evidence that firm value (as measured by Tobin's q) is not related to equity ownership by non-executives. The second proposition formulated within this research is defined as:

> *Proposition 2: In line with Vafeas & Theodorou (1998), we argue that stockownership by board members (executive and non-executive) reduce agency conflicts between shareholders and agents (managers) as they are less likely to engage in behavior which negatively impacts shareholder wealth. We therefore expect a positive relationship between ownership by members of the board and M&A as well as firm performance.*

Board size

Arslan, Karan & Eksi (2010) posit that the relationship between corporate performance and the size of the board is generally found to be inversely related. Evidence on this relationship is found (among others) by Yermack (1996), Haniffa & Hudaib (2006) and de Andres et al. (2005) who found an inverse (i.e. negative) relationship between board size and Tobin's q (corporate performance). Although it can be argued that larger boards have better monitoring capabilities, this benefit is likely out weighted as larger boards are more often plagued by increased asymmetric information problems and communication issues (Arslan, Karan & Eksi, 2010). In the same vein, Jensen (1993) finds that the larger the board, the more likely it is that agency problems arise. Cheng et al. (2008) studies the relationship between board size and an organization's stock market performance and finds a negative relationship between both

variables. In addition to Cheng et al. (2008), Coles, Daniel & Naveen (2008) find a reversed curvilinear relationship between board size and corporate performance. With regards to the optimal size of the board of directors, Lipton & Lorsch (1992) argue that the maximum number of directors on the board is 10. An amount smaller than 10 is considered optimal. However, several academic studies question this view. Boone et al. (2007), Coles, Daniel & Naveen (2008); Guest (2009) and Linck et al. (2008) found that board size is dictated by firm specific variables (i.e. firm size, Tobin's q, profitability and financial leverage). For instance, in their study Coles, Daniel & Naveen (2008) found a positive relationship between the board size of large firms and firm value. In other words, the general premises that the size of the board is inversely related to corporate performance might not hold for large firms. Large (complex) firms are likely to have a greater need for information and consequently require larger boards. Hence, as stated by Guest (2009), large board size may be an optimal value maximizing outcome for large firms. In addition, it must be noted that the relationship between board size and firm performance could also differ by national institutional characteristics (Guest, 2009). He states that in countries with dissimilar institutional settings, the functions of boards are different, and therefore the expected relationship between board size and firm performance could be expected to differ. The relationship between the other major board characteristics described within this paragraph and firm performance is most likely also influenced by different institutional settings. On the basis of this research the following proposition has been formulated:

> *Proposition 3: Following Arslan, Karan & Eksi (2010), we posit that larger boards generally have better monitoring capabilities but that this benefit is likely out weighted as larger boards are more often plagued by increased asymmetric information problems and communication issues. Based upon the evidence provided by Yermack (1996), de Andres et al. (2005) and Haniffa & Hudaib (2006) we expect that M&A/firm performance and the size of the board is inversely related.*

Leadership structure

The fourth and last board characteristic concerns the leadership structure of the board of the directors. In this context, leadership structure refers to situations in which the chief executive director also fulfills the position of chairman on the board of directors. Dehaene, Vuyst and Ooghe (2001) state that boards on which the function of CEO and Chairman is fulfilled by one individual is referred to as a "one-tier board", while in "two-tier" boards these positions are

carried out by different individuals. In the U.S. "one-tier" boards seem to dominate the corporate landscape. According to Dalton & Kesner (1987), in approximately 80% of U.S. organizations there exist CEO duality in the board of directors (i.e. that the function of chairman and CEO is performed by one individual). However, as Vafeas & Theodorou (1998) point out, shareholder activists and regulators are pressuring firms more often to separate the functions of CEO and chairman. Although different studies examine the relationship between one-, two-tier boards and corporate performance, the results or not unambiguous.

Based upon the Code of Best Practice, formulated in the Cadbury Report (Cadbury, 1995), Vafeas & Theodorou (1998) posit that separating the two functions allows the board of directors to exercise its control function more effectively which ultimately should lead to better corporate performance. In addition both authors argue that if the two functions are not separated, this could have a negative impact on the independence of the board. Strengthening these claims, Rechner & Dalton (1991) find empirical evidence that organizations in which both functions are separated outperform organizations in which both functions are carried out by one individual. In the same vein, Pi & Timme (1993) find that organizations that separate both functions do not only experience lower costs, but also a higher ROA. Dehaene, Vuyst and Ooghe (2001), argue that most empirical literature is in favor of separating the two functions (different individuals fulfill the role of CEO and chairman respectively). A study performed by Mallet & Fowler (1992) on the effects of board composition on the adoption of poison pills, showed that organizations adopting a two-tier board used fewer poison pill securities. Finally, Sundaramurthy, Mahoney & Mahoney (1997) research on board structure, antitakeover provisions an stockholder wealth finds a less negative market reaction with regards to the announcement of protection measures for organizations that adopt two-tier boards.

Contrary to the literature just described, there are studies that specifically are in favor of *not* separating the two functions. Anderson & Anthony (1986) for example are against separating the two functions and instead are in favor of CEO duality. A reason is provided by Campbell (1995) who argues that the decision making process can be hampered (slowed-down) by abandoning CEO duality. As is evident from the literature there is no clear-cut answer whether CEO duality destroys or adds to firm value and thus shareholder wealth. Based upon the literature provided above, the following proposition has been formulated:

> *Proposition 4: In line with Theodorou (1998) and Dehaene, Vuyst and Ooghe (2001), we argue that separating the function of CEO and chairman allows board of directors to*

exercise its control function more effectively and hence lead to better M&A and firm performance. We therefore expect a negative relationship between CEO duality and M&A as well as firm performance.

2.5 Methods and data sources used in other studies

Arslan, Karan and Eski's (2010) study on board structure and corporate performance applied a logistic regression methodology. Their sample consisted of a panel of 999 observations that included non-financial firms listed on the Istanbul Stock Exchange (ISE). The complete study covered a period of 10 years (ranging from 1995 and 2006). Financial data was collected from the ISE website, whereas ownership data was collected from the annual 'yearbook of firms' published by the ISE.

Dehaene, De Vuyst and Ooghe's (2001) study on corporate performance and board structure in Belgian companies consisted of a cross-sectional study of board structures combined with a linear regression analysis between corporate performance and board structure. The cross-sectional study covered an initial sample of 258 listed and non-listed firms which were sent a questionnaire concerning board composition. In addition to financial statements, information on stock performance was partially provided by Datastream and the Belgian financial newspaper (Financieel Economische Tijd). In contrast to the cross-sectional study, the regression analysis was applied on a sample of 59 Belgian firms.

Vafeas and Theodorou's (1998) study on the relationship between board structure and firm performance in the U.K. employs data from 250 publicly traded firms. Their sample excluded financial and utility companies as these operate in a specific regulatory environment. The authors used the Global Vantage and Silverplatter database for financial and corporate governance statistics respectively. In accordance with Dehaene, Vuyst and Ooghe's (2001), Vafeas and Theodorou (1998) also applied regression analysis linking corporate governance and firm value. In order to examine robustness and reliability of their findings the authors also conducted a sensitivity analysis.

Yena and André's (2007) paper on ownership structure and operating performance of acquiring firms' focuses on the performance of 287 takeovers. Their data set is primarily obtained from the worldwide M&A database provided by Thomson Financial Securities Data. In addition, their sample meets certain criteria including: the time frame of their study (from 1997-2001); acquiring firms and targets are listed companies; deals are completed and of considerable size (only transactions of greater than U.S $10 million are included) and ownership data is readily

available either through proxies, annual reports and or the Mergent database. Similarly, in Vafeas and Theodorou's (1998) study, governmental, financial and investment companies are excluded because of their regulatory requirements. Finally, their research entails a univariate analysis on the relationship between performance and the ownership, governance, and deal variables.

Coles, Daniel & Naveen (2008) paper on the relationship between firm value and board structure employs data from U.S. firms with 8,165 firm-year observations between 1992-2001. Their sample includes financial as well as utility firms as these firms do seem to obscure the paper's results. Board data was obtained from the Compact Disclosure database for the period 1992-1997 and from the IRRC database for the period 1998-2001. In accordance with Cheng et al. (2008), Lasfer (2004), Hannifa & Hudaib (2006), Bozec (2005), Coles, Daniel & Naveen (2008) examined the impact of board structure on firm performance using the ordinary least squares regression model (also referred to as OLS or linear regression). The authors winsorized all variables at the 5^{th} and 95^{th} percentile values. In addition, to test for robustness the authors also control for endogeneity using several approaches (i.e. via three stages least squares regressions).

Part III - Methodology and data

This part entails a review on the methodology and data used in this study. The next section covers subsequently: 1) the research methodology; 2) the sample formation process, data and data sources; 3) measurement of the main variables; 4) measurement of the control variables; and 5) descriptive statistics of M&A/firm performance, board structure and control variables.

3.1 Research methodology

This research principally involves a two-step procedure. The first step entails an event study on acquisition announcements that will be used to determine the *cumulative abnormal returns* (CARs) earned by the acquiring firm's shareholders. The second step involves a series of linear regressions between: (1) the CARs and the independent corporate governance variable board structure to explain the variation in CARs earned by acquiring firms; and (2) firm performance variables (ROA, Tobin's Q, ROS and ROE) and the independent corporate governance variable board structure to explain the variation in firm performance of these firms. In both regressions we control for numerous variables (see paragraph 3.4). The specific regression models used to test the propositions are described in paragraph 4.2.

Since the 1970's event studies have been widely used in the academic literature to examine the cumulative abnormal returns to shareholders in the period surrounding the announcement of an M&A transaction (Bruner, 2004; Swanstrom, 2006). Following Bruner (2004), the cumulative abnormal return can be regarded as the *raw* return (e.g. the change in the price of share on day 1 compared to day 2 divided by the share price on day 1) less the *required* (e.g. return on a large market index such as the S&P 500) return of investors on a particular day. As is the case with other research methods, event studies also have their advantages and disadvantages. Although they are considered to be forward looking and propose a direct measure of value created for investors, they also require significant assumptions regarding the functioning of the stock markets (i.e. efficiency and rationality) and are especially vulnerable to confounding events (e.g. the financial crisis) which could result in skewed returns (Bruner, 2004).

Alternative methodologies, data and data sources have already been summarized in part II of this research (see paragraph 2.5).

3.2 Sample formation process, data and data sources

Data on U.S. corporate M&A is acquired by accessing the Thomson One Banker (TOB) database for the following periods: [01/01/1999 - 31/12/2002], [01/01/2003 - 31/12/2006] and

[01/01/2007 - 31/12/2010]. Transactions satisfying the following conditions were included in our research sample:

- Completed acquisitions (deal states);
- Tender/merger acquisitions techniques;
- Both the acquirer and target are publicly traded firms;
- The M&A announcement date corresponds to the three aforementioned time periods;
- Both the acquirer and target nation code is the U.S.;
- M&A in which the percent of shares acquired (owned) in (after) the transaction and percent shares sought in tender offers equals more than 50%;
- Finally, utilities (SIC 4000-4999) as well as financial (SIC 6000-6999) and government related firms (SIC 9111-9999) are excluded.

In congruence with other studies (Swanstrom, 2006; Vafeas & Theodorou, 1998), financial companies (SIC codes 6000-6999), utility companies (SIC codes 4000-4999) and government related firms (SIC 9111-9999) have been excluded. The reason is that acquisitions in these industries are often initiated by regulatory authorities in order to save distressed firms (Swanstrom, 2006). In addition, these companies often operate in special regulatory environments which could potentially mask efficiency differences, rendering governance mechanisms less important (Vafeas & Theodorou, 1998). Moreover, these firms differ substantially from non-financial firms in terms of capital structure and operating characteristics (Subrahmanyam et al., 1997 and Bliss & Rosen, 2001). These restrictions led to an initial sample size of 327 U.S. M&A transactions for the three time periods combined.

To prevent contamination of the research sample, for all firms' only one transaction within one year is allowed in the sample. In addition, to calculate the cumulative abnormal returns for acquiring firms, data on share prices and the return on a brought market index such as the S&P500 are acquired and should be readily available. Data on both variables is obtained via the EVENTUS database which performs event studies using data read directly from the Center for Research in Security Prices (CRSP) database. In correspondence with Chhaochharia & Grinstein (2007), data with regards to board structure and director information is extracted from the Investor Responsibility Research Center (IRRC), currently known as RiskMetrics. This database is a leader in corporate governance data and does not only include information about directors of firms belonging to the S&P1500 index, but also offers information regarding the dependence or independence of a director (Chhaochharia & Grinstein, 2007). If no board structure data was

available for a particular firm, the proxy statement (DEF14-A) closest to the M&A announcement has been consulted to retrieve the necessary data. If no proxy statement was available or the information about board structure was incomplete, the firm was omitted from the sample. Finally, extreme values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile) in M&A performance and board structure variables have been omitted. These additional conditions led to a final sample of 97, 32, 61 U.S. M&A transactions for [01/01/1999 - 31/12/2002], [01/01/2003 - 31/12/2006] and [01/01/2007 - 31/12/2010] respectively.

The 97 and 32 M&A transactions identified in [01/01/1999 - 31/12/2002] and [01/01/2003 - 31/12/2006] are used as a starting point to examine the relationship between different board structures and firm performance. For each firm, performance is in principle measured over four consecutive years (where year 1 equals the year in which the acquisition took place). However, as we omit extreme values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile) from our sample, firm performance is in some cases measured over a period less than 4 years. M&A transactions between 01/01/2007 - 31/12/2010 are not investigated as 4 consecutive years of (primarily board structure) data for these years are not yet available. Within the academic literature, firm performance is measured at different time intervals: Bozec (2005) measures firm performance over 25 years (1976-2000); Bennedsen et al (2008), Van Ees, Postma & Sterken (2003), Beiner et al. (2006), and de Andres et al. (2005) measure firm performance over 1 year (1999, 1997, 2002 and 1996 respectively); Haniffa & Hudaib (2006) measure firm performance over 5 years (1996-2000); and Cheng et al. (2008) measure firm performance over 8 years (1984-1991).

Data with regards to firm performance variables is obtained via the Compustat North America Fundamental Annual dataset. This database contains fundamental and market information on active and inactive publicly held companies from the U.S. and Canada. It also contains information on aggregates, industry segments, banks, market prices, dividends and earnings. For most companies, annual history is available back to 1950. For the majority of firms, data was available for the relevant years (1999 - 2005 and 2003 - 2009). In case the Compustat North America Fundamental Annual dataset had missing variables, proxy statements and annual fillings (10-K) were examined for that specific year. If no data was available firms were omitted from the research sample. This led to a sample of 95 and 28 U.S. firm observations and hence 492 firm year observations for [1999 - 2005] and [2003 - 2009] respectively. Based upon the

firm's macro industry definition: 6 firms operate in the Media & Entertainment Industry; 14 in Materials; 4 in Retail; 34 in High Technology; 9 in Consumer Products & Services; 19 in Industrials; 6 in Telecommunications; 21 in Healthcare; 8 in Consumer Staples; and 2 in Energy & Power. As the necessary databases are easily accessible, significant problems with retrieving the data are not expected.

3.3 Measurement of the main variables

M&A performance

In accordance with other studies, M&A performance is measured by cumulative abnormal returns for acquiring firms. By applying event windows of (-2, 2), (-5, 5), (-1, 10) and (-10,1) respectively, this research prevents the negative effects of data mining techniques and makes sure that the CARs in all applicable periods are (to a certain extent) uniform. As is common practice in many other studies, we express and formulate cumulative abnormal returns in percentage points.

Firm performance

In order to measure firm performance of acquiring firms, a chronological literature review ranging from 2003 to 2009 has been summarized and outlined in the matrix below (table 2). This overview clearly outlines which firm performance variables have received considerable attention in academic literature and which variables received only scant attention.

TABLE 2 - Firm performance variables used in empirical studies from 2003-2009

Study	ROA	Ind.ROA	Tobin's q	MB	Share return	ROS	Asset turnover	Sales efficiency	Net income efficiency	ROE
Guest (2009)	■		■		■					
Wintoki et al. (2007)	■	■				■				
Adams and Mehran (2005)	■		■							
Bennedsen et al. (2008)	■	■								
Cheng et al. (2008)	■		■							
Coles et al. (2008)			■							
Beiner et al. (2006)			■							
Haniffa & Hudaib (2006)	■		■							
Bozec (2005)	■					■	■	■	■	■
De Andres et al. (2005)	■		■							
Lasfer (2004)										
Van Ees et al. (2003)	■			■		■				■

Return on Assets (ROA) refers to the ratio of operating profit before depreciation and provisions (income before extraordinary items) divided by book value of total assets at the beginning of the fiscal year; Industry adjusted ROA (Ind.ROA) refers to a firm's ROA less the industry median ROA (where industry is defined by the 2-digit SIC code); Tobin's q (proxied) refers to the ratio of book value of total assets plus market value of equity minus book value of equity divided by book value of total assets; Market to book (MB) refers to the market value of equity divided by the value of assets minus liabilities; Share return refers to the annual share return over the 12 months preceding the financial year end; Return on sales (ROS) refers to the ratio of net income before extraordinary and unusual items divided by sales; Asset turnover refers to sales to total assets; sales efficiency refers to the ratio of sales divided by #employees; net income efficiency refers to the ratio of net income before extraordinary and unusual items divided by #employees; and finally, Return on Equity (ROE) refers to a firm's fiscal year net income (after preferred stock dividends but before common stock dividends) divided by shareholder's equity (book value excluding preferred shares).

Based upon table 2 and in congruence with the literature review presented in paragraph 2.4, this research focuses specifically on the following variables with regard to the relationship between board structure and firm performance:

1. ROA (accounting based measure)
2. Tobin's q (market based measure)
3. ROS (accounting based measure)
4. ROE(accounting based measure)

Both ROA as well as Tobin's q have received a great deal of attention in the academic literature (see table 2 and paragraph 2.4). This however seems not to be the case for the other performance variables (including ROS and ROE). In line with most recent academic studies, this research does not specifically investigate 'productivity' measures such as sales efficiency. The above mentioned firm performance variables are measured as outlined in table 2 and hence this study uses similar measures as (among others) Guest (2009), Wintoki et al. (2007), Adams and Mehran (2005), Bennedsen et al. (2008), Cheng et al. (2008). In accordance with Campbell & Minguez-Vera (2008) we use Tobin's q as a measure of firm performance as it: *"...reflects the market's expectations of future earnings and is thus a good proxy for a firm's competitive advantage*" and "*...unlike accounting measures such as return on assets, is not liable to reporting distortions...*".

Pre-M&A board structures

In order to measure pre-M&A board structures of acquiring firms, a chronological literature review ranging from 1999 to 2011 has been summarized and outlined in the matrix below (table 3). This overview clearly outlines which board structure variables have received considerable attention in academic literature and which variables received only scant attention.

TABLE 3 - Board structure variables used in empirical studies from 1999-2011

Study	Board size	Board Composition	CEO duality	Board ownership
Pombo & Gutiérrez (2011)		■	■	
O'Connel & Cramer (2010)	■	■		
Arosa, Iturralde & Maseda (2010)		■		
Arslan, Karan & Eksi (2010)	■	■	■	■
Abidin, Kamal & Jusoff (2009)	■	■	■	■
Cheng et al. (2008)	■	■		
Coles, Daniel & Naveen (2008)	■	■		
Dahya & McConnel (2007)		■		
Brennan (2006)	■	■	■	
Swanstrom (2006)	■	■		
Gani & Jermias (2006)		■		
Perry & Shivdasani (2005)		■		
Dehaene, De Vuyst & Ooghe (2001)	■	■	■	
Weir & Laing (2002)		■	■	
Bhagat & Black (1999)		■		

Board size refers to the number of executive and non-executive directors; board composition refers to the proportion (fraction) of independent non-executive (outside) directors and/or affiliated directors; CEO duality refers to a situation in which both the position of chairman and CEO are performed by one individual; finally, board ownership refers to the total ownership percentages of board members in the firm.

Based upon table 2 and in congruence with the literature review presented in paragraph 2.4, this research focuses specifically on the following variables with regard to the relationship between board structures of acquirers and M&A performance:

1. Board size;
2. Board composition;
3. CEO duality;
4. And board ownership.

Both the size of the board as well as board composition have received a great deal of attention in the academic literature (see table 3 and paragraph 2.4). This however seems not to be the case for CEO duality and board ownership. In accordance with the Investor Responsibility Research Center (IRRC) and other academic studies (Masulis, Wang & Xie, 2007; Bhagat & Black, 1999; Abidin, Kamal & Jusoff, 2009), the above mentioned board structure variables are measured as follows: 1) board size is measured by the total number of directors (executive and non-executive) sitting on the board; 2) board composition is measured by looking at the number of affiliated and independent directors sitting on the board (including board independence which measures the percentage of independent directors); 3) CEO duality is measured by looking if the chairman of the board is not the CEO; 4) and finally, board ownership is measured by looking at the number of common company shares held by members of the board.

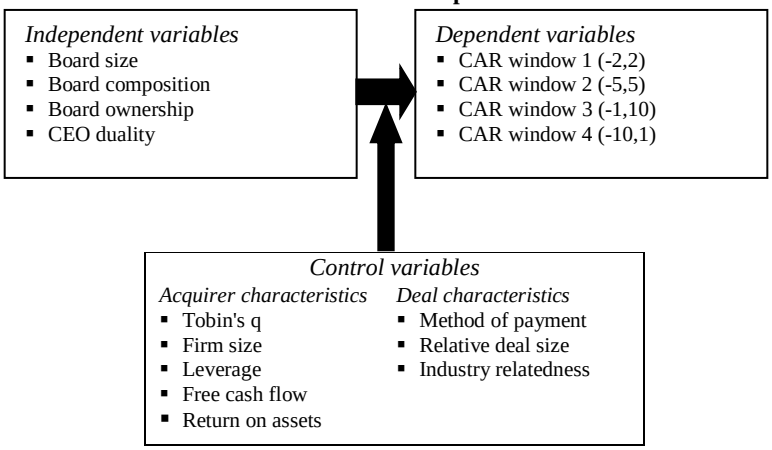
3.4 Measurement of control variables

This paragraph examines the measurement of control variables, how they are defined and how they are embedded in the academic literature. As argued by Spector & Brannick (2010), the application of (statistical) control variables in nonexperimental research is routine and widespread. By incorporating control variables into our ordinary least squares (OLS) regressions and other analyses we hope to yield more accurate estimates of the observed relationship between pre-M&A board structures of acquiring firms and M&A and firm performance. The motive with regards to the inclusion of control variables arises from our implicit assumption that these variables could potentially influence the variables of interest, thereby distorting the observed relationships among them (Spector & Brannick, 2010).

Other factors influencing acquirer returns

In congruence with Masulis, Wang & Xie (2007) and De Jong, Van der Poel & Wolfswinkel (2007) variables affecting acquirer announcement returns (CARs) have been subdivided into two categories, namely: 1) acquirer characteristics and 2) deal characteristics (see figure 1).

FIGURE 1 - The influence of control variables on the relationship between board structure and M&A performance



Acquirer characteristics that we use in our empirical analysis and that we control for include: Tobin's *q*, firm size, leverage, free cash flow and return on assets. Following Masulis, Wang & Xie (2007) these variables are all measured at the fiscal year prior to the M&A announcement.

Tobin's q – In their paper on the free cash flow hypothesis, Lang, Stulz & Walkling (1989) find that acquirers with high *q* ratios experience significant positive abnormal returns in tender offers, while acquirers with low q ratios experience significant negative abnormal returns. The argumentation provided by Lang, Stulz & Walkling's (1989) is that firms with high *q* ratios are more likely to have positive investment opportunities (NPV projects) as opposed to firms with low *q* ratios. Hence, the authors argue that acquisitions made by high *q* firms are expected to be positive investment opportunities and therefore are less likely lead to a decrease in shareholder wealth (the opposite is true for low *q* firms). Servaes (1991) study on the relationship between takeover gains and the q ratios of acquirers and targets confirms the findings of Lang, Stulz & Walkling (1989) and documents that their findings, after controlling for additional factors, are not only limited to tender offers but also hold for mergers; "…*the abnormal returns of targets and bidders are larger when targets have low q ratios and bidders have high q ratios*…". Finally, Servaes (1991) states that: "…*if q is interpreted as a measure of managerial performance, these findings imply that better performing firms also make better acquisitions*…". Following Moeller, Schlingemann & Stulz (2004), Masulis, Wang & Xie (2007) and De Jong, Van der Poel & Wolfswinkel (2007) we define Tobin's q as the ratio of the acquirer's market value of assets divided by the acquirer's book value of assets. The market value of the acquirer's assets is calculated as the book value of assets minus the book value of common equity plus the market value of common equity.

Firm size - Based upon a sample of 12,023 acquisition from 1980 to 2001, Moeller, Schlingemann & Stulz (2004) find strong evidence of the existence of a size effect in acquisition

announcement returns. They argue that small public firms frequently undertake small acquisitions resulting in small dollar gains (shareholders of small firms earned roughly $9 billion during the 1980-2001 time period), whereas large public firms frequently undertake large acquisitions resulting in large dollar losses (shareholders of large firms lost roughly $312 billion during the 1980-2001 time period). According to Moeller, Schlingemann & Stulz (2004), a possible explanation for this size effect can be found in the hubris hypothesis put forward by Roll (1986), in which acquiring firms simply pay too much/overpay (i.e. large premiums) for their targets. In addition to Roll (1986), alternative explanations are offered by Travlos (1987), Myers and Majluf (1984), McCardle and Viswanathan (1994) and Jovanovic and Braguinsky (2004) & Jensen (1986). In congruence with Masulis, Wang & Xie (2007) and De Jong, Van der Poel & Wolfswinkel (2007) we define *firm size* as the natural log transformation of the acquirer's book value of total assets.

Leverage & Free cash flow - In his study on the agency costs of free cash flow, corporate finance, and takeovers, Jensen (1986) posits that managers who have a significant amount of free cash flow at their disposal could either increase dividend payouts to their shareholders or repurchase stock. This leaves managers with considerable control over the use of future free cash flows. Jensen (1986) argues that debt could potentially reduce the agency costs of free cash flow since it lowers the amount of cash flow available for spending at the discretion of managers. In addition, the fear of not being able to make the obligatory debt service payments serves as an effective motivating force to make managers and their managers more efficient. Finally, additional debt increases the likelihood that firms with large (free) cash flows and only a few high-return investment projects will payout cash to investors (Jensen, 1986). In conclusion, Jensen (1986) posits that managers of firms with unused borrowing power and large free cash flows are more likely to undertake low-benefit or even value-destroying M&A. Based upon Jensen (1986) and Masulis, Wang & Xie (2007), we assume leverage to have a positive effect on the acquirers CAR while the effect of free cash flow on the acquirers CAR is assumed to be either positive or negative. In congruence with Masulis, Wang & Xie (2007) and De Jong, Van der Poel & Wolfswinkel (2007) we define *leverage* as the total debt of the firm divided by the book value of total assets. *Free cash flow* is defined as a firms operating income before depreciation minus interest expense minus income taxes minus capital expenditures, divided by the book value of total assets.

Return on assets - The last firm characteristic that we control for is the return on assets (ROA) ratio. Following De Jong, Van der Poel & Wolfswinkel (2007), we define ROA as a firm's net

income divided by the book value of total assets. ROA gives us a general idea with regards to how efficient management is at using its assets to generate (future) earnings. Eisenberg et al. (1998) and Yermack (1996) posit that the historical performance of firms is likely related to their current performance. Since firms with high ROAs are more likely to be characterized by better/more efficient management, in theory, we expect these firms to undertake more value increasing acquisitions which result in higher CARs.

Deal characteristics that we use in our empirical analysis and that we control fore include: the method of payment, relative deal size and industry relatedness of the acquisition.

Method of payment - As was stated in the introduction, most scientific literature confirms that, in general, target shareholders are winners while acquiring firm shareholders are not as fortunate; bidders at best break-even, but often lose during acquisitions resulting in significantly negative abnormal returns (Weidenbaum & Vogt, 1987; Bruner, 2004). Research on the relationship between the method of payment in M&A and the returns to investors shows that at announcement stock-based deals are associated with negative returns to the acquirers shareholders whereas cash-deals are close to zero or even slightly positive (Huang & Walkling, 1987; Travlos, 1987; Asquith, Bruner & Mullins, 1987 and Heron & Lie, 2002). In congruence with the academic literature, Bruner (2004) argues that the aforementioned finding originates from the fact that managers tend to 'time' the issuance of shares of stock at favorable points in time (i.e. in the markets high). In this case, an announcement to finance an M&A deal with stock could be regarded by investors as a signal that the firm's shares are overvalued (hence the negative abnormal returns). To control for the method of payment we have created two variables namely : 1) stock-deals and 2) all-cash deals. Stock-deals equal zero if the acquisition is paid in full or partially with stock. Naturally, all-cash deals equal one if the acquisition is paid in full with cash (Masulis, Wang & Xie, 2007).

Relative deal size - Following De Jong, Van der Poel & Wolfswinkel (2007), we also control for the relative size of the deal. Research performed by Asquith, Bruner, & Mullins (1983) and Moeller, Schlingemann, & Stulz (2004) find that returns of acquirers at announcement increase in relative deal size. In the same vein as De Jong, Van der Poel & Wolfswinkel (2007), we define relative deal size as the transaction value of the acquisition divided by the acquirers market capitalization. If, for some reason, there is no transaction value available, relative deal size is measured by dividing the targets sales by the acquirers sales.

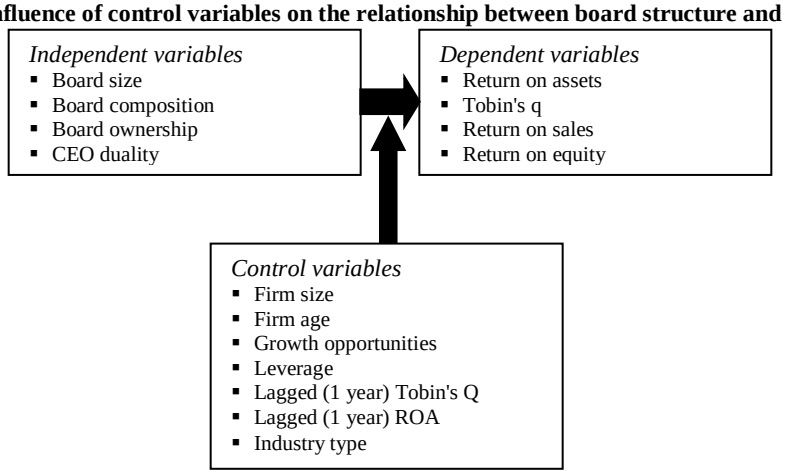
Industry relatedness of the acquisition - The last control variable concerns whether or not the acquisition was industry related. In their study of 326 U.S. acquisitions between 1975 and 1987,

Morck, Shleifer and Vishny (1990) found that acquisitions with a diversifying character (acquisitions of firms in unrelated industries) generally destroy shareholder wealth (negative announcement period returns). On the other hand, research by Campa and Kedia (2002), shows that diversification is sometimes associated with higher firm value. We define industry relatedness of the acquisition as follows: following Masulis, Wang & Xie (2007), we speak of a diversifying acquisition if the acquirer and target do not share the same industry identifier. We thus create a binary variable that takes a value of one if the M&A is diversifying and zero otherwise.

Factors influencing the relationship between board structure and firm performance

As suggested by prior research, we control for firm size, firm age, growth opportunities, leverage, lagged (1 year) Tobin's Q, lagged (1 year) ROA and industry type as these variables are likely to be related to firm performance and hence affect the relationship between board structure and firm performance (see figure 2).

FIGURE 2 - The influence of control variables on the relationship between board structure and firm performance



As stated by Eisenberg et al. (1998) and Yermack (1996), a firm's past performance is likely to be related to its current performance. Hence, in line with Cheng et al. (2008) we include a 1 year lagged ROA (defined as Net Income (NI) divided by Total Assets (AT) by the Compustat North America Fundamental Annual dataset) in our regression model.

Firm size is included as prior research (i.e. Bozec, 2005; Wintoki et al., 2007; Cheng et al., 2008; Eisenberg et al., 1998; and Yermack, 1996) indicates that firm size is generally related to board structure and firm performance. Similarly to Cheng et al. (2008) we expect firm size to have a positive effect on a firm's performance. Firm size is measured as the Logarithm (ln) of market value of equity (defined as MKVALT by the Compustat North America Fundamental Annual

dataset) and compared to the ln of Sales for robustness (defined as SALE by the Compustat North America Fundamental Annual dataset).

Similarly a firm's growth opportunities is likely to affect board structure and firm performance (i.e. Cheng et al., 2008; Eisenberg et al., 1998; and Yermack, 1996) and hence is included as control variable. In line with Cheng et al. (2008) we measure a firm's growth opportunities as the ratio of capital expenditures (defined as CAPX by the Compustat North America Fundamental Annual dataset) to total assets, and expect it to have a positive effect on firm performance. As stated by Cheng et al. (2008): "*The inclusion of this ratio is important especially when Tobin's q is used to measure firm performance, because Tobin's q is also a widely used proxy for growth opportunities.*". In contrast to Cheng et al. (2008), we do not measure growth opportunities as the ratio of R&D expenditures to total assets as data with regards to R&D expenditures is missing for a significant number of firms.

In congruence with the majority of the literature (i.e. Guest, 2009; Wintoki et al., 2007 and Bennedsen et al., 2007) we include firm age as control variable and compute it as the time (ln) a firm first appears on CRSP. We expect firm age to have a negative effect on firm performance as Loderer & Waelchli (2009) indicated that (in general) as firms age they slowly lose their ability to compete as costs rise, margins thin, growth slows, assets become obsolete, and investment and R&D activities decline.

Additionally we control for leverage and industry type (see also Bozec, 2005; Haniffa & Hudaib, 2006; Wintoki et al., 2007; and Guest, 2009). We measure leverage as total long-term debt (defined as DLTT by the Compustat North America Fundamental Annual dataset) divided by total assets and industry type using a firm's macro industry definition. We make no predictions with regard to the impact of leverage on firm performance as the optimal debt level is likely to differ substantially on a firm by firm basis: e.g. Haniffa & Hudaib (2006) showed in contrast to Weir et al. (2002) a significant positive relationship between market performance and leverage.

Finally, in line with Bozec (2005) we add a lagged depended variable (1 year lagged Tobin's q) to control for potential endogeneity between performance and board characteristics (see Weir et al., 2002; and Klein, 1998). Lagged Tobin's q is computed (proxied) as the ratio of book value of total assets plus market value of equity minus book value of equity divided by book value of total assets. Table 4 and 5 provide a summary of the operationalisation of the variables for research question 1 and 2 respectively.

TABLE 4 - Operationalisation of the research variables (research question 1)

Variables	*Acronym*	*Operationalisation*
Dependent variables		
Cumulative Abnormal Returns (M&A performance)	CAR1,2,3 and 4	CAR for acquirers with the following event windows: (-2, 2), (-5, 5), (-1, 10) and (-10,1). The estimated dollar value effect for each transaction is computed by multiplying the relevant CAR by the market capitalization of the acquiring firm prior to the event window (at least 10 days before the M&A announcement).
Independent variables		
Board Size	BOARDs	The total number of directors (executive and non-executive) sitting on the board.
Board Composition	BOARDi	The number of affiliated and independent directors sitting on the board (including board independence which measures the percentage of independent directors).
CEO Duality	CEOd	If CEO is also chairman of the board =1, if not =0.
Board Ownership (ln)	SHARESh	The logarithm (ln) of the percentage of common company shares held by members of the board.
Control variables		
Tobin's q (ln)	TOBq	The ln of the book value of Total Assets (AT) minus Shareholders Equity (SEQ) plus the Market Value of Equity (MKVALT) divided by the book value of Total Assets (AT).
Firm Size (ln)	FSIZE	The Logarithm (ln) of the book value of Total Assets (AT).
Leverage	GEAR	The ratio of Total Liabilities (LT) to Total Assets (AT).
Free Cash Flow	FCF	Operating Income Before Depreciation (OIBDP) minus Annual Interest Expense (XINT) minus Annual Income Taxes (TXT) minus Capital Expenditures (CAPX) divided by Total Assets (AT).
Return on Assets	ROA	The ratio of Net Income (NI) to Total Assets (AT).
Method of Payment	CASHd	If an acquisition is paid in full with cash (cash deals) =1, if an acquisition is paid in full or partially with stock (stock deals) =0.
Relative Deal Size (ln)	DEALs	The ln of the transaction value of the acquisition divided by the acquirers MKVALT at the end of the fiscal year prior to the acquisition announcement.
Industry Relatedness	SAMEmc	If acquirer and target share the same industry macro code =1, if not =0.

TABLE 5 - Operationalisation of the research variables (research question 2)

Variables	*Acronym*	*Operationalisation*
Dependent variables		
Return on Assets	ROA	The ratio of operating profit before depreciation and provisions (income before extraordinary items) divided by book value of total assets at the beginning of the fiscal year.
Tobin's q (ln)	TOBq	Proxied as ln of the ratio of book value of total assets (AT) plus market value of equity (MKVALT) minus book value of equity (SEQ) divided by AT.
Return on Sales	ROS	The ratio of net income before extraordinary and unusual items divided by sales.
Return on Equity	ROE	A firm's fiscal year net income (after preferred stock dividends but before common stock dividends) divided by shareholder's equity (book value excluding preferred shares).
Independent variables		
Board Size	BOARDs	The total number of directors (executive and non-executive) sitting on the board.
Board Composition	BOARDi	The number of affiliated and independent directors sitting on the board (including board independence which measures the percentage of independent directors).
CEO Duality	CEOd	If CEO is also chairman of the board =1, if not =0.
Board Ownership (ln)	SHARESh	The ln of the percentage of common company shares held by members of the board.
Control variables		
Firm Size (ln)	FSIZE	The ln of MKVALT.
Firm Age (ln)	AGE	The time (ln) a firm first appears on CRSP.
Growth Opportunities (ln)	GROWTHo	The ln of the ratio of capital expenditures (CAPX) to total assets.
Leverage	GEAR	The ratio of total long-term debt (DLTT) to AT).
Lagged (1 year) Tobin's q (ln)	TOBqLag	Proxied as the (previous year) ln of the ratio of AT plus MKVALT minus SEQ divided by AT.
Lagged (1 year) ROA	ROAlag	The (previous year) ratio of Net Income (NI) to AT.
Industry Type	ITYPE	Measured using a firm's macro industry definition.

3.5 Descriptive statistics

Table 6 and 7 below present summary statistics for the variables used in the regression analysis. While the former table dilates on statistics relating to the first research question, the latter table dilates on statistics relating to the second research question (see paragraph 1.1).

3.5.1 Descriptive statistics of M&A performance, board structure and control variables

Similarly to most empirical findings (e.g. Weidenbaum & Vogt, 1987; Bruner, 2004), table 6 indicates that acquiring firms on average tend to experience negative abnormal returns around and following the announcement date; For the combined research period 1999-2010, the average abnormal returns for event windows 1,2,3 and 4 equaled -0.88%, -0.91%, -0.92% and -0.65%. For the research period 1999-2002, the average CAR for window 1,2,3 and 4 equaled -1.10%, -

1.13%, -1.37% and -0.86% respectively. This trend of negative abnormal returns can also be observed for the 2003-2006 research period, in which the average CAR equaled -1.95%, -1.21%, -1.44% and -3.73%. In contrast, 2007-2010 (a period characterized by the recent financial crisis) exhibits less negative and even slightly positive abnormal returns (0.37%, -0.66%, -0.25% and 0.72%).

With regards to the board structure of acquiring firms, it appears that the average size of the board of directors equals 10 members for all four research periods. In addition, the majority of board members seem to be independent. For the research periods 1999-2002, 2003-2006, 2007-2010 and 1999-2010, the average percentage of independent board members equaled 70%, 65%, 81% and 71%. Since data on the percentage of common company shares held by members of the board initially did not correspond to a normal distribution, we applied the log transformation on this variable. During the climax and end of the dot-com bubble (1999-2002) and the recent financial crisis (2007-2010) the average percentage of common company shares hold by members of the board approximated 6.50% and 5.60%. In contrast, in 2003-2006 (characterized by increased U.S. M&A volume) the average percentage of common company shares hold by members of the board almost doubled to 13.00%. For the combined research period (1999-2010), the average percentage of common company shares hold equaled 7.16%. Finally, the majority of acquiring firms seem to be characterized by CEO duality (the function of chairman and CEO is performed by one individual). For the research period 1999-2002, CEO duality is highest at almost 80%, while for the research periods 2003-2006 and 2007-2010 CEO duality equals 56% and 62% respectively. For the combined research period 1999-2010, CEO duality averaged at round 70%. These results on CEO duality are not surprising as (see paragraph 2.4) one-tier boards seem to dominate the corporate landscape in the U.S. (Dehaene, Vuyst & Ooghe, 2001). In addition, most corporate governance codes such as the U.S. Sarbanes-Oxley Act (SOX or Sarbox) of 2002 recommend a separation between the two functions. This could explain the sharp decline in CEO duality in 2003-2006 and 2007-2010.

With regard to the control variables, table 6 indicates that the majority of acquirers favor cash deals over other payment methods (i.e. mix of cash and equity or all equity). For the research periods 1999-2002, 2003-2006, 2007-2010 and 1999-2010, 80%, 75%, 90% and 83% of all M&A transactions were pure cash deals. In addition, the gross of M&A transactions were non-diversifying in nature; 69% (1999-2002), 69% (2003-2006), 66% (2007-2010) and 69% (1999-2010) of all M&A transactions were characterized by acquirers and targets who shared the same industry identifier (macro code).

Since data on deal size, Tobin's q and firm size initially did not correspond to a normal distribution, we applied the log transformation on these three variables. Over the first two research periods (1999-2002 & 2003-2006), deal size (expressed as the value of the acquisition divided by the acquirers MKVALT at the end of the fiscal year prior to the acquisition announcement) was found to be relatively stable with an average of 15.6% (1.52 in table 6) and 16.3% (2.06 in table 6) respectively. However, for the research period 2007-2010 deal size was found to be significantly lower, averaging at 10.9% (1.70 in table 6). For the combined research period (1999-2010), the average size of the deal was approximately 14.04% (1.66 in table 6). Contrary to deal size, Tobin's q was found to be relatively stable and larger than 1 for all four research periods averaging around 2.6 (0.79 in table 6), 2.5 (0.78 in table 6), 2.3 (0.76 in table 6) and 2.5 (0.78 in table 6). According to Haniffa and Hudaib (2006) and Weir et al. (2002), a higher value of *q* can be regarded as a sign of governance mechanisms working more effectively and a better perception by the market of a company's performance. In addition, firms in our sample can be regarded as relatively large given the average book value of total assets of approximately 16.1, 9.9, 16.9 and 15.5 billion (U.S. dollars) and average market value of equity of approximately 25.4; 20.7; 25 and 24.9 billion (U.S. dollars) for 1999-2002, 2003-2006, 2007-2010 and 1999-2010 respectively. Finally, data on leverage (GEAR), return on assets (ROA) and free cash flow (FCF) does not seem to fluctuate significantly over all four research periods and remain relatively stable. On average, acquirers had a gearing ratio of 51.80%, 41.46%, 46.53% and 47.98%, while return on assets and free cash flow fluctuated between 7.55% - 8.99% and 7.38% -10.57% respectively.

Besides applying the log transformation on certain variables to normalize the data, we also omitted *extreme* values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile). Extreme is italicized as some *outliers* are still present; omitting all outliers would have decreased our sample size significantly. Testing showed that removing the remaining outliers did not have a significant impact on the results. Hence, only extreme values have been omitted. In addition, it appears that: 1) the skewness and kurtosis for all variables except the dummy variables CEOd, CASHd=1 and SAMEmc=1 are relatively low; 2) very small differences between mean and median exist for all variables; 3) standard deviations are relatively low; and 4) plausible minimum and maximum values exist.

3.5.2 Descriptive statistics of Firm Performance, Board Structure and Control Variables

As reported in table 7, firms in 1999-2002 and 2003-2006 are characterized on average by positive ROA, ROS, ROE and Tobin's q. In the former research period the average ROA, ROS,

ROE and Tobin's q equaled 4.48%, 5.65%, 11.47% and 2.09 (0.6092 in table 7) respectively. In the latter research period the average ROA, ROS, ROE and Tobin's q were slightly higher and equaled 6.54%, 8.80%, 13.29% and 2.04 (0.6199 in table 7). As stated in paragraph 3.5.1, a higher value of *q* can be regarded as a sign of governance mechanisms working more effectively and a better perception by the market of a company's performance as the market value exceeds the book value of assets.

With regard to board characteristics, table 7 indicates that the average size of the board of directors from 1999-2006 equaled 10 and has been relatively stable (see paragraph 3.5.1). With regard to the optimal size of the board, Lipton & Lorsch (1992) argue that the maximum number of directors on the board is 10 while an amount smaller than 10 is considered optimal. However, as stated in paragraph 2.4, larger boards may be an optimal value maximizing outcome for large (complex) firms as these firms are likely to have a greater need for information (Guest, 2009).

Again, in line with table 6, the majority of board members were independent and equaled 69.43% and 71.09% in 1999-2002 and 2003-2006 respectively. The total shares hold by the board in percentages equaled 5.73% in 1999-2002 and nearly doubled to 11.55% in 2003-2006. Finally, in 1999-2002 most CEO's also served as chairman of the board as characterized by the mean of 0.78. In 2003-2006 this number declined to 0.55 (a similar trend was identified in paragraph 3.5.1).

With regards to the control variables, it appears that on average the sample is characterized by relatively large and well established firms; The average market value of equity (firm size) equaled approximately 22.8 and 29.4 billion, while the average firm age (measured as the time a firm first appears on the CRSP database) equaled approximately 28 and 26 years in 1999-2002 and 2003-2006 respectively. In 2003-2006 the ratio of total long-term debt to the book value of total assets (leverage) was on average slightly lower at 16.38% compared to 19.54% in 1999-2002. The significant difference in leverage between table 6 and 7 could be the result of financing M&A from new issues of debt and paying with cash (in table 6 almost 80% of M&A were financed with cash only). Finally, growth opportunities (as measured by the ratio of capital expenditures to the book value of total assets) were on average lower in 2003-2006 at 2.59% (0.50 in table 7) compared to 4.04% (1.17 in table 7) in 1999-2002. The difference is primarily driven by a decrease in capital expenditures, which has approximately halved in 2003-2006 to 420 million. Similarly to paragraph 3.5.1., the dataset has been normalized by ommiting *extreme* values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile) and applying the log transformation on Tobin's q, board ownership, firm size,

firm age and growth opportunities to improve model fit. Testing showed that removing the remaining outliers did not have a significant impact on the results. Hence, only extreme values have been omitted. Table 7 indicates that the skewness and kurtosis for most variables (except ROAlag in 1999-2002) are relatively low. The variables all seem to be relatively normally distributed with a minimal difference between the mean and median for all variables, low standard deviations and plausible minimum and maximum numbers.

TABLE 6 - Descriptive statistics of M&A performance, board structure and control variables

Research period: 1999-2002

		CAR1	CAR2	CAR3	CAR4	BOARDs	BOARDi	SHARESh(ln)	CEOd	CASHd=1	SAMEmc=1	DEALs(ln)	FSIZE(ln)	TOBq(ln)	GEAR	ROA	FCF
N	Valid	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		-1.10%	-1.13%	-1.37%	-.86%	9.91	66.98%	.6602	.78	.81	.69	1.5237	8.2060	.7949	51.80%	7.55%	7.38%
Median		-1.77%	-1.56%	-1.11%	-.95%	10.00	71.43%	.4447	1.00	1.00	1.00	1.9769	8.2019	.7151	52.07%	7.38%	7.04%
Std. Deviation		7.60%	8.91%	9.19%	9.43%	2.739	17.19%	1.54482	.414	.391	.465	1.9149	1.6485	.56151	18.67%	5.54%	5.33%
Skewness		.212	.553	.101	.064	.267	-.558	.187	-1.398	-1.643	-.838	-.518	.211	.465	-.091	-.226	.460
Std. Error of Skewness		.245	.245	.245	.245	.245	.245	.245	.245	.245	.245	.245	.245	.245	.245	.245	.245
Kurtosis		.883	.793	.316	.897	-.531	-.383	.202	-.046	.714	-1.325	-.647	-.167	.124	-.354	.945	.615
Std. Error of Kurtosis		.485	.485	.485	.485	.485	.485	.485	.485	.485	.485	.485	.485	.485	.485	.485	.485
Minimum		-22.74%	-21.13%	-22.05%	-28.67%	4	22.22%	-3.22	0	0	0	-3.00	4.6973	-.58	6.60%	-11.90%	-3.93%
Maximum		22.24%	25.66%	25.05%	28.63%	16	100.00%	4.21	1	1	1	4.85	12.912	2.32	90.10%	20.87%	23.16%

Research period: 2003-2006

		CAR1	CAR2	CAR3	CAR4	BOARDs	BOARDi	SHARESh(ln)	CEOd	CASHd=1	SAMEmc=1	DEALs(ln)	FSIZE(ln)	TOBq(ln)	GEAR	ROA	FCF
N	Valid	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		-1.95%	-1.21%	-1.44%	-3.73%	9.59	65.33%	1.6797	.56	.75	.69	2.0584	7.9930	.7839	41.46%	8.99%	10.57%
Median		-1.13%	-.87%	-.65%	-3.42%	10.00	69.62%	1.8759	1.00	1.00	1.00	2.2471	8.1130	.6694	43.72%	8.12%	9.70%
Std. Deviation		4.99%	5.66%	6.11%	6.99%	2.525	14.58%	1.5818	.504	.440	.471	1.4185	1.8595	.48506	17.81%	6.31%	5.19%
Skewness		-.825	-.799	-.036	-.516	.363	-.313	-.613	-.265	-1.212	-.849	-.413	-.189	.767	-.048	.351	.427
Std. Error of Skewness		.414	.414	.414	.414	.414	.414	.414	.414	.414	.414	.414	.414	.414	.414	.414	.414
Kurtosis		.335	.527	-.299	-.117	-.246	-.342	.102	-2.063	-.570	-1.368	-.938	-.808	.296	-.774	-.220	-.846
Std. Error of Kurtosis		.809	.809	.809	.809	.809	.809	.809	.809	.809	.809	.809	.809	.809	.809	.809	.809
Minimum		-13.88%	-16.96%	-12.88%	-20.40%	5	30.77%	-2.04	0	0	0	-.62	4.1444	-.15	10.58%	-2.92%	2.78%
Maximum		4.97%	7.08%	11.70%	6.53%	15	90.00%	4.29	1	1	1	4.01	11.2556	1.89	73.91%	21.62%	21.17%

Research period: 2007-2010

		CAR1	CAR2	CAR3	CAR4	BOARDs	BOARDi	SHARESh(ln)	CEOd	CASHd=1	SAMEmc=1	DEALs(ln)	FSIZE(ln)	TOBq(ln)	GEAR	ROA	FCF
N	Valid	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		.37%	-.66%	-.25%	.72%	9.92	80.79%	.3608	.62	.90	.66	1.7008	8.5578	.7598	46.53%	8.05%	7.89%
Median		-.06%	-.78%	.88%	.45%	10.00	83.33%	.3075	1.00	1.00	1.00	1.9559	8.7098	.7426	44.19%	8.31%	7.68%
Std. Deviation		4.41%	6.25%	6.44%	7.19%	2.147	9.56%	1.7554	.489	.300	.479	1.3820	1.7881	.42372	19.77%	4.63%	4.36%
Skewness		.495	-.512	-.169	.094	-.225	-.620	-.004	-.520	-2.766	-.672	-.687	-.151	.470	.388	-.121	.232
Std. Error of Skewness		.306	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
Kurtosis		.583	.588	.162	.501	-.882	-.230	-.117	-1.789	5.840	-1.602	-.045	-1.245	.176	-.261	.602	.740
Std. Error of Kurtosis		.604	.604	.604	.604	.604	.604	.604	.604	.604	.604	.604	.604	.604	.604	.604	.604
Minimum		-9.20%	-18.70%	-17.12%	-17.15%	6	55.56%	-3.91	0	0	0	-2.12	5.4710	-.08	11.55%	-4.84%	-2.35%
Maximum		14.13%	12.82%	15.19%	16.52%	14	100.00%	4.04	1	1	1	4.13	11.6512	1.91	96.41%	19.03%	20.68%

This table presents descriptive statistics for the whole sample. The sample consists of 97, 32 and 61 U.S. (publicly traded) acquiring firms (completed acquisitions) covered in the Thomson One Banker (TOB) database between 1999-2002, 2003-2006 and 2007-2010 respectively, in which the percent of shares acquired (owned) in (after) the transaction and percent shares sought in tender offers equals more than 50%. For all firms' only one transaction within one year is allowed in the sample. Utilities as well as financial and government related firms are excluded. Extreme values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile) have been omitted from this table. Data on cumulative abnormal returns (CAR), stock prices and broad market indices are from EVENTUS (and from the Center for Research in Security Prices (CRSP) database). Data on board structure and director information is from the Investor Responsibility Research Center (IRRC and/or RiskMetrics), supplemented by proxy statements. **Dependent variables**. CAR1, 2, 3 and 4 represents the CAR for acquiring firms with the following event windows: (-2, 2), (-5, 5), (-1, 10) and (-10,1). **Independent variables**. Board size (BOARDs) is the total number of directors (executive and non-executive) sitting on the board. Board composition (BOARDi) is the percentage of independent directors sitting on the board. Board ownership (SHARESh) is the natural logarithm (ln) of the percentage of common company shares held by member of the board.CEO duality (CEOd) equals 1 if a CEO is also chairman of the board and equals 0 otherwise. **Control variables**. Tobin's q (TOBq) is the ln of the book value of Total Assets (AT) minus Shareholders Equity (SEQ) plus the Market Value of Equity (MKVALT) divided by the book value of Total Assets (AT). Firm size (FSIZE) is the ln of the book value of AT. Leverage is the ratio of Total Liabilities (LT) to AT. Free cash flow (FCF) the operating Income Before Depreciation (OIBDP) minus Annual Interest Expense (XINT) minus Annual Income Taxes (TXT) minus Capital Expenditures (CAPX) divided by AT. Return on assets (ROA) is the ratio of Net Income (NI) to AT. Method of payment (CASHd) equals 1 if an acquisition is paid in full with cash (cash deals) and 0 otherwise. Relative deal size (DEALs) is the ln of the transaction value of the acquisition divided by the acquirers MKVALT at the end of the fiscal year prior to the acquisition announcement. Industry relatedness (SAMEmc) equals 1 if acquirer and target share the same industry macro code and 0 otherwise.

TABLE 6 - Descriptive statistics of M&A performance, board structure and control variables (continued)

Research period: 1999-2010

		CAR1	CAR2	CAR3	CAR4	BOARDs	BOARDi	SHARESh(ln)	CEOd	CASHd=1	SAMEmc=1	DEALs(ln)	Fsize(ln)	TOBq(ln)	GEAR	ROA	FCF
N	Valid	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		-.88%	-.91%	-.92%	-.65%	9.84	70.60%	.7226	.70	.83	.69	1.6624	8.2674	.7752	47.98%	7.66%	7.70%
Median		-.83%	-.92%	-.32%	-.75%	10.00	72.73%	.6152	1.00	1.00	1.00	1.9892	8.1394	.7131	47.57%	7.76%	7.35%
Std. Deviation		6.40%	7.95%	7.97%	8.89%	2.633	16.17%	1.68079	.460	.373	.464	1.68879	1.74769	.51148	19.24%	5.70%	5.43%
Skewness		.000	.372	-.043	.144	.506	-.696	-.068	-.872	-1.811	-.820	-.648	.068	.550	.096	-.320	.118
Std. Error of Skewness		.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172
Kurtosis		1.583	1.381	.566	.929	.758	-.129	-.200	-1.253	1.291	-1.341	-.218	-.719	.310	-.499	1.327	.659
Std. Error of Kurtosis		.343	.343	.343	.343	.343	.343	.343	.343	.343	.343	.343	.343	.343	.343	.343	.343
Minimum		-22.74%	-21.13%	-22.05%	-28.67%	4	22.22%	-3.91	0	0	0	-3.00	4.14	-.58	6.60%	-14.33%	-10.08%
Maximum		22.24%	27.49%	25.05%	28.63%	21	100.00%	4.29	1	1	1	4.85	12.91	2.32	96.41%	21.62%	23.16%

This table presents descriptive statistics for the whole sample. The sample consists of 97, 32 and 61 U.S. (publicly traded) acquiring firms (completed acquisitions) covered in the Thomson One Banker (TOB) database between 1999-2002, 2003-2006 and 2007-2010 respectively, in which the percent of shares acquired (owned) in (after) the transaction and percent shares sought in tender offers equals more than 50%. For all firms' only one transaction within one year is allowed in the sample. Utilities as well as financial and government related firms are excluded. Extreme values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile) have been omitted from this table. Data on cumulative abnormal returns (CAR), stock prices and broad market indices are from EVENTUS (and from the Center for Research in Security Prices (CRSP) database). Data on board structure and director information is from the Investor Responsibility Research Center (IRRC and/or RiskMetrics), supplemented by proxy statements. **Dependent variables**. CAR1, 2, 3 and 4 represents the CAR for acquiring firms with the following event windows: (-2, 2), (-5, 5), (-1, 10) and (-10,1). **Independent variables**. Board size (BOARDs) is the total number of directors (executive and non-executive) sitting on the board. Board composition (BOARDi) is the percentage of independent directors sitting on the board. Board ownership (SHARESh) is the natural logarithm (ln) of the percentage of common company shares held by member of the board.CEO duality (CEOd) equals 1 if a CEO is also chairman of the board and equals 0 otherwise. **Control variables**. Tobin's q (TOBq) is the ln of the book value of Total Assets (AT) minus Shareholders Equity (SEQ) plus the Market Value of Equity (MKVALT) divided by the book value of Total Assets (AT). Firm size (Fsize) is the ln of the book value of AT. Leverage is the ratio of Total Liabilities (LT) to AT. Free cash flow (FCF) the operating Income Before Depreciation (OIBDP) minus Annual Interest Expense (XINT) minus Annual Income Taxes (TXT) minus Capital Expenditures (CAPX) divided by AT. Return on assets (ROA) is the ratio of Net Income (NI) to AT. Method of payment (CASHd) equals 1 if an acquisition is paid in full with cash (cash deals) and 0 otherwise. Relative deal size (DEALs) is the ln of the transaction value of the acquisition divided by the acquirers MKVALT at the end of the fiscal year prior to the acquisition announcement. Industry relatedness (SAMEmc) equals 1 if acquirer and target share the same industry macro code and 0 otherwise.

TABLE 7 - Descriptive statistics of firm performance, board structure and control variables

Research period: 1999-2002(*)(**)

		ROA	ROS	ROE	TOBq(ln)	BOARDs	BOARDi	SHARESh(ln)	CEOd	FSIZE(ln mkvalt)	FSIZE(ln sales)	AGE(ln)	GEAR	ROAlag	TOBqLAG(ln)	GROWTHo(ln)
N	Valid	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		4.48%	5.65%	11.47%	.6092	10.18	69.43%	.6670	.78	8.6638	8.3229	3.0622	19.54%	4.90%	.6869	1.1701
Median		4.85%	5.55%	10.36%	.5295	10.00	71.43%	.5247	1.00	8.6400	8.3900	3.2189	19.15%	5.87%	.6047	1.1985
Std. Deviation		5.55%	7.62%	14.79%	.46986	2.651	16.68%	1.50	.412	1.7289	1.533	.85309	12.67%	7.96%	.53344	.69059
Skewness		-.178	.069	.298	.862	.465	-.671	.059	-1.391	.127	.087	-.382	.120	-3.041	.895	-.164
Std. Error of Skewness		.130	.130	.130	.130	.130	.130	.130	.130	.130	.130	.130	.130	.130	.130	.130
Kurtosis		1.034	1.208	1.457	.747	-.033	-.225	-.108	-.065	-.368	-.709	-.589	-.774	19.526	.878	.156
Std. Error of Kurtosis		.259	.259	.259	.259	.259	.259	.259	.259	.259	.259	.259	.259	.259	.259	.259
Minimum		-14.46%	-18.22%	-43.04%	-.33	4	14.29%	-3.51	0	3.57	4.64	.69	.00%	-59.54%	-.40	-1.08
Maximum		21.97%	31.45%	60.45%	2.64	19	100.00%	4.20	1	13.07	12.04	4.37	52.66%	22.29%	2.78	2.80

Research period: 2003-2006(*)(**)

		ROA	ROS	ROE	TOBq(ln)	BOARDs	BOARDi	SHARESh(ln)	CEOd	FSIZE(ln mkvalt)	FSIZE(ln sales)	AGE(ln)	GEAR	ROAlag	TOBqLAG(ln)	GROWTHo(ln)
N	Valid	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		6.54%	8.80%	13.29%	.6199	9.95	71.09%	1.4430	.55	8.8147	8.4991	3.0348	16.38%	7.07%	.6916	.5019
Median		6.11%	6.97%	12.99%	.5403	10.00	71.43%	1.5790	1.00	8.6600	8.5741	3.0910	15.34%	6.90%	.6020	.4318
Std. Deviation		4.54%	7.76%	8.59%	.41194	2.372	13.84%	1.67643	.500	2.06738	1.88390	.74073	12.68%	5.96%	.41626	.87704
Skewness		.177	.721	-.405	.597	.000	-.035	-.472	-.193	-.168	-.085	-.056	.876	-.137	.741	.569
Std. Error of Skewness		.247	.247	.247	.247	.247	.247	.247	.247	.247	.247	.247	.247	.247	.247	.247
Kurtosis		1.852	-.101	1.483	.299	-.198	-.888	-.420	-2.005	-.922	-1.092	-1.264	.834	3.762	.066	.512
Std. Error of Kurtosis		.490	.490	.490	.490	.490	.490	.490	.490	.490	.490	.490	.490	.490	.490	.490
Minimum		-7.14%	-6.31%	-15.88%	-.22	5	40.00%	-2.81	0	3.95	4.84	1.61	.00%	-17.77%	-.15	-1.31
Maximum		21.01%	26.40%	36.50%	1.88	15	100.00%	4.24	1	12.50	11.68	4.25	59.68%	26.89%	1.88	3.14

**The dummy variable for Industry Type (ITYPE), on the basis of ten different macro industry definitions, has been omitted from this table. For more information on this variable see paragraph 3.2.*

***Since we measure firm performance for each firm in our sample in principle for four consecutive years, the research period [1999-2002] and [2003-2006] actually correspond to [1999-2005] and [2003-2009] respectively.*

This table presents descriptive statistics for the whole sample. The sample consists of 95 and 26 U.S. (publicly traded) acquiring firms (completed acquisitions) covered in the Thomson One Banker (TOB) database between 1999-2002 and 2003-2006 respectively, in which the percent of shares acquired (owned) in (after) the transaction and percent shares sought in tender offers equals more than 50%. For all firms' only one transaction within one year is allowed in the sample. Utilities as well as financial and government related firms are excluded. For each firm, performance is in principle measured over four consecutive years. However, as we omit extreme values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile) from this table, firm performance is in some cases measured over a period less than 4 years. The sample consists of 353 and 95 firm year observations between 1999-2002 and 2003-2006 respectively. Data on firms performance variables is from the Compustat North America Fundamental Annual dataset supplemented by proxy statements and annual fillings (10-k). Data on board structure and director information is from the Investor Responsibility Research Center (IRRC and/or RiskMetrics), supplemented by proxy statements. **Dependent variables**. Return on assets (ROA) is the ratio of operating profit before depreciation and provisions (income before extraordinary items) divided by book value of total assets at the beginning of the fiscal year. Tobin's q (TOBq) is proxied as the natural logarithm (ln) of the ratio of book value of total assets (AT) plus market value of equity (MKVALT) minus book value of equity (SEQ) divided by AT. Return on sales (ROS) is the ratio of net income before extraordinary and unusual items divided by sales. Return on equity (ROE) is a firm's fiscal year net income (after preferred stock dividends but before common stock dividends) divided by shareholder's equity (book value excluding preferred shares). **Independent variables**. Board size (BOARDs) is the total number of directors (executive and non-executive) sitting on the board. Board composition (BOARDi) is the percentage of independent directors sitting on the board. Board ownership (SHARESh) is the natural logarithm (ln) of the percentage of common company shares held by member of the board.CEO duality (CEOd) equals 1 if a CEO is also chairman of the board and equals 0 otherwise. **Control variables**. Firms size (FSIZE) is the ln of MKVALT. Firm age (AGE) is the time (ln) a firm first appears on the Center for Research in Security Prices (CRSP) database. Growth opportunities (GROWTHo) is the ratio of capital expenditures (CAPX) to AT. Leverage (GEAR) is the ratio of total long-term debt (DLTT) to AT. Lagged Tobin's q (TOBqLag) is proxied as the (previous year) ln of the ratio of AT plus MKVALT minus SEQ divided by AT. Lagged ROA (ROAlag) is the (previous year) ratio of Net Income (NI) to AT. Industry type (ITYPE) is measured using a firm's macro industry definition.

TABLE 7 - Descriptive statistics of firm performance, board structure and control variables (continued)

Research period: 1999-2006 - total(*)(**)

		ROA	ROS	ROE	TOBq(ln)	BOARDs	BOARDi	SHARESh(ln)	CEOd	FSIZE(ln mkvalt)	FSIZE(ln sales)	AGE(ln)	GEAR	ROAlag	TOBqLAG(ln)	GROWTHo(ln)
N	Valid	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		4.92%	6.32%	11.86%	.6114	10.13	69.79%	.8316	.73	8.6958	8.3603	3.0564	18.87%	5.37%	.6879	1.0281
Median		5.15%	5.74%	11.42%	.5296	10.00	71.43%	.7129	1.00	8.6500	8.4300	3.1781	18.43%	5.96%	.6020	1.0682
Std. Deviation		5.42%	7.75%	13.73%	.45777	2.593	16.12%	1.56967	.442	1.80451	1.61284	.82982	12.73%	7.62%	.51041	.78251
Skewness		-.192	.213	.221	.820	.400	-.607	-.013	-1.065	.052	.056	-.330	.272	-2.800	.884	-.184
Std. Error of Skewness		.115	.115	.115	.115	.115	.115	.115	.115	.115	.115	.115	.115	.115	.115	.115
Kurtosis		1.180	1.032	1.833	.704	-.014	-.202	-.343	-.870	-.525	-.791	-.659	-.567	19.202	.910	.015
Std. Error of Kurtosis		.230	.230	.230	.230	.230	.230	.230	.230	.230	.230	.230	.230	.230	.230	.230
Minimum		-14.46%	-18.22%	-43.04%	-.33	4	14.29%	-3.51	0	3.57	4.64	.69	.00%	-59.54%	-.40	-1.31
Maximum		21.97%	31.45%	60.45%	2.64	19	100.00%	4.24	1	13.07	12.04	4.37	59.68%	26.89%	2.78	3.14

**The dummy variable for Industry Type (ITYPE), on the basis of ten different macro industry definitions, has been omitted from this table. For more information on this variable see paragraph 3.2.*

***Since we measure firm performance for each firm in our sample in principle for four consecutive years, the research period [1999-2002] and [2003-2006] actually correspond to [1999-2005] and [2003-2009] respectively.*

This table presents descriptive statistics for the whole sample. The sample consists of 95 and 26 U.S. (publicly traded) acquiring firms (completed acquisitions) covered in the Thomson One Banker (TOB) database between 1999-2002 and 2003-2006 respectively, in which the percent of shares acquired (owned) in (after) the transaction and percent shares sought in tender offers equals more than 50%. For all firms' only one transaction within one year is allowed in the sample. Utilities as well as financial and government related firms are excluded. For each firm, performance is in principle measured over four consecutive years. However, as we omit extreme values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile) from this table, firm performance is in some cases measured over a period less than 4 years. The sample consists of 353 and 95 firm year observations between 1999-2002 and 2003-2006 respectively. Data on firms performance variables is from the Compustat North America Fundamental Annual dataset supplemented by proxy statements and annual fillings (10-k). Data on board structure and director information is from the Investor Responsibility Research Center (IRRC and/or RiskMetrics), supplemented by proxy statements. **Dependent variables**. Return on assets (ROA) is the ratio of operating profit before depreciation and provisions (income before extraordinary items) divided by book value of total assets at the beginning of the fiscal year. Tobin's q (TOBq) is proxied as the natural logarithm (ln) of the ratio of book value of total assets (AT) plus market value of equity (MKVALT) minus book value of equity (SEQ) divided by AT. Return on sales (ROS) is the ratio of net income before extraordinary and unusual items divided by sales. Return on equity (ROE) is a firm's fiscal year net income (after preferred stock dividends but before common stock dividends) divided by shareholder's equity (book value excluding preferred shares). **Independent variables**. Board size (BOARDs) is the total number of directors (executive and non-executive) sitting on the board. Board composition (BOARDi) is the percentage of independent directors sitting on the board. Board ownership (SHARESh) is the natural logarithm (ln) of the percentage of common company shares held by member of the board.CEO duality (CEOd) equals 1 if a CEO is also chairman of the board and equals 0 otherwise. **Control variables**. Firms size (FSIZE) is the ln of MKVALT. Firm age (AGE) is the time (ln) a firm first appears on the Center for Research in Security Prices (CRSP) database. Growth opportunities (GROWTHo) is the ratio of capital expenditures (CAPX) to AT. Leverage (GEAR) is the ratio of total long-term debt (DLTT) to AT. Lagged Tobin's q (TOBqLag) is proxied as the (previous year) ln of the ratio of AT plus MKVALT minus SEQ divided by AT. Lagged ROA (ROAlag) is the (previous year) ratio of Net Income (NI) to AT. Industry type (ITYPE) is measured using a firm's macro industry definition.

Part IV - Results and discussion

This part entails the results of our empirical analysis on the relationship between board structure and M&A as well as firm performance. The next section covers subsequently: 1) a bivariate analysis of M&A/firm performance, board structure and control variables; 2) the multivariate regression models; and 3) the multivariate regression results.

4.1 Bivariate analysis

Table 8 and 9 below present the correlation matrix for M&A and firm performance, board characteristics and control variables. While the former table dilates on correlations relating to the first research question, the latter table dilates on correlations relating to the second research question (see paragraph 1.1).

4.1.1 Bivariate analysis of M&A performance, board structure and control variables

Table 8 below contains the correlation matrix for M&A performance, board characteristics and control variables for all four research periods. In line with most empirical research on the relationship between the method of payment in M&A and the returns to investors (see paragraph 3.4), we find a positive association between M&A performance and cash-deals for most event windows and years. Also, it appears that transactions within the same macro industry are positively associated with M&A performance (as described by Morck, Shleifer and Vishny, 1990) in three out of four research periods: 1999-2002, 2007-2010 and 1999-2010. However, in 2003-2006 M&A performance is inversely related to the industry relatedness of a transaction, which could support the notion of Campa and Kedia (2002) who found that diversification is sometimes associated with higher firm value.

For 2003-2006 and the combined research period 1999-2010, leverage (GEAR) is positively associated with M&A performance while return on assets (ROA) and free cash flow (FCF) are negatively associated with M&A performance. This might support the notion of Jensen (1986) who argued that debt could potentially reduce the agency costs of free cash flow since it lowers the amount of cash flow available for spending at the discretion of managers. For 2007-2010, we find the opposite relationship between M&A performance, GEAR, ROA and FCF. This seems logical as in an economic downturn (in this case the financial crisis) leverage can be considered a 'liability' while FCF and ROA provide more 'certainty' .

With regard to board characteristics, it appears that the size of the board is (generally speaking) negatively associated with pure cash transactions (except in 2003-2006). Furthermore, larger

boards generally undertake more diversifying transactions. This result seems logical as complex (diversifying) deals are likely to have a greater need for information and consequently require larger boards; One could argue that larger boards have access to more knowledge and as stated by Arslan, Karan & Eksi (2010) generally have better monitoring capabilities. In addition, for all four research periods, the size of the board of directors of acquiring firms is significant negatively correlated with the size of the deal. In addition, a significant positive correlation between board size and firm size exists, indicating that large firms are often characterized by larger boards. This supports the findings of Guest (2009), who argued that larger boards may be an optimal value maximizing outcome for large (complex) firms as these firms are likely to have a greater need for information. Furthermore, there seems to be a significant positive relationship between the size of the board and the gearing (leverage) ratio of the firm. Although a positive relationship between Tobin's q and board size exists for 1999-2002 and 2003-2006, the opposite is true for 2007-2010 and 1999-2010.

This data also indicates that the number of independent board members is positively related to pure cash transactions (except in 2003-2006) and negatively related to deal size and the industry relatedness of a transaction. Since cash-based deals are generally better received by investors (see paragraph 2.4), Vafeas & Theodorou's (1998) argument that independent board members are likely to guard and act in the shareholder's best interests is supported by our finding that the number of independent board members is positively related to pure cash transactions. In addition, independent directors are likely to have more 'outside' knowledge and hence better equipped to undertake diversifying transactions. Also, larger and more leveraged firms tend to have more independent directors on the board.

Table 8 also indicates that the percentage of common company shares hold by board members is positively associated to financing a transaction solely with cash (except in 1999-2002); Managers who have equity ownership in the firm are less likely to engage in behavior which negatively impacts shareholder wealth and are more likely to prefer cash transactions (which are generally associated with zero or slightly positive returns). Firm leverage and firm size seem to be negatively related to the percentage of common company shares hold by board members. In addition, as board members possess more company shares they are likely to engage in larger transactions.

For all four periods, CEO duality is negatively related to pure cash transactions and positively related to the industry relatedness of the transactions.

Finally, table 8 indicates no bivariate multicollinearity problem, as the correlation coefficients are relatively low: the coefficients do not exceed 0.50 for most of our explanatory variables (Arslan, Karan and Eksi, 2010) and none exceeds 0.90 (Tabachnick & Fidell, 2005).

4.1.2 Bivariate analysis of firm performance, board structure and control variables

Table 9 presents the correlation matrix for firm performance, board characteristics and control variables. As expected, firm size is positively related to firm performance (see paragraph 3.4). In line with Loderer & Waelchli (2010), it appears that AGE is negatively correlated with firm performance in the research period 2003-2006; Generally, as firms age they slowly lose their ability to compete as costs rise, margins thin, growth slows, assets become obsolete, and investment and R&D activities decline. In contrast to our expectations, in the research 1999-2002 it appears that firm age (AGE) is positively related to three firm performance indicators. Leverage (GEAR) seems to be negatively associated with firm performance. In line with Eisenberg et al. (1998), Yermack (1996) and Cheng et al. (2008) a firm's past performance (ROAlag) is strongly (positively) related to a its current performance. Similarly, a firm's growth opportunities (GROWTHo) seems to have (generally speaking) a positive effect on firm performance.

With regard to board characteristics, it appears that the size of the board (BOARDs) is positively associated with the size, age, leverage and growth opportunities of a firm. Again (see paragraph 4.1.1), the positive association between board size and firm size supports the findings of Guest (2009), who argued that larger boards may be an optimal value maximizing outcome for large (complex) firms as these firms are likely to have a greater need for information. The number of independent directors appears to be positively correlated with firm leverage. However, the percentage of common company shares hold by the board is inversely correlated with the size, age, leverage and growth opportunities of a firm. Furthermore, CEO duality seems to be positively associated with firm age, leverage (except in the research period 2003-2006) and growth opportunities.

Finally, table 9 indicates no bivariate multicollinearity problem, as the correlation coefficients are relatively low: the coefficients do not exceed 0.50 for most of our explanatory variables (Arslan, Karan and Eksi, 2010) and none exceeds 0.90 (Tabachnick & Fidell, 2005).

TABLE 8 - Pearson correlation matrix for M&A performance, board characteristics and control variables

Research period: 1999-2002

	CAR1	CAR2	CAR3	CAR4	BOARDs	BOARDi	SHARESh(ln)	CEOd=1	CASHd=1	SAMEmc=1	DEALs(ln)	FSIZE(ln)	TOBq(ln)	GEAR	ROA	FCF
CAR1	1															
CAR2	.645 [a]	1														
CAR3	.702 [a]	.616 [a]	1													
CAR4	.481 [a]	.641 [a]	.351 [a]	1												
BOARDs	-.028	-.082	.018	-.136	1											
BOARDi	.162	.053	.122	.137	.007	1										
SHARESh(ln)	.018	.071	.008	-.102	-.132	-.461 [a]	1									
CEOd=1	-.177 [c]	-.127	-.154	-.001	-.119	.233 [b]	-.120	1								
CASHd=1	.233 [b]	.139	.313 [a]	.156	-.026	.019	-.044	-.187 [c]	1							
SAMEmc=1	.021	.099	.067	.054	-.146	-.139	.095	.082	.025	1						
DEALs(ln)	-.094	.018	-.057	.004	-.274 [a]	.023	.275 [a]	.206 [b]	-.321 [a]	.197 [c]	1					
FSIZE	-.159	-.147	-.076	-.146	.624 [a]	.014	-.362 [a]	-.080	.037	-.148	-.543 [a]	1				
TOBq(ln)	.007	-.040	-.088	-.001	.042	-.106	-.113	-.150	.046	-.018	-.403 [a]	-.028	1			
GEAR	.061	-.002	.024	-.032	.493 [a]	.300 [a]	-.235 [b]	-.003	.002	-.190 [c]	-.113	.543 [a]	-.421 [a]	1		
ROA	-.063	-.109	-.136	-.024	-.051	-.076	.122	.018	.025	.054	-.043	-.165	.523 [a]	-.387 [a]	1	
FCF	.019	-.108	-.141	.054	-.150	.007	.098	-.114	.042	.019	-.094	-.213 [b]	.546 [a]	-.334 [a]	.618 [a]	1

Research period: 2003-2006

	CAR1	CAR2	CAR3	CAR4	BOARDs	BOARDi	SHARESh(ln)	CEOd=1	CASHd=1	SAMEmc=1	DEALs(ln)	FSIZE(ln)	TOBq(ln)	GEAR	ROA	FCF
CAR1	1															
CAR2	.624 [a]	1														
CAR3	.658 [a]	.723 [a]	1													
CAR4	.807 [a]	.588 [a]	.484 [a]	1												
BOARDs	.179	-.161	.037	.268	1											
BOARDi	-.077	-.035	.048	-.074	-.050	1										
SHARESh(ln)	.129	.084	-.062	-.131	-.202	-.451 [a]	1									
CEOd=1	-.027	-.069	-.039	-.003	.084	.387 [b]	-.229	1								
CASHd=1	.162	-.147	.031	-.044	.080	-.128	.309 [c]	-.073	1							
SAMEmc=1	-.249	-.110	-.100	-.128	-.002	-.022	-.316 [c]	.085	-.389 [b]	1						
DEALs(ln)	-.234	-.007	-.101	-.170	-.426 [b]	-.290	.217	.070	-.307 [c]	.173	1					
FSIZE	.111	-.014	.103	.255	.724 [a]	.042	-.350 [b]	-.136	.031	-.070	-.591 [a]	1				
TOBq(ln)	-.239	-.145	-.238	-.008	.105	.064	-.196	-.132	-.204	.312 [c]	-.237	.254	1			
GEAR	.184	.024	.156	.247	.590 [a]	.041	-.143	.137	-.032	-.146	-.159	.571 [a]	-.239	1		
ROA	-.116	-.002	.025	.019	.034	-.046	-.081	-.082	-.285	.365 [b]	-.055	.109	.796 [a]	-.258	1	
FCF	-.153	-.147	-.125	-.031	.009	-.091	-.016	-.147	-.102	.170	-.118	.078	.788 [a]	-.237	.852 [a]	1

[a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

TABLE 8 - Pearson correlation matrix for M&A performance, board characteristics and control variables (continued)

Research period: 2007-2010

	CAR1	CAR2	CAR3	CAR4	BOARDs	BOARDi	SHARESh(ln)	CEOd=1	CASHd=1	SAMEmc=1	DEALs(ln)	FSIZE(ln)	TOBq(ln)	GEAR	ROA	FCF
CAR1	1															
CAR2	.699 [a]	1														
CAR3	.667 [a]	.689 [a]	1													
CAR4	.484 [a]	.594 [a]	.281 [b]	1												
BOARDs	-.306 [b]	-.113	-.167	-.025	1											
BOARDi	-.056	-.038	.011	.093	.180	1										
SHARESh(ln)	-.033	-.147	-.096	-.149	-.336 [a]	-.349 [a]	1									
CEOd=1	-.150	-.060	-.088	-.090	.208	.214 [c]	-.262 [b]	1								
CASHd=1	.039	-.004	.082	.113	-.064	.231 [c]	.187	-.143	1							
SAMEmc=1	.188	.283 [b]	.187	.115	-.158	-.030	-.120	.006	-.123	1						
DEALs(ln)	.199	.080	.168	.012	-.322 [b]	-.346 [a]	.434 [a]	-.216 [c]	.190	.271 [b]	1					
FSIZE	-.277 [b]	-.063	-.085	-.053	.716 [a]	.259 [b]	-.631 [a]	.424 [a]	-.121	-.060	-.565 [a]	1				
TOBq(ln)	-.090	-.062	-.060	-.132	-.331 [a]	-.058	.055	.066	-.078	.056	-.259 [b]	-.205	1			
GEAR	-.307 [b]	-.174	-.084	-.225 [c]	.421 [a]	.205	-.102	.190	.051	-.063	-.231 [c]	.450 [a]	-.037	1		
ROA	.075	.133	.048	.091	.045	-.009	-.280 [b]	.130	-.133	-.074	-.332 [a]	.173	.540 [a]	.037	1	
FCF	-.029	.035	.057	.130	.141	.184	-.313 [b]	.106	-.119	-.111	-.094	.177	.197	-.032	.567 [a]	1

Research period: 1999-2010

	CAR1	CAR2	CAR3	CAR4	BOARDs	BOARDi	SHARESh(ln)	CEOd=1	CASHd=1	SAMEmc=1	DEALs(ln)	FSIZE	TOBq(ln)	GEAR	ROA	FCF
CAR1	1															
CAR2	.640 [a]	1														
CAR3	.688 [a]	.637 [a]	1													
CAR4	.508 [a]	.635 [a]	.349 [a]	1												
BOARDs	-.074	-.110	-.005	-.105	1											
BOARDi	.124 [c]	-.005	.070	.080	.022	1										
SHARESh(ln)	-.014	.025	-.063	-.097	-.234 [a]	-.400 [a]	1									
CEOd	-.148 [b]	-.128 [c]	-.114	-.044	.024	.179 [b]	-.214 [a]	1								
CASHd=1	.178 [b]	.058	.214 [a]	.111	-.006	.083	.037	-.116	1							
SAMEmc=1	.021	.125 [c]	.067	.073	-.164 [b]	-.107	-.025	.055	-.096	1						
DEALs(ln)	-.054	.013	-.026	-.062	-.289 [a]	-.047	.300 [a]	.022	-.215 [a]	.202 [a]	1					
FSIZE	-.108	-.105	-.019	-.065	.659 [a]	.087	-.482 [a]	.086	.010	-.127 [c]	-.529 [a]	1				
TOBq(ln)	-.057	-.058	-.104	-.001	-.006	-.083	-.049	-.068	-.032	.040	-.371 [a]	-.018	1			
GEAR	.004	-.036	.020	-.063	.485 [a]	.182 [a]	-.213 [a]	.121 [c]	.015	-.153 [b]	-.162 [b]	.509 [a]	-.259 [a]	1		
ROA	-.033	-.041	-.077	-.018	.043	-.027	-.012	-.008	-.101	.032	-.107	.027	.561 [a]	-.172 [b]	1	
FCF	.002	-.096	-.083	-.011	-.009	.023	-.010	-.080	-.045	-.034	-.077	.007	.476 [a]	-.195 [a]	.641 [a]	1

[a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

TABLE 9 – Pearson correlation matrix for firm performance, board characteristics and control variables

*Research period: 1999-2002**

	ROA	ROS	ROE	TOBq(ln)	BOARDs	BOARDi	SHARESh(ln)	CEOd	FSIZE(ln)	AGE(ln)	GEAR	ROAlag	TOBqLag(ln)	GROWTHo(ln)
ROA	1													
ROS	.866 [a]	1												
ROE	.833 [a]	.714 [a]	1											
TOBq	.523 [a]	.504 [a]	.392 [a]	1										
BOARDs	.204 [a]	.216 [a]	.324 [a]	.092 [c]	1									
BOARDi	-.020	-.083	.050	-.155 [a]	-.059	1								
SHARESh	-.010	-.033	-.121 [b]	-.003	-.129 [b]	-.362 [a]	1							
CEOd	-.051	-.066	.026	-.213 [a]	.104 [c]	.241 [a]	-.063	1						
FSIZE	.404 [a]	.470 [a]	.413 [a]	.533 [a]	.608 [a]	-.095	-.268 [a]	.015	1					
AGE	.155 [a]	.166 [a]	.193 [a]	-.061	.503 [a]	.068	-.156 [a]	.142 [a]	.386 [a]	1				
GEAR	-.205 [a]	-.227 [a]	-.048	-.451 [a]	.209 [a]	.196 [a]	-.033	.176 [a]	-.169 [a]	.186 [a]	1			
ROAlag	.390 [a]	.304 [a]	.367 [a]	.321 [a]	.217 [a]	-.003	-.053	.099 [c]	.321 [a]	.206 [a]	-.045	1		
TOBqLag	.501 [a]	.478 [a]	.369 [a]	.836 [a]	.066	-.199 [a]	-.029	-.182 [a]	.472 [a]	-.049	-.456 [a]	.405 [a]	1	
GROWTHo	.208 [a]	.082	.189 [a]	.159 [a]	.053	-.007	-.099 [c]	.027	.143 [a]	.169 [a]	-.029	.224 [a]	.160 [a]	1

*Research period: 2003-2006**

	ROA	ROS	ROE	TOBq(ln)	BOARDs	BOARDi	SHARESh(ln)	CEOd	FSIZE(ln)	AGE(ln)	GEAR	ROAlag	TOBqLag(ln)	GROWTHo(ln)
ROA	1													
ROS	.845 [a]	1												
ROE	.918 [a]	.769 [a]	1											
TOBq	.653 [a]	.657 [a]	.538 [a]	1										
BOARDs	.228 [b]	.277 [a]	.316 [a]	.302 [a]	1									
BOARDi	-.223 [b]	-.210 [b]	-.139	-.165	-.059	1								
SHARESh	.149	.119	.040	.035	-.234 [b]	-.409 [a]	1							
CEOd	-.097	-.177 [c]	-.051	.075	.114	.189 [c]	-.236 [b]	1						
FSIZE	.477 [a]	.534 [a]	.529 [a]	.568 [a]	.711 [a]	-.025	-.331 [a]	.018	1					
AGE	-.053	-.151	.005	-.134	.289 [a]	.100	-.253 [b]	.013	.222 [b]	1				
GEAR	-.306 [a]	-.110	-.161	-.344 [a]	-.048	.088	.033	-.271 [a]	-.179 [c]	-.224 [b]	1			
ROAlag	.483 [a]	.516 [a]	.383 [a]	.606 [a]	.225 [b]	-.234 [b]	.118	-.025	.422 [a]	.030	-.345 [a]	1		
TOBqLag	.598 [a]	.651 [a]	.478 [a]	.888 [a]	.325 [a]	-.127	.008	.033	.543 [a]	-.115	-.293 [a]	.636 [a]	1	
GROWTHo	.005	-.054	.004	-.030	.285 [a]	.012	-.111	.500 [a]	-.044	.105	-.197 [c]	.146	.018	1

**. The dummy variable Industry Type (ITYPE), on the basis of ten different macro industry definitions, has been omitted from this table. For more information on this variable see paragraph 3.2.*

[a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

TABLE 9 - Pearson correlation matrix for firm performance, board characteristics and control variables (continued)

*Research period: 1999-2006 (all)**

	ROA	ROS	ROE	TOBq(ln)	BOARDs	BOARDi	SHARESh(ln)	CEOd	FSIZE(ln)	AGE(ln)	GEAR	ROAlag	TOBqLag|(ln)	GROWTHo(ln)
ROA	1													
ROS	.862 [a]	1												
ROE	.835 [a]	.706 [a]	1											
TOBq	.538 [a]	.526 [a]	.405 [a]	1										
BOARDs	.199 [a]	.218 [a]	.317 [a]	.128 [a]	1									
BOARDi	-.044	-.098 [b]	.031	-.156 [a]	-.060	1								
SHARESh	.052	.036	-.081 [c]	.007	-.155 [a]	-.352 [a]	1							
CEOd	-.092 [c]	-.126 [a]	.001	-.147 [a]	.111 [b]	.212 [a]	-.149 [a]	1						
FSIZE	.414 [a]	.483 [a]	.417 [a]	.536 [a]	.624 [a]	-.078	-.271 [a]	.008	1					
AGE	.118 [b]	.101 [b]	.169 [a]	-.074	.466 [a]	.073	-.174 [a]	.113 [b]	.347 [a]	1				
GEAR	-.235 [a]	-.215 [a]	-.067	-.429 [a]	.162 [a]	.170 [a]	-.038	.087 [c]	-.174 [a]	.109 [b]	1			
ROAlag	.414 [a]	.350 [a]	.370 [a]	.362 [a]	.212 [a]	-.031	.003	.045	.336 [a]	.177 [a]	-.105 [b]	1		
TOBqLag	.509 [a]	.499 [a]	.379 [a]	.843 [a]	.106 [b]	-.188 [a]	-.021	-.134 [a]	.479 [a]	-.059	-.424 [a]	.433 [a]	1	
GROWTHo	.095 [b]	-.015	.123 [a]	.103 [b]	.112 [b]	-.018	-.164 [a]	.228 [a]	.071	.147 [a]	-.030	.148 [a]	.118 [b]	1

**. The dummy variable Industry Type (ITYPE), on the basis of ten different macro industry definitions, has been omitted from this table. For more information on this variable see paragraph 3.2.*

[a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

4.2 Multivariate regression models

The two multivariate regression models we use to analyze the relationship between the various corporate governance variables and M&A/firm performance closely follows that of Guest (2009), Wintoki (2007), Haniffa & Hudaib (2006) and Brozec (2005).

4.2.1 Model I

The dependent variable is M&A performance and is measured by the cumulative abnormal returns (CAR) for acquiring firms during four distinct event windows namely: (-2, 2), (-5, 5), (-1, 10) and (-10,1). The higher the value of CAR, the higher the excess returns earned by the acquiring firm's shareholders. By applying these event windows, this research aims to prevent the negative effects of data mining techniques and makes sure that the CARS in all applicable periods are (to a certain extent) uniform (see also paragraph 3.3). In congruence with many other academic studies, we express and formulate cumulative abnormal returns in percentage points (see for an overview of relevant studies Bruner, 2004).

The independent variable consists of four corporate governance variables, namely board size (BOARDs), board composition/independence (BOARDi), the percentage of common company shares hold by the board (SHARESh), CEO duality (CEOd), and eight control variables, Tobin's q (TOBq), firm size (FSIZE), leverage (GEAR), free cash flow (FCF), return on assets (ROA), pure cash transactions (CASHd), relative deal size (DEALs) and industry relatedness of the transaction (SAMEmc). Table 4 in paragraph 3.4 provides a summary of the operationalisation of the variables. We applied the following model to analyze the relationship between the various corporate governance variables and M&A performance:

$$CAR_{it} = \alpha + \beta_1 BOARDs + \beta_2 BOARDi + \beta_3 SHARESh + \beta_4 CEOd + \sum \beta_i OTHERS + \varepsilon$$

4.2.2 Model II

The independent variable is firm performance and is measured by the return on assets (ROA), return on sales (ROS), return on equity (ROE) and Tobin’s q (TOBq). While the first three performance measures are accounting based measures, the latter is a market based measure of firm performance. As stated before (see paragraph 3.5), a higher value of *q* can be regarded as a sign of governance mechanisms working more effectively and a better perception by the market of a company's performance. Similarly, shareholders’ economic interests are best served when ROA, ROS and ROE are high: ROA gives us a general idea with regards to how efficient

management is at using its assets to generate (future) earnings; ROS indicates how much a company is able to keep as profits for each euro of sales it makes; and ROE provides an indication of how well managers are employing the funds invested by the firm's shareholders to generate returns (Palepu, Healy, Peek, 2010).

The independent variable consist (similarly to model 1) of four corporate governance variables, namely board size (BOARDs), board composition/independence (BOARDi), the percentage of common company shares hold by the board (SHARESh), CEO duality (CEOd) and seven control variables, firm size (FSIZE), firm age (AGE), leverage (GEAR), a 1 year lagged performance variable (ROAlag), a 1 year lagged Tobin's q (TOBqLag), growth opportunities (GROWTHo) and industry type (ITYPE). Table 5 in paragraph 3.4 provides a summary of the operationalisation of the variables. We applied the following model to analyze the relationship between the various corporate governance variables and firm performance:

$$Firm\ Performance_{it} = \alpha + \beta_1 BOARDs + \beta_2 BOARDi + \beta_3 SHARESh + \beta_4 CEOd + \sum_{i=1} \beta_i OTHERS + \varepsilon$$

This multivariate regression model is applied for the research period 1999-2002, 2003-2006 as well as for the combined research periods (1999-2006).

As we apply multivariate regression analysis to test our propositions, assumptions of multicollinearity, normality, homoscedasticity and linearity are also examined. For both relationships (see paragraph 1.1) a bivariate pearson correlation matrix (see table 8 and 9) is used to test the multicolinearity assumption. Table 8 and 9 indicate no bivariate multicolinearity problems (see paragraph 4.1). In addition, to test the assumption of normality, homoscedasticity and linearity we used histrograms combined with normality curves, normal probability plots (Q-Q plots) and residual plots. Residual plots showed a potential violation of the homoscedasticity assumption. Although this does not invalidate our regression it could potentially weaken our results.

TABLE 10 - Multivariate regression of CARwindow1, 2, 3 and 4 on board characteristics and control variables

	1999-2002				2003-2006				2007-2010			
	CAR1	CAR2	CAR3	CAR4	CAR1	CAR2	CAR3	CAR4	CAR1	CAR2	CAR3	CAR4
R^2	0.203	0.116	0.204	0.088	0.254	0.243	0.326	0.185	0.301	0.208	0.132	0.211
Adj. R^2	0.090	-0.010	0.090	-0.043	-0.217	-0.235	-0.100	-0.329	0.126	0.010	-0.085	0.014
Std. Error	7.252%	8.952%	8.765%	9.626%	5.507%	6.290%	6.402%	8.053%	4.121%	6.214%	6.710%	7.136%
F value	1.788(p=.063)	0.920(p=.531)	1.789(p=.063)	0.673(p=.772)	0.539(p=.863)	0.508(p=.884)	0.766(p=.677)	0.360(p=.963)	1.722(p=.091)	1.051(p=.420)	0.609(p=.824)	1.069(p=.406)
Independent variables												
Intercept												
BOARDs	0.270; *0.097* (0.706)	-0.063; *-0.019* (-0.133)	0.499; *0.149* (1.080)	-0.117; *-0.034* (-0.230)	0.240; *0.121* (0.372)	-0.841; *-0.375* (-1.142)	-0.312; *-0.129* (-0.416)	0.357; *0.129* (0.379)	-0.401; *-0.195* (-1.028)	-0.182; *-0.063* (-0.309)	-0.686; *-0.229* (-1.080)	0.252; *0.075* (0.373)
BOARDi	0.084; *0.190* (1.514)	0.070; *0.135* (1.020)	0.113; *0.212*[c] (1.693)	0.037; *0.067* (0.501)	-0.055; *-0.161* (-0.581)	-0.062; *-0.160* (-0.572)	0.006; *0.015* (0.058)	-0.133; *-0.278* (-0.960)	-0.001; *-0.002* (-0.012)	-0.049; *-0.075* (-0.434)	0.009; *0.014* (0.077)	-0.016; *-0.022* (-0.127)
SHARESh(ln)	0.247; *0.050* (0.391)	0.571; *0.099* (0.734)	0.339; *0.057* (0.445)	-0.825; *-0.135* (-0.986)	-0.004; *-0.001* (-0.004)	0.132; *0.037* (0.131)	-0.729; *-0.189* (-0.708)	-1.136; *-0.257* (-0.878)	-0.545; *-0.217* (-1.169)	-0.627; *-0.176* (-0.893)	-0.635; *-0.173* (0.837)	-0.682; *-0.167* (-0.845)
CEOd	-3.127; *-0.170* (-1.593)	-3.196; *-0.149* (-1.319)	-3.537; *-0.159* (-1.491)	-0.428; *-0.019* (-0.164)	-0.356; *-0.036* (-0.147)	-0.182; *-0.016* (-0.066)	-1.750; *-0.144* (-0.624)	-0.049; *-0.004* (-0.014)	-0.016; *-0.002* (-0.013)	0.090; *0.007* (0.046)	-0.890; *-0.067* (-0.422)	0.090; *0.006* (0.040)
Control variables												
TOBq(ln)	-0.017; *-0.001* (-0.008)	1.477; *0.093* (0.561)	-0.917; *-0.056* (-0.356)	-0.605; *-0.036* (-0.214)	-3.868; *-0.376* (-0.912)	-2.548; *-0.218* (-0.526)	-9.122; *-0.725*[c] (-1.850)	0.146; *0.010* (0.024)	-4.478; *-0.430*[b] (-2.338)	-5.062; *-0.343*[c] (-1.753)	-2.790; *-0.184* (-0.895)	-6.555; *-0.387*[c] (-1.976)
FSIZE(ln)	-2.123; *-0.460*[a] (-2.650)	-1.271; *-0.235* (-1.285)	-1.263; *-0.227* (-1.304)	-1.303; *-0.228* (-1.225)	-0.729; *-0.272* (-0.619)	0.113; *0.037* (0.084)	-0.080; *-0.024* (-0.058)	-0769; *-0.205* (-0.446)	-0.900; *-0.365* (-1.286)	-0.819; *-0.234* (-0.776)	0.007; *0.002* (0.007)	-1.525; *-0.380* (-1.258)
GEAR	0.070; *0.173* (1.131)	0.040; *0.084* (0.524)	-0.038; *-0.077* (-0.506)	0.023; *0.046* (0.284)	0.044; *0.158* (0.490)	0.047; *0.149* (0.458)	0.065; *0.190* (0.618)	0.082; *0.208* (0.617)	-0.027; *-0.121* (-0.823)	-0.027; *-0.087* (-0.554)	0.008; *0.023* (0.143)	-0.065; *-0.178* (-1.138)
FCF	-0.041; *-0.029* (-0.207)	-0.314; *-0.188* (-1.290)	-0.295; *-0.171* (-1.241)	0.120; *0.068* (0.459)	-0.277; *-0.288* (-0.616)	-0.619; *-0.567* (-1.203)	-0.483; *-0.410* (-0.922)	-0.440; *0.327* (-0.668)	-0.131; *-0.130* (-0.769)	-0.068; *-0.047* (-0.263)	0.025; *0.017* (0.089)	0.186; *0.113* (0.628)
ROA	-0.077; *-0.056* (-0.413)	-0.098; *-0.061* (-0.426)	-0.107; *-0.065* (-0.477)	-0.095; *-0.056* (-0.384)	0.420; *0.531* (1.117)	0.621; *0.692* (1.447)	1.013; *1.047*[b] (2.319)	0.435; *0.393* (0.791)	0.381; *0.400*[b] (2.131)	0.452; *0.335*[c] (1.677)	0.236; *0.170* (0.089)	0.327; *0.211* (1.056)
CASHd	2.637; *0.136* (1.253)	2.215; *0.097* (0.853)	6.289; *0.268*[b] (2.473)	3.162; *0.131* (1.132)	-0.284; *-0.025* (-0.097)	-2.802; *-0.218* (-0.843)	1.295; *0.093* (0.383)	-1.562; *-0.098* (-0.367)	0.928; *0.063* (0.445)	1.971; *0.095* (0.627)	1.933; *0.090* (0.569)	5.001; *0.209* (1.385)
DEALs(ln)	-1.031; *-0.260*[c] (-1.717)	-0.375; *-0.081* (-0.505)	-0.531; *-0.111* (-0.731)	-0.315; *-0.064* (-0.395)	-1.500; *-0.426* (-1.381)	-1.144; *-0.287* (-0.922)	-0.835; *-0.194* (-0.661)	-1.094; *-0.222* (-0.689)	-0.169; *-0.053* (-0.246)	-0.572; *-0.126* (-0.552)	0.570; *0.122* (0.612)	-1.420; *-0.273* (-1.195)
SAMEmc	1.420; *0.087* (0.846)	2.325; *0.121* (1.123)	1.952; *0.099* (0.963)	1.186; *0.058* (0.533)	-2.220; *-0.209* (-.809)	-2.415; *-0.201* (-0.771)	-1.783; *-0.138* (-0.559)	-4.300; *-0.290* (-1.072)	1.502; *0.163* (1.134)	4.110; *0.315*[b] (2.059)	1.824; *0.136* (0.846)	3.318; *0.221* (1.447)

Notes:
The table describes unstandardized coefficients, standardized coefficients (italicized) and t-statistics (in parentheses).
[a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

TABLE 10 - Multivariate regression of CARwindow1, 2, 3 and 4 on board characteristics and control variables (continued)

	1999-2010 (*all*)			
	CAR1	CAR2	CAR3	CAR4
R^2	0.112	0.069	0.093	0.062
Adj. R^2	0.055	0.009	0.035	0.001
Std. Error	6.219%	7.920%	7.830%	8.881%
F value	1.956(p=.030)	1.142(p=.329)	1.592(p=.097)	1.025(p=.428)
Independent variables				
Intercept	-4.888	7.337	0.802	7.442
	(1.008)	(1.188)	(0.131)	(1.075)
BOARDs	0.045; 0.019	-0.174; -0.058	0.141; 0.047	-0.192; -0.057
	(0.192)	(-0.581)	(0.478)	(-0.571)
BOARDi	0.043; 0.109	0.007; 0.014	0.019; 0.038	0.021; 0.039
	(1.366)	(0.166)	(0.466)	(0.474)
SHARESh(ln)	-0.285; -0.075	-0.212; -0.045	-0.555; -0.117	-0.793; -0.150
	(-0.830)	(-0.485)	(-1.286)	(-0.859)
CEOd	-2.242; -0.161[b]	-2.561; -0.148[b]	-2.279; -0.132[c]	-1.236; -0.064
	(-2.223)	(-1.995)	(-1.796)	(-0.859)
Control variables				
TOBq(ln)	-2.110; -0.169[c]	-.1655; -0.106	-2.192; -0.141	-1.441; -0.083
	(-1.690)	(-1.041)	(-1.395)	(-0.808)
Fsize(ln)	-1.092; -0.298[b]	-0.665; -0.146	-0.612; -0.134	-0.801; -0.158
	(-2.418)	(-1.156)	(-1.077)	(-1.243)
GEAR	0.026; 0.080	0.017; 0.040	0.005; 0.013	-0.007; -0.016
	(0.895)	(0.441)	(0.142)	(-0.173)
FCF	0.060; 0.051	-0.160; -0.109	-0.065; -0.045	-0.001; -0.001
	(0.545)	(-1.138)	(-0.472)	(-0.009)
ROA	0.043; 0.038	0.122; 0.087	0.058; 0.042	0.035; 0.023
	(0.385)	(0.860)	(0.418)	(0.223)
CASHd	2.021; 0.118	0.631; 0.030	4.147; 0.194[c]	2.018; 0.085
	(1.605)	(0.394)	(2.6515)	(1.122)
DEALs(ln)	-0.787; -0.208[b]	-0.551; -0.117	-0.338; -0.072	-0.753; -0.143
	(-2.081)	(-1.145)	(-0.711)	(-1.395)
SAMEmc	1.070; 0.078	2.334; 0.136[c]	1.785; 0.104	1.624; 0.085
	(1.059)	(1.813)	(1.403)	(1.125)

Notes:
The table describes unstandardized coefficients, standardized coefficients (italicized) and t-statistics (in parentheses).
[a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

TABLE 11 - Multivariate regression of ROA, ROS, ROE and Tobin's q on board characteristics and control variables

	All (1999-2006)				1999-2002				2003-2006			
	ROA	ROS	ROE	TOBq(ln)	ROA	ROS	ROE	TOBq(ln)	ROA	ROS	ROE	TOBq(ln)
R^2	0.425	0.407	0.359	0.770	0.411	0.358	0.376	0.776	0.525	0.687	0.403	0.840
Adj. R^2	0.398	0.380	0.329	0.759	0.377	0.321	0.340	0.763	0.421	0.618	0.307	0.805
Std. Error	4.208%	6.109%	11.251%	0.224	4.387%	6.284%	12.034%	0.228	3.456%	4.794%	7.148%	0.182
F value	15.716(*p*=.00)	14.646(*p*=.00)	11.946(*p*=.00)	71.393(*p*=.00)	12.193(*p*=.00)	9.753(*p*=.00)	10.507(*p*=.00)	60.494(*p*=.00)	5.014(*p*=.00)	9.942(*p*=.00)	3.506(*p*=.00)	23.831(*p*=.00)
Independent variables												
Intercept	-4.714[b]	-8.033[a]	-19.515[a]	-0.362[a]	-9.906[a]	-13.436[a]	-31.206[a]	-0.495[a]	-0.216	-9.905	-11.751	0.339
	(-2.297)	(-2.696)	(-3.556)	(-3.311)	(-4.537)	(-4.296)	(-5.210)	(-4.363)	(-0.045)	(-1.498)	(-1.196)	(1.353)
BOARDs	-0.089; *-0.043*	-0.155; *-0.052*	0.481; *0.091*	-0.012; *-0.071*[b]	-0.13; *-0.006*	-0.104; *-0.036*	0.758; *0.136*[b]	-0.011; *-0.060*	-0.414; *-0.216*	-0.016; *-0.005*	-0.373; *-0.103*	-0.017; *-0.098*
	(-0.757)	(-0.902)	(1.523)	(-1.989)	(-0.096)	(-0.529)	(2.017)	(-1.496)	(-1.387)	(-0.038)	(-0.606)	(-1.080)
BOARDi	0.047; *0.139*[a]	0.030; *0.062*	0.122; *0.144*[a]	0.002; *0.074*[a]	0.057; *0.171*[a]	0.040; *0.087*	0.144; *0.162*[a]	0.003; *0.115*[a]	-0.015; *-0.045*	0.007; *0.013*	0.029; *0.046*	-0.001; *-0.050*
	(3.184)	(1.403)	(3.122)	(2.687)	(3.332)	(1.619)	(3.058)	(3.622)	(-0.428)	(0.148)	(0.406)	(-0.833)
SHARESh(ln)	0.457; *0.132*[a]	0.534; *0.107*[b]	0.029; *0.003*	0.037; *0.128*[a]	0.430; *0.115*[b]	0.551; *0.108*[b]	-0.118; *-0.012*	0.046; *0.145*[a]	0.624; *0.230*[c]	0.791; *0.171*[c]	1.199; *0.234*[c]	0.003; *0.013*
	(2.865)	(2.307)	(0.067)	(4.395)	(2.212)	(1.978)	(-0.220)	(4.519)	(1.926)		(1.797)	(0.186)
CEOd	-0.934; *-0.076*[c]	-1.319; *-0.075*[c]	-1.377; *-0.044*	-0.043; *-0.042*	-0.641; *-0.048*	-0.841; *-0.045*	-0.544; *-0.015*	-0.080; *-0.071*[b]	-1.461; *-0.161*	-3.556; *-0.229*[b]	-3.122; *-0.182*	0.071; *0.086*
	(-1.885)	(-1.832)	(-1.039)	(-1.626)	(-1.034)	(-0.947)	(-0.320)	(-2.497)	(-1.198)	(-2.102)	(-1.242)	(1.103)
Control variables												
FSIZE(ln)	0.607; *0.202*[a]	1.576; *0.366*[a]	1.533; *0.201*[a]	0.082; *0.322*[a]	0.439; *0.136*[c]	1.378; *0.312*[a]	1.600; *0.186*[b]	0.096; *0.354*[a]	1.202; *0.547*[a]	2.026; *0.540*[a]	2.764; *0.665*[a]	0.040; *0.201*[b]
	(3.238)	(5.793)	(3.060)	(8.191)	(1.878)	(4.112)	(2.493)	(7.904)	(3.384)	(4.113)	(3.776)	(2.143)
AGE(ln)	0.240; *0.037*	0.149; *0.016*	-0.365; *-0.022*	-0.043; *-0.078*[a]	0.396; *0.061*	0.697; *0.078*	-1.129; *-0.065*	-0.048; *-0.087*[a]	-0.169; *-0.028*	-0.869; *-0.083*	0.457; *0.039*	-0.082; *-0.148*[b]
	(0.820)	(0.351)	(-0.467)	(-2.751)	(1.116)	(1.371)	(-1.160)	(-2.589)	(-0.229)	(-0.850)	(0.301)	(-2.126)
GROWTHo(ln)	0.547; *0.079*[c]	-0.361; *-0.036*	1.041; *0.059*	0.056; *0.095*[a]	0.833; *0.103*[b]	-0.226; *-0.020*	1.838; *0.086*[c]	0.062; *0.091*[a]	0.537; *0.104*	-0.564; *-0.064*	0.426; *0.044*	-0.028; *-0.059*
	(1.745)	(-0.792)	(1.241)	(3.335)	(2.063)	(-0.391)	(1.661)	(2.944)	(0.750)	(-0.568)	(0.288)	(-0.730)
GEAR	-0.032; *-0.076*[c]	-0.007; *-0.012*	0.029; *0.027*	-0.002; *-0.068*[b]	-0.035; *-0.080*	-0.038; *-0.063*	0.031; *0.026*	-0.002; *-0.059*[c]	-0.059; *-0.163*	-0.010; *-0.016*	-0.050; *-0.074*	-0.003; *-0.087*
	(-1.656)	(-0.262)	(0.566)	(-2.365)	(-1.480)	(-1.118)	(0.476)	(-1.776)	(-1.525)	(-0.179)	(-0.634)	(-1.402)
TOBqLag(ln)	4.098; *0.385*[a]	4.853; *0.318*[a]	8.724; *0.323*[a]	0.556; *0.620*[a]	4.186; *0.400*[a]	4.063; *0.283*[a]	8.723; *0.313*[a]	0.507; *0.576*[a]	4.597; *0.421*[a]	9.041; *0.485*[a]	4.901; *0.238*	0.677; *0.684*[a]
	(6.730)	(5.490)	(5.358)	(17.156)	(5.986)	(4.056)	(4.547)	(13.967)	(3.057)	(4.335)	(1.581)	(8.553)
ROAlag(ln)	0.079; *0.111*[b]	0.067; *0.066*	0.183; *0.101*[b]	0.000; *-0.007*	0.075; *0.107*[b]	0.062; *0.064*	0.174; *0.093*[c]	-0.001; *-0.012*	-0.072; *-0.095*	-0.147; *-0.113*	-0.156; *-0.109*	0.004; *0.060*
	(2.500)	(1.449)	(2.153)	(-0.260)	(2.107)	(1.213)	(1.789)	(-0.392)	(-0.753)	(-1.106)	(0.790)	(0.816)

Notes:

The table describes unstandardized coefficients, standardized coefficients (italicized) and t-statistics (in parentheses).

The dummy variable for industry type (ITYP) is included in the regression but not included in this table.

[a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

4.3 Multivariate regression results

4.3.1 Corporate governance and M&A performance

Table 10 reports the results from the multivariate regression of M&A performance on board characteristics and control variables for 1999-2002, 2003-2006, 2007-2010 and 1999-2010. As table 10 shows, the *F* value differs significantly per research period and CAR window; in 1999-2002 the *F* value is significant at the 10% level for CAR window 1 (-2,2) and 3 (-1, 10) but insignificant for CAR window 2 (-5, 5) and 4 (-10, 1); For the research period 2003-2006 the *F* values are insignificant for all four CAR windows; For the research period 2007-2010 the *F* value is significant at the 10% level for CAR window 1 but insignificant for CAR windows 2,3 and 4; Finally, for the combined research period 1999-2010, the *F* value is significant at 5% and 10% for CAR windows 1 and 3 but insignificant for CAR windows 2 and 4. Thus, our regression model is significant in five out of sixteen regressions and appears to explain M&A performance best, in congruence with other empirical studies (i.e. Ben-Amar & André, 2005 and De Jong, Van der Poel & Wolfswinkel, 2007), when the event window is narrow (-2, 2). In the other eleven regressions, the independent variables collectively fail to explain the dependent variable. This could imply the existence of confounding events in wider event windows and/or a change in the relative importance of predictor variables which in part could be driven by the different time periods, but is most likely the result of a too small sample size in relation to the predictor variables for 2003-2006. The adjusted R^2 is highest when the *F* value is statistically significant and varies between 0.035 and 0.126. Again, these values are similar to that found by for example Ben-Amar & André (2005) and De Jong, Van der Poel & Wolfswinkel (2007) who measured the effect of corporate governance on acquisitions in the Netherlands during five days around acquisition announcements. Henceforth, only the regressions in which our model is significant are discussed. The R^2 for these regressions varies between 0.093 and 0.301.

Board size

The regression estimates for the research period '99-'02 and '99-'10 show a positive and insignificant relationship between board size (BOARDs) and cumulative abnormal returns (CAR) during event window (-2, 2) (CAR1) and (-1, 10) (CAR3). Hence, we found no support in favor of proposition 3. For example, the estimate of the '99-'02 BOARDs coefficient of 0.270 and 0.499 implies that increasing a nine-person board by one member, increases CAR1 and CAR3 by 2.99% and 5.54% respectively. This positive coefficient is consistent with De Jong,

Van der Poel & Wolfswinkel (2007) who found a positive and insignificant relationship between the relative size of the board and the cumulative abnormal return during event window (-2,2). As our sample consists mainly of large firms (see table 6), it provides some support for the findings of Coles et al. (2008) and Guest (2009) who argue that large boards may be an optimal value maximizing outcome for large (complex) firms as they have a greater need for information. In '07-'10, a negative and insignificant relationship is found between BOARDs and CAR1. Hence, we found no significant support in favor of proposition 3. The '07-'10 estimate of the BOARDs coefficient of -0.401 implies that increasing a nine-person board by one member, decreases CAR1 by 10.71%. The negative coefficient is consistent with findings of Byrd and Hickman (1992), Faleye & Huson (2002), Ben-Amar & André (2005) and Masulis, Wang & Xie (2005) who found a negative (and insignificant) impact of board size on announcement date returns (CAR). Similarly to 1999-2002, the pooled data (1999-2010) indicates a positive and insignificant relationship between BOARDs, CAR1 and CAR3.

In sum, we find no evidence of a significant relationship between BOARDs and M&A performance. Although the relationship between BOARDs and M&A performance is reversed during the financial crisis of 2007-2010, the relationship does not appear to change significantly depending on the time period.

Board independence

The regression estimates for the research period '99-'02 show a positive and insignificant relationship between board independence (BOARDi) and cumulative abnormal returns (CAR) during event window (-2, 2) (CAR1), and a positive and significant relationship ($p < 0.10$) between BOARDi and CAR during event window (-1, 10) (CAR3). Thus, allowing us to accept proposition 1. The coefficient estimate of 0.113 implies that increasing BOARDi by one percent, increases CAR3 by 0.113%. Since the average market value of equity (MKVALT) in our sample equals approximately 24.45 billion (in U.S. Dollar), an increase in CAR3 of 0.113% implies an increase in MKVALT of approximately 27.63 million. Similarly, increasing the number of independent directors from 6 to 7 in a ten-person board, increases CAR3 by 1.88%. The result supports the findings of Baysinger & Butler (1985), Vafeas & Theodorou (1998) and Abidin, Kamal & Jusoff (2009), implying that the independent directors have more incentives to guard and act in the shareholder's best interest and hence lead to better accounting and market performance. Additionally, the result supports finding of Byrd and Hickman (1992), Faleye & Huson (2002) and Masulis, Wang & Xie (2005) who found a positive relationship between board

independence and bidder announcement returns (CAR). The regression estimates for the research period 2007-2010 show a negative and insignificant relationship between BOARDi and CAR1. Hence, in this period no conclusive evidence is found to accept proposition 1. The result partially supports findings of Subrahmmanyam et al. (1997) on bank M&A and Arslan, Karan & Eksi (2010), who found a negative and significant relation between board independence and stock market performance. The pooled data ('99-'10) shows a positive and insignificant relationship between BOARDi and M&A performance.

In sum, we find evidence of a significant positive relationship ($p < 0.10$) between BOARDi and M&A performance (CAR3) for 1999-2002. Hence, we find support in favor of proposition 1. Although the relationship between BOARDi and M&A performance is reversed during the financial crisis of 2007-2010, this finding is statistically insignificant.

Shares hold by the board

The regression estimates for the research period 1999-2002 show a positive and insignificant relationship between the natural logarithm of the total percentage of common company shares hold by members of the board (SHARESh) and the cumulative abnormal returns (CAR) during event window (-2, 2) (CAR1) and (-1, 10) (CAR3). Hence, we find insignificant support in favor of proposition 2. The coefficient estimate of 0.247 implies that increasing SHARESh by 1% would lead to a 0.00247%[2] increase in CAR1 (or approximately a 0.6 million dollar increase in MKVALT, with an average MKVALT of approximately 24.45 billion U.S. Dollar). The positive coefficient is consistent with findings of Rosenstein & Wyatt (1990) and Vafeas & Theodorou (1998) who argue that stockownership by board members (executive and non-executive) reduce agency conflicts between shareholders and agents (managers) as they are less likely to engage in behavior which negatively impacts shareholder wealth. In 2007-2010, a negative and insignificant relationship is found between SHARESh and CAR1. The result contradicts findings of Arslan, Karan & Eksi (2010) who found that board ownership has a faily positive influence on stock market performance of firms during crisis periods. Similarly, the 1999-2010 results indicate a negative and insignificant relationship between SHARESh, CAR1 and CAR3.

[2] If either the dependent (Y) variable or independent (X) variable has been transformed by taking the natural logarithm, the interpretation is as follows: 1) Ln of (Y) and (X), is interpreted as, a one unit increase in (X) would lead to a beta*100% increase/decrease in (Y); 2) (Y) and the ln of (X), is interpreted as, a 1% increase in (X) would lead to a beta/100% increase/decrease in (Y). (Stack Exchange, 2010).

In sum, we find no evidence of a significant relationship between SHARESh and M&A performance. Again, the relationship between BOARDs and M&A performance appears to be reversed (and insignificant) during the financial crisis of 2007-2010.

CEO duality

The regression estimates for the research period 1999-2002 show a negative and insignificant relationship between CEO duality (CEOd) and the cumulative abnormal returns (CAR) during event window (-2, 2) (CAR1) and (-1, 10) (CAR3). Hence, we find insignificant support in favor of proposition 4. The negative coefficient indicates that CAR1 is -3.127% lower in cases in which the CEO also performs the function of chairman of the board (CEO duality). This finding is consistent with the empirical findings of Masulis, Wang & Xie (2005), who argue that: " …*separating the two positions can help rein in empire building by CEOs, cause them to be more selective in their acquisition decisions, and thus lead to greater shareholder wealth*". In 2007-2010 a negative and insignificant relationship is found between CEOd and CAR1, while the pooled data shows a negative and significant relationship for CAR1 ($p < 0.05$) and CAR3 ($p < 0.10$).

In sum, we find evidence of a significant negative relationship (at the 5% and 10% level) between CEOd and M&A performance (CAR1 & CAR3) for 1999-2010. Hence, we find support in favor of proposition 4. The direction of the relationship seems consistent over the different time periods.

Control variables

The regression coefficients for the research period '99-'02 show a negative and insignificant relationship between the acquirer's Tobin's q (TOBq) and the cumulative abnormal returns (CAR) during event windows (-2,2; CAR1) and (-1,10; CAR3). Similarly to '99-'02, the regression coefficient for the research period '07-'10 shows a negative, but this time significant relationship at the 5% level (10% for '99-'10), between the acquirer's Tobin's q (TOBq) and CAR1. The significant negative coefficient of -4.478 between TOBq and CAR1 for '07-'10 indicates that as Tobin's q increases by 1%, the abnormal returns during the event window (-2,2; CAR1) decrease by approximately 0.045%. Based upon this observation, and the fact that Tobin's q was found to be relatively stable and larger than 1 for '07-'10 and '99-'10 (see table 6), we find no evidence supporting Lang, Stulz & Walkling's (1989) and Servaes (1991), who found that acquirers with high q ratios experience significant positive abnormal returns in tender

offers/mergers. In addition, if Tobin's q is interpreted as a measure of firm performance, these results show that such firms (high q firms) not necessarily make better acquisitions during times of economic instability/downturn.

For the research periods '99-'02 and '99-'10, we find a negative significant (at 1% and 5% level) and a negative insignificant relationship between the acquirer's firm size (FSIZE) and the cumulative abnormal returns (CAR) during event windows (-2,2; CAR1) and (-1,10; CAR3) (De Jong, Van der Poel & Wolfswinkel, 2007 find similar results). The significant negative regression coefficient of -2.123 between FSIZE and CAR1 for '99-'02, indicates that as FSIZE increases by 1% the abnormal returns during event window (-2,2; CAR1) decreases by approximately 0.021%. For the research period '07-'10, we find a similar negative but non-significant relationship between FSIZE and CAR1. Based upon these results, combined with the relatively large firms in our sample (see table 6), we find (in congruence with Schlingemann & Stulz, 2004) evidence of the existence of a size effect in acquisition announcement returns for the (-2,2) event window during 1999-2002 and 1999-2010.

For the research period '99-'02, '07-'10 and '99-'10 we find, similar to De Jong, Van der Poel & Wolfswinkel (2007), a mixture of negative and positive insignificant relationships between the leverage of the acquirer (GEAR) and the cumulative abnormal returns (CAR) during event windows (-2,2; CAR1) and (-1,10; CAR3). For '99-'02, we find a positive and insignificant relationship between GEAR and CAR1 (the opposite is true for '07-'10). The insignificant positive and negative regression coefficients of 0.070 ('99-'02) and -0.027 ('07-'10) between GEAR and CAR1, indicates that as GEAR increases by 1% the abnormal returns during event window (-2,2;CAR1) increases with 0.07% and decrease with 0.03% respectively. The combined research period shows, similarly to '99-'02, a positive but insignificant relationship between GEAR, CAR1 and CAR3. Although these results are insignificant, we can observe that during times of economic downturn ('07-'10) having debt has a negative effect on CAR (i.e. in an economic downturn debt can be regarded as an extra liability, increasing the likelihood of a default).

The regression coefficients for the research period '99-'02, '07-'10 all show a negative and insignificant relationship between the acquirer's free cash flow (FCF) and the cumulative abnormal returns (CAR) during event windows (-2,2; CAR1) and (-1,10; CAR3). For example, the insignificant negative coefficient of -0.131 between FCF and CAR1 for '07-'10, indicates that as FCF increases by 1%, CAR1 decreases by 0.131%. In contrast to '99-'02 and '07-'10, the combined research period showed a positive and negative insignificant relationship between

FCF, CAR1 and CAR3. Overall, as the negative coefficients indicate, we find that as the amount of FCF available to managers increases the abnormal returns to shareholders decrease. This supports to some extent the empirical findings by Jensen (1986) who argued that firms with large free cash flows and unused borrowing power are more likely to undertake low-benefit or even value destroying M&A.

The regression coefficients for the research period '99-'02 show a negative and insignificant relationship between the acquirers return on assets (ROA) and the cumulative abnormal returns (CAR) during event windows (-2,2; CAR1) and (-1,10; CAR3). However, for '07-'10 we find a significant positive relationship between ROA and CAR1; The coefficient of 0.381 ($p < 0.05\%$) between ROA and CAR1 for '07-'10, indicates that as ROA increases by 1% the abnormal returns during event window (-2,2;CAR1) increases with 0.381%. For the combined research period, the regression coefficients show a positive but insignificant relationship between ROA, CAR1 and CAR3. As might be expected, our results show that in an economic downturn (i.e. the financial crisis of '07-'10) the market places more importance on how efficient management is at using its assets to generate (future) earnings (ROA). In addition, we could state that in times of economic instability, firms with a higher ROA will most likely undertake more value increasing acquisitions which result in higher CARs.

The regression coefficients for the research period '99-'02, '07-'10 and '99-'10 all show a positive relationship between pure cash transactions (CASHd) and the cumulative abnormal returns (CAR) during event windows (-2,2; CAR1) and (-1,10; CAR3). The significant positive regression coefficients of 6.289 ($p < 0.05$) and 4.147 ($p < 0.10$) between CASHd and CAR3 for '99-'02 and '99-'10, indicate that when a deal is financed with cash only the CAR during event window (-1,10) increases by 6.289% and 4.147% respectively. This, in combination with the fact that the majority of acquirers in our sample favor cash deals over other payment methods (see table 6), supports the findings by Huang & Walkling (1987); Travlos (1987); Asquith, Bruner & Mullins (1987) and Heron & Lie (2002) who showed that stock-based deals are commonly associated with negative returns to the acquirers shareholders whereas cash-deals are close to zero or even slightly positive.

The regression coefficients for the research period '99-'02, '07-'10 and '99-'10 all show a negative relationship between deal size (DEALs) and the cumulative abnormal returns (CAR) during event windows (-2,2; CAR1) and (-1,10; CAR3). The significant negative regression coefficients of -1.031 ($p < 0.10$) and -0.787 between DEALs and CAR1 for '99-'02 and '99-'10, indicate that as DEALs increases by 1% the CAR during event window (-2,2) decreases by

0.01% and 0.0079%. This result shows that, for the '99-'02 and '99-'10 period CAR1, the returns of acquirers at announcement decrease in relative deal size which is contrary to findings by Asquith, Bruner, & Mullins (1983) and De Jong, Van der Poel & Wolfswinkel (2007). A possible explanation for this effect is provided by Moeller, Schlingemann & Stulz (2004) who argue that large public firms frequently undertake large acquisitions resulting in large dollar losses (note that the firms in our sample are relatively large).

The regression coefficients for the research period '99-'02, '07-'10 and '99-'10 show a positive but insignificant relationship between acquisitions where both acquirer and target share the same macro industry code (SAMEmc) and the cumulative abnormal returns (CAR) during event windows (-2,2; CAR1) and (-1,10; CAR3). For example, the insignificant positive coefficient of 1.502 between SAMEmc and CAR1 for '07-'10, indicates that when an M&A deal is non-diversifying (same industry macro code) the CAR during event window (-2,2) increases by 1.502%. These results support and reinforce the findings of De Jong, Van der Poel & Wolfswinkel (2007) who found a negative and insignificant relationship between diversifying acquisitions and abnormal returns. In addition, these results (although insignificant) strengthen the findings of Morck, Shleifer and Vishny (1990) who found that acquisitions with a diversifying character (acquisitions of firms in unrelated industries) generally destroy shareholder wealth (negative announcement period returns).

4.3.2 Corporate governance and firm performance

Table 11 reports the results from the multivariate regression of ROA, ROS, ROE and Tobin's q on board characteristics and control variables for 1999-2002, 2003-2006 and 1999-2006 combined. The *F* value for each research period is significant at the 1% level, indicating that there is a regression relationship between the dependent variables (firm performance) and the predictor variables (corporate governance and control variables). In other words, the regression equation helps us to comprehend the relationship between firm performance as measured by ROA, ROS, ROE and Tobin's q, corporate governance and the control variables. The R^2 appears to vary between 0.358 and 0.840 while the adjusted R^2 varies between 0.307 and 0.805.

Board size

The regression estimates for the research period 1999-2002 show a negative and insignificant relationship between board size (BOARDs) and firm performance expressed as return on assets (ROA), return on sales (ROS), and the natural logarithm of Tobin's q (TOBq). However,

BOARDs is found to have a positive and significant relationship ($p < 0.05$) with return on equity (ROE), thus allowing us to reject proposition 3. The estimate of the BOARDs coefficient of 0.758 implies that increasing a nine-person board by one member, increases ROE by 8.4%. This positive coefficient is consistent with Dehaene et al. (2001), Coles et al. (2008), Abidin, Kamal & Jusoff (2009) and Arslan, Karan & Eksi (2010) who found a positive relationship between the board size and company performance and the board size of large firms and firm value. The negative and insignificant coefficient is consistent with Ibrahim, Rehman & Raoof (2010) who found a negative and insignificant relation between board size, ROA and ROE. In 2003-2006, BOARDs is found to have a negative and insignificant relationship across all firm performance indicators. Similarly, for the combined research periods (1999-2006), table 11 indicates a negative and insignificant relationship between BOARDs, ROA and ROS. A negative and significant relationship ($p < 0.05$) is found between BOARDs and TOBq, thus allowing us to accept proposition 3. The estimate of the TOBq log coefficient of -0.012 with BOARDs implies that increasing a nine-person board by one member, decreases Tobin's q by 13.33%. The negative result supports the findings of Yermack (1996), de Andres et al. (2005) and Haniffa & Hudaib (2006). In contrast, the table also shows a positive and insignificant relationship between BOARDs and ROE.

In sum, we find evidence of a significant positive relationship ($p < 0.05$) between BOARDs and ROE for 1999-2002, and evidence of a significant negative relationship ($p < 0.05$) between BOARDs and TOBq for the pooled data (1999-2006). Hence, we find no conclusive evidence in support of proposition 3; Although companies seem to benefit from larger boards (as measured by ROE), the market's perception is different (as measured by TOBq). Additionally, The direction of the relationship is reversed in 2003-2006 when compared to 1999-2002 but statistically insignificant.

Board independence

The regression estimates for the research period 1999-2002 show a positive and significant relationship ($p < 0.01$) between board independence (BOARDi), return on assets (ROA), return on equity (ROE) and the natural logarithm of Tobin's q (TOBq), allowing us to accept proposition 1. The estimate of the BOARDi coefficient equals 0.057, 0.144 and 0.003 for ROA, return on sales (ROS) and TOBq respectively. Based on the standardized coefficient, BOARDi appears to explain the variation in ROA better than the variation in ROS and TOBq. The coefficient of 0.057 implies that increasing BOARDi by one percent, increases ROA by 0.057%.

Since the average book value of total assets (AT) equals approximately 19.83 billion (in U.S. Dollar), an increase in ROA of 0.057% implies an increase in Net Income (NI) of approximately 11.30 million (assuming AT are held constant). Similarly, increasing the number of independent directors from 6 to 7 in a ten-person board, increases ROA by 0.95%. For the same period, a positive and insignificant relationship is found between BOARDi and ROS. The result supports the findings of Baysinger & Butler (1985), Vafeas & Theodorou (1998) and Abidin, Kamal & Jusoff (2009), implying that the independent directors have more incentives to guard and act in the shareholder's best interest and hence lead to better accounting and market performance. Similarly, in 2003-2006 a positive and insignificant relationship is found between BOARDi, ROS and ROE. In contrast, a negative and insignificant relationship is found between BOARDi, ROA and TOBq. Hence, in this period no conclusive evidence is found to accept proposition 1. Arslan, Karan & Eksi (2010), found a negative and insignificant relation between board independence and ROA, and a negative and significant relation between board independence and stock market performance. The combined research periods (1999-2006) show similar results as for 1999-2002. A positive and significant relationship ($p < 0.01$) is found between BOARDi, ROA, ROE and TOBq, allowing us to accept proposition 1. Similarly, BOARDi and ROS show a positive and insignificant coefficient.

In sum, we find evidence of a significant positive relationship ($p < 0.01$) between BOARDi and firm performance (ROA, ROE and TOBq) for 1999-2006 and 1999-2002. Hence, we find support in favor of proposition 1. The direction of the relationship seems consistent over the different time periods.

Shares hold by the board

The regression estimates for the research period 1999-2002 show a positive and significant relationship between the natural logarithm of the total percentage of common company shares hold by members of the board (SHARESh), return on assets (ROA) ($p < 0.05$), return on sales (ROS) ($p < 0.05$) and Tobin's q (TOBq) ($p < 0.01$), allowing us to accept proposition 2. Based on the standardized coefficient, SHARESh appears to explain the variation in TOBq better than the variation in ROA and ROS. The estimate for the SHARESh log coefficient of 0.046 implies that increasing SHARESh by one percent, increases TOBq by 0.046%. Similarly, the estimate of 0.430 implies that increasing SHARESh by 1% would lead to a 0.0043% increase in ROA. The positive coefficient is consistent with Rosenstein & Wyatt (1990) and Vafeas & Theodorou (1998). In contrast, table 11 shows a negative and insignificant relation between SHARESh and

return on equity (ROE). This result supports findings of Abidin, Kamal & Jusoff (2009), who found a negative and insignificant relation of board ownership to firm performance. Additionally, Arslan, Karan & Eksi (2010) found that board ownership does not have any impact on the accounting performance but has a faily positive influence on stock market performance of firms during crisis periods. In 2003-2006 the regression estimates show a positive relationship between SHARESh and all performance indicators, of which the accounting based measures (ROA, ROS and ROE) are significant ($p < 0.10$). The combined research periods (1999-2006) show similar results. The regression estimates show a positive relationship between SHARESh and all performance indicators, of which three performance indicators (ROA, ROS and TOBq) are significant (at $p < 0.01$, $p < 0.05$ and $p < 0.01$ respectively).

In sum, we find evidence of a significant positive relationship (from $p < 0.01$ to $p < 0.10$) between SHARESh and firm performance for 1999-2006, 1999-2002 and 2003-2006. Hence, we find support in favor of proposition 2. The direction of the relationship seems consistent over the different time periods.

CEO duality

For the research period 1999-2002, the regression estimates show a negative and insignificant relationship between CEO duality (CEOd) and return on assets (ROA), return on sales (ROS) and return on equity (ROE) (as found by Arslan, Karan & Eksi, 2010). However, CEOd is found to have a negative and significant relationship ($p < 0.05$) with the natural logarith of Tobin's *q* (TOBq), thus allowing us to accept proposition 4. The estimated CEOd regression coefficient indicates that firm performance (expressed as the natural logarithm of Tobin's q) is 0.080 units lower in cases in which the CEO also performs the function of chairman of the board (CEO duality). This finding consistent with the empirical findings of Rechner & Dalton (1991) and Pi & Timme (1993). In addition, Dehaene, Vuyst and Ooghe (2001) argue that most empirical literature is in favor of separating the two function; separating the two functions allows the board to exercise its control function more effectively which ultimately should lead to better corporate performance (Vafeas & Theodorou, 1998). For the research period 2003-2006, the regression estimates show a negative and insignificant relationship between CEO duality, ROA and ROE and a positive but insignificant relationship between CEOd and TOBq (as in Abidin, Kamal & Jusoff, 2009). However, CEOd is found to have a negative and significant relationship ($p < 0.05$) with ROS, thus allowing us to accept proposition 4. The estimated CEOd regression coefficient indicates that ROS is 3.556% lower in cases in which the CEO also performs the function of

chairman of the board (CEO duality). As stated before, this supports the notion of most empirical literature which is in favor of separating the two functions (Dehaene, Vuyst and Ooghe, 2001). For the combined research period 1999-2006, the regression estimates show a negative and insignificant relationship between CEO duality, ROE and TOBq. However, CEOd is found to have a negative and significant ($p > 0.10$) relationship with ROA and ROS, thus allowing us to accept proposition 4 once again.

In sum, we find evidence of a significant negative relationship (from $p < 0.01$ to $p < 0.05$) between CEOd and firm performance (ROA, ROS and TOBq) for 1999-2006, 1999-2002 and 2003-2006. Hence, we find support in favor of proposition 4. The direction of the relationship seems consistent over the different time periods.

Control variables

In all research periods (1999-2006; 1999-2002 and 2003-2006), the regression coefficients show a positive and significant relationship between firm size (FSIZE) and each measure of firm performance (ROA, ROS, ROE and TOBq). For the research period 1999-2002, the estimated regression coefficient of 0.096 ($p < 0.01$) between FSIZE and TOBq indicates that for each percentage increase in firm size, firm performance (TOBq) is increased by 0.096%. Similarly, for the research period 2003-2006, the estimated regression coefficient of 2.764 ($p < 0.01$) between FSIZE and ROE indicates that for each percentage increase in firm size, firm performance (ROE) increases by 0.02764%. These results support the findings of Cheng et al. (2008) and our assumption that firm size is positively related to firm performance (see paragraph 3.4).

In all research periods (1999-2006; 1999-2002 and 2003-2006), the regression coefficients show a mixture of positive, negative, significant and non-significant relationships between firm age (AGE) and firm performance (ROA, ROS, ROE and TOBq). For 1999-2002, the regression coefficients show a positive and insignificant relationship between AGE, ROA, and ROS. In contrast, the relationship between AGE, ROE and TOBq is negative. The estimated regression coefficient of -0.048 ($p < 0.01$) between AGE and TOBq indicates that for each percentage increase in firm age, firm performance (TOBq) is decreased by -0.048%. For the research periods 2003-2006 and 1999-2006, we find a similar negative and significant relationship between AGE of TOBq (significant at the 5% and 1% level respectively). As expected and in congruence with Loderer & Waelchli (2010), firm age seems to have a negative effect on firm performance (in this case expressed as Tobin's q).

In the same vein as firm age, the regression coefficients between growth opportunities (GROWTHo) and firm performance (ROA, ROS, ROE and TOBq) also show a mixture of positive, negative, significant and non-significant relationships. For the research periods 1999-2006, 1999-2002 and 2003-2006, the regression coefficients show a positive relationship between GROWTHo and ROE (for 1999-2006 and 1999-2002 this relationship is significant at 10% and 5% respectively). The 1999-2002 regression coefficient of 0.833 ($p < 0.05$) between GROWTHo and ROE indicates that as GROWTHo increases by one percent, firm performance (measured by ROE) increases by 0.00833%. For the research periods 1999-2006, 1999-2002 and 2003-2006, the regression coefficients show a negative and insignificant relationship between GROWTHo and ROS while a positive relationship is found between GROWTHo and ROE (for 1999-2002 the relationship between GROWTHo and ROE is significant at 10%). Finally, the regression coefficients show a positive and significant relationship between GROWTHo and TOBq for the research periods 1999-2006 and 1999-2002 (for 2003-2006 this relationship is negative and insignificant). Overall, the significant relationships we have found all seem to be positively related to firm performance (either with ROA, ROE or TOBq). Based upon research done by Cheng et al. (2008), Eisenberg et al. (1998) and Yermack (1996), we find support that GROWTHo have a positive effect on firm performance.

In all research periods (1999-2006; 1999-2002 and 2003-2006), ten out of twelve regression coefficients show a negative relationship between leverage (GEAR) and either of the firm performance indicators ROA, ROS, ROE and TOBq. For the research period 1999-2006, the relationship between GEAR, ROA and TOBq is negative and significant at 10% and 5% (the relationship between GEAR and ROS is negative and insignificant). The regression coefficient of -0.002 between GEAR and TOBq for 1999-2006 indicates that increasing leverage (GEAR) by one percent (one unit) decreases firm performance by 0.2%. For 1999-2002, the relationship between GEAR and TOBq is negative and significant at 10% (the relationship between GEAR, ROA and ROS is negative and insignificant). For the research period 2003-2006, the relationship between GEAR, ROA, ROS, ROE and TOBq are all negative and insignificant. Although we (deliberately) made no predictions with regard to the impact of leverage on firm performance, our results show that increasing leverage most likely will result in a loss of firm performance (Weir et al., 2002).

In all research periods the regression coefficients show a positive and significant relationship between the 1-year lagged Tobin's q variable (TOBqLag) and firm performance. The exception is research period 2003-2006, in which the relationship between TOBqLag and ROE

was positive but non-significant. The regression coefficient of 0.677 between TOBqLag and TOBq for 2003-2006 indicates that a one percent increase in historical performance leads to a 0.677% increase in current performance.

For the research period 1999-2002, the regression coefficients show a positive and significant relationship between the 1-year lagged ROA variable (ROAlag), ROA and ROE. In addition, the relationship between ROAlag and ROS is positive and insignificant, while the relationship between ROAlag and TOBq is negative and insignificant. In contrast to 1999-2002, almost every regression coefficient for 2003-2006 shows a negative and insignificant relationship between ROAlag and TOBq (except for the relationship between ROAlag and TOBq which is positive and insignificant). For the combined research period 1999-2006, all regression coefficients show a positive relationship between ROAlag and the firm performance variables ROA, ROS, ROE and TOBq. Similarly to 1999-2002, the 1999-2006 relationship between ROAlag, ROA and ROE is significant and positive. In conclusion, we can see that each significant relationship is positive in nature, indicating that a firm's past performance is likely to be related to its current performance (Yermack (1996), Eisenberg et al. (1998) and Cheng et al. (2008).

Part V - Conclusion

The two central research questions in this study have been formulated in the first paragraph of chapter one.

1. *What is the impact of different pre-M&A board structures of acquiring firms on M&A performance around and following the M&A announcement?*
2. *What is the impact of different board structures on firm performance?*

The results based on M&A performance suggests that internal corporate governance (pre-M&A board structures as measured by board size, board composition, board ownership and CEO duality) plays only a minor role in explaining the variation in M&A performance as measured by the cumulative abnormal returns (CARs) to bidding firms at merger announcements. In contrast, the same board structures for the same firms seem to have a much greater impact on firm performance (measured by return on assets, return on sales, return on equity and Tobin's Q) measured over (in principle) a period of 4 consecutive years. Hence, internal corporate governance seems less important in explaining the short-term performance of major corporate events (M&A's), but far more important in explaining the 'long-term' performance of firms.

A more detailed description of the research findings is found in paragraph 4.3 and 5.1 below.

5.1 Summary

The objective of this research is, by means of secondary data, to evaluate the impact of board structure as an internal corporate governance mechanism on M&A and firm performance. Based upon this objective, two research questions have been formulated:

1. *What is the impact of different pre-M&A board structures of acquiring firms on M&A performance around and following the M&A announcement?*
2. *What is the impact of different board structures on firm performance?*

More specifically, this paper examines two relationships, namely: (1) the relationship between four corporate governance structures and M&A performance of acquiring firms (research question one); and (2) the relationship between four corporate governance variables and firm

performance of the same acquiring firms (research question two). The four corporate governance structures we examine are: board size (BOARDs), board independence (BOARDi), board ownership (SHARESh) and CEO duality (CEOd). M&A performance is measured as the cumulative abnormal return (CAR) over four different event windows (-2,2 or CAR1), (-5,5 or CAR2), (-1,10 or CAR3) and (-10,1 or CAR4). Firm performance is measured using three accounting measures (return on assets (ROA), return on sales (ROS) and the return on equity (ROE)) and one market based measure (the natural logarithm of Tobin's q (TOBq)). For each firm, performance is in principle measured over four consecutive years (where year 1 equals the year in which the acquisition took place).

This research contributes to existing academic literature by increasing the knowledge base on whether internal corporate governance (board structures) plays a role in M&A and how better corporate governance can improve the performance of M&A and firms. A second contribution relates to the use of data of three substantially different and distinct time periods, namely: [01/01/1999 - 31/12/2002], [01/01/2003 - 31/12/2006] and [01/01/2007 - 31/12/2010].

This research principally involves a two-step procedure. The first step entails an event study concerning the abnormal returns earned by the acquiring firm's shareholders. The second step entails a series of multivariate regressions between: (1) the CARs and the independent corporate governance structures; and (2) the firm performance variables and board structures. The two multivariate regression models we use to analyze both relationships closely follows that of Guest (2009), Wintoki (2007), Haniffa & Hudaib (2006) and Brozec (2005). In both models we used several control variables which were found to be significant in other studies.

For the first research question (model 1) the sample consists of 97, 32 and 61 U.S. (publicly traded) acquiring firms (completed acquisitions) covered in the Thomson One Banker (TOB) database between 1999-2002, 2003-2006 and 2007-2010 respectively, in which the percent of shares acquired (owned) in (after) the transaction and percent shares sought in tender offers equals more than 50%. For all firms' only one transaction within one year is allowed in the sample. Utilities as well as financial and government related firms are excluded. Extreme values (values more than 3 times the interquartile range, the distance between the 75th and the 25th percentile) have been omitted from the dataset. Data on cumulative abnormal returns (CAR), stock prices and broad market indices are from EVENTUS (and from the Center for Research in Security Prices (CRSP) database). Data on board structure and director information is extracted from the Investor Responsibility Research Center (IRRC) database and supplemented by proxy statements (DEF14A).

Similarly, for the second research question (model 2) the sample consists of 95 and 26 U.S. (publicly traded) acquiring firms (completed acquisitions) covered in the Thomson One Banker (TOB) database between 1999-2002 and 2003-2006 respectively. As we omit extreme values, firm performance is in some cases measured over a period of less than 4 years. The sample consists of 353 and 95 firm year observations between 1999-2002 and 2003-2006 respectively. Data on firms performance is extracted from the Compustat North America Fundamental Annual dataset and supplemented by proxy statements and annual fillings.

Model 1 is significant in five out of sixteen regressions and appears to explain M&A performance best, in congruence with other empirical studies (i.e. Ben-Amar & André, 2005 and De Jong, Van der Poel & Wolfswinkel, 2007), when the event window is narrow (-2, 2). This could imply the existence of confounding events in wider event windows and/or a change in the relative importance of predictor variables which in part could be driven by the different time periods, but is most likely the result of a too small sample size in relation to the predictor variables for 2003-2006. **(1)** The results based on M&A performance suggest that no significant relationship exists between BOARDs and M&A performance. Although the relationship between BOARDs and M&A performance is reversed during the financial crisis in 2007-2010, the relationship does not appear to change significantly depending on the time period. **(2)** Additionally, we find evidence of a significant positive relationship ($p < 0.10$) between BOARDi and M&A performance (CAR3) for 1999-2002. Hence, we find support in favor of proposition 1. Although the relationship between BOARDi and M&A performance is reversed during the financial crisis in 2007-2010, the finding is statistically insignificant. The result supports the findings of Baysinger & Butler (1985), Vafeas & Theodorou (1998) and Abidin, Kamal & Jusoff (2009), implying that the independent directors have more incentives to guard and act in the shareholder's best interest and hence lead to better accounting and market performance. Additionally, the result supports finding of Byrd and Hickman (1992), Faleye & Huson (2002) and Masulis, Wang & Xie (2005) who found a positive relationship between board independence and CARs. **(3)** We find no evidence of a significant relationship between SHARESh and M&A performance. Again, the relationship between SHARESh and M&A performance appears to be reversed (and insignificant) during the financial crisis in 2007-2010. **(4)** Finally, we find evidence of a significant negative relationship ($p < 0.10$) between CEOd and M&A performance (CAR1) for 1999-2010. Hence, we find support in favor of proposition 4. The direction of the relationship seems consistent over the different time periods. This finding is consistent with the empirical findings of Masulis, Wang & Xie (2005), who argue that: " …*separating the two*

positions can help rein in empire building by CEOs, cause them to be more selective in their acquisition decisions, and thus lead to greater shareholder wealth".

(5) The results based on firm performance suggest that a significant positive relationship exists ($p < 0.05$) between BOARDs and ROE for 1999-2002, and a significant negative relationship ($p < 0.05$) between BOARDs and TOBq for the pooled data (1999-2006). Hence, we find no conclusive evidence in support of proposition 3; Although companies seem to benefit from larger boards (as measured by ROE), the market's perception is different (as measured by TOBq). Additionally, The direction of the relationship is reversed in 2003-2006 when compared to 1999-2002 but statistically insignificant. **(6)** Furthermore, we find evidence of a significant positive relationship ($p < 0.01$) between BOARDi and firm performance (ROA, ROE and TOBq) for 1999-2006 and 1999-2002. Hence, we find support in favor of proposition 1. The direction of the relationship seems consistent over the different time periods. The result supports the findings of Baysinger & Butler (1985), Vafeas & Theodorou (1998) and Abidin, Kamal & Jusoff (2009), implying that the independent directors have more incentives to guard and act in the shareholder's best interest and hence lead to better accounting and market performance. **(7)** We find evidence of a significant positive relationship (from $p < 0.01$ to $p < 0.10$) between SHARESh and firm performance for 1999-2006, 1999-2002 and 2003-2006. Hence, we find support in favor of proposition 2. The direction of the relationship seems consistent over the different time periods. The positive coefficient is consistent with Rosenstein & Wyatt (1990) and Vafeas & Theodorou (1998), who argue that stockownership by board members (executive and non-executive) reduce agency conflicts between shareholders and agents (managers) as they are less likely to engage in behavior which negatively impacts shareholder wealth. **(8)** Finally, we find evidence of a significant negative relationship (from $p < 0.01$ to $p < 0.05$) between CEOd and firm performance (ROA, ROS and TOBq) for 1999-2006, 1999-2002 and 2003-2006. Hence, we find support in favor of proposition 4. The direction of the relationship seems consistent over the different time periods. This finding is consistent with the empirical findings of Rechner & Dalton (1991), Pi & Timme (1993), Dehaene, Vuyst and Ooghe (2001) who argue that most empirical literature is in favor of separating the two functions, and Vafeas & Theodorou, (1998) who argue that separating the two functions allows the board to exercise its control function more effectively which ultimately should lead to better corporate performance.

Comparing the results of both regression models indicates that internal corporate governance (board structures) play only a minor role in explaining the variation in M&A performance, while the same board structures for the same firms seem to have a much greater

impact on firm performance measured over (in principle) a period of 4 consecutive years. In other words, internal corporate governance seems less important in explaining the short-term performance of major corporate events (M&A's), but far more important in explaining the 'long-term' performance of firms.

Table 12 and 13 provide a simplified overview of the research findings.

TABLE 12 – Research question one: what is the impact of different pre-M&A board structures of acquiring firms on M&A performance around and following the M&A announcement?

	1999-2002				2003-2006				2007-2010				All (1999-2010)			
	CAR1	CAR2	CAR3	CAR4	CAR1	CAR2	CAR3	CAR4	CAR1	CAR2	CAR3	CAR4	CAR1	CAR2	CAR3	CAR4
Independent variables																
BOARDi	+	+	+[c]	+	-	-	+	-	-	-	+	-	+	+	+	+
Proposition 1			*Accept*													
SHARESh(ln)	+	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-
Proposition 2																
BOARDs	+	-	+	-	+	-	-	+	-	-	-	+	+	-	+	-
Proposition 3																
CEOd	-	-	-	-	-	-	-	-	-	+	-	+	-[b]	-[b]	-[c]	-
Proposition 4													*Accept*	*Accept*	*Accept*	

Notes:

The table describes the direction (plus and minus) and significance of the relationship between the four board structure variables and firm performance, and indicates whether the proposition is accepted or rejected. [a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

Proposition 1: In line with Vafeas & Theodorou (1998) we assume that outsiders (i.e. independent or non-executive directors) are of particular importance when it comes down to monitoring management; outsiders have invested their reputation in an organization, and thus will most likely also have incentives to guard and act in the shareholder's best interests. Similarly, in line with Baysinger & Butler (1985) and Byrd & Hickmann (1992), we expect M&A returns and firm performance to increase as the number of independent directors increases. We therefore expect a positive relationship between board composition and M&A/firm performance.

Proposition 2: In line with Vafeas & Theodorou (1998), we argue that stockownership by board members (executive and non-executive) reduce agency conflicts between shareholders and agents (managers) as they are less likely to engage in behavior which negatively impacts shareholder wealth. We therefore expect a positive relationship between ownership by members of the board and M&A as well as firm performance.

Proposition 3: Following Arslan, Karan & Eksi (2010), we posit that larger boards generally have better monitoring capabilities but that this benefit is likely out weighted as larger boards are more often plagued by increased asymmetric information problems and communication issues. Based upon the evidence provided by Yermack (1996), de Andres et al. (2005) and Haniffa & Hudaib (2006) we expect that M&A/firm performance and the size of the board is inversely related.

Proposition 4: In line with Theodorou (1998) and Dehaene, Vuyst and Ooghe (2001), we argue that separating the function of CEO and chairman allows board of directors to exercise its control function more effectively and hence lead to better M&A and firm performance. We therefore expect a negative relationship between CEO duality and M&A as well as firm performance.

TABLE 13 – Research question two: what is the impact of different board structures on firm performance?

	All (1999-2006)				1999-2002				2003-2006			
	ROA	ROS	ROE	TOBq(ln)	ROA	ROS	ROE	TOBq(ln)	ROA	ROS	ROE	TOBq(ln)
Independent variables												
BOARDi *Proposition 1*	+[a] *Accept*	+	+[a] *Accept*	+[a] *Accept*	+[a] *Accept*	+	+[a] *Accept*	+[a] *Accept*	-	+	+	-
SHARESh(ln) *Proposition 2*	+[a] *Accept*	+[b] *Accept*	+	+[a] *Accept*	+[b] *Accept*	+[b] *Accept*	-	+[a] *Accept*	+[c] *Accept*	+[c] *Accept*	+[c] *Accept*	+
BOARDs *Proposition 3*	-	-	+	-[b] *Accept*	-	-	+[b] *Reject*	-	-	-	-	-
CEOd *Proposition 4*	-[c] *Accept*	-[c] *Accept*	-	-	-	-	-	-[b] *Accept*	-	-[b] *Accept*	-	+

Notes:

The table describes the direction (plus and minus) and significance of the relationship between the four board structure variables and firm performance, and indicates whether the proposition is accepted or rejected. [a], [b] and [c] significant at the 1%, 5 % and 10% (2-tailed) level respectively.

Proposition 1: In line with Vafeas & Theodorou (1998) we assume that outsiders (i.e. independent or non-executive directors) are of particular importance when it comes down to monitoring management; outsiders have invested their reputation in an organization, and thus will most likely also have incentives to guard and act in the shareholder's best interests. Similarly, in line with Baysinger & Butler (1985) and Byrd & Hickmann (1992), we expect M&A returns and firm performance to increase as the number of independent directors increases. We therefore expect a positive relationship between board composition and M&A/firm performance.

Proposition 2: In line with Vafeas & Theodorou (1998), we argue that stockownership by board members (executive and non-executive) reduce agency conflicts between shareholders and agents (managers) as they are less likely to engage in behavior which negatively impacts shareholder wealth. We therefore expect a positive relationship between ownership by members of the board and M&A as well as firm performance.

Proposition 3: Following Arslan, Karan & Eksi (2010), we posit that larger boards generally have better monitoring capabilities but that this benefit is likely out weighted as larger boards are more often plagued by increased asymmetric information problems and communication issues. Based upon the evidence provided by Yermack (1996), de Andres et al. (2005) and Haniffa & Hudaib (2006) we expect that M&A/firm performance and the size of the board is inversely related.

Proposition 4: In line with Theodorou (1998) and Dehaene, Vuyst and Ooghe (2001), we argue that separating the function of CEO and chairman allows board of directors to exercise its control function more effectively and hence lead to better M&A and firm performance. We therefore expect a negative relationship between CEO duality and M&A as well as firm performance.

5.2 Limitations, shortcomings and directions of future research

In congruence with other studies, our results indicate that board structures play an important role in explaining the variation in firm performance across different performance measures (accounting and market based) and different time periods. In contrast, board structures play a far *less* important role in explaining the variation in M&A performance across different event windows and different time periods. In addition, we found that the relationship (although statistically insignificant) between board structures and M&A/firm performance is sometimes reversed during economic downturns. Although good governance is valuable, this idea has received scant attention in M&A practice and literature. Our results suggest the need for further research and conceptual thinking about the relationship between internal corporate governance and M&A performance. The current study suffers from a number of limitations, which would potentially represent opportunities for further investigation. In our view, important limitations relate to the methodology and sample size.

Event study

As argued by Bruner (2004), event studies require significant assumptions regarding the functioning of stock markets. For instance, event studies require assumptions on market efficiency, rationality (as stated by Miller & Modigliani (1961), investors always prefer more wealth to less and are indifferent as to whether the increment takes the form of cash payments or an increase in market value) and the absence of restrictions on arbitrage. Following other studies, Bruner (2004) posits that these assumptions are (for most stocks) not unreasonable assumptions on average and over time. If these assumptions are violated or inappropriate for the specific topic under study, conclusions could be biased and faulty and difficult to generalize to other instances.

Another potential pitfall relates to explaining abnormal returns. As Chen, Dulipovici & Sneha (2004) argue, abnormal returns may not give a true and fair view of reality as they can be skewed due to overreaction or inappropriate (non-rational) market reactions/behaviour. In addition, abnormal returns may be positively or negatively affected by weekend and day of week effects or extraneous factors. Furthermore, confounding events (i.e. negative or positive news announcements concerning a particular organization or the financial crisis) may distort the abnormal returns and thus distort research findings.

Corporate governance differences

As Dehaene, Vuyst and Ooghe (2001) posit, there are large differences between the Anglo-Saxon and the European institutional context. For example, as has been brought forward in the literature review concerning leadership structure, in approximately 80% of U.S. organizations there exist CEO duality in the board of directors, meaning that the function of chairman and CEO is performed by one individual. This is primarily the result of the adoption of so-called "one-tier" boards in U.S. organizations (in Europe most organization adopt two-tier boards). In addition, Dehaene, Vuyst and Ooghe (2001) argue that the board of directors as a major internal discipline mechanism will have different tasks: "*While in an Anglo-Saxon context the board has to control management because of its power in the company, in continental Europe and also in Belgium the board is an independent organism designed to minimize the power of the major shareholder*". This example illustrates that organizations in different business- and institutional contexts apply different governance mechanisms/models (Guest, 2009), which limits the generalizability of our research findings.

Independent variables

In this research, board structure is measured by four corporate governance variables namely: 1) board composition, 2) board size, 3) board ownership and 4) CEO duality. Based upon our research, future studies may want to consider additional control and board structure variables and/or explore existing ones. For example, the relationship between the method of payment and cumulative abnormal returns can be further explored by classifying deals as either "all cash", "all stock" and "mixed" transactions (Faccio, McConnel and Stolin, 2006). Similarly, as proposed by Hannifa and Hudaib (2006), shareholdings by members of the board can be further differentiated by executive an non-executive directors, block holders, institutional investors and individual investors. Likewise, future studies may want to include for example equity based compensation (EBC) as a control variable as Datta, Iskandar-Datta, and Raman (2001) found a positive and significant relationship between the EBC of managers of acquiring firms and the acquirer's CAR at announcement.

Firm performance measures

The firm performance measures used in this study are characterized by shortcomings in both design and application. Firstly, for Tobin's q to be truly meaningful, one needs accurate measures of the market value and replacement cost of a firm's assets (Carlton & Perloff, 2004). In addition,

as stated by Campbell & Minguez-Vera (2008), a disadvantage of Tobin's q is that companies are valued too high in case the stock market is overly optimistic.

Secondly, real-world accounting systems leave considerable room for managers to influence financial statement data. Consequently, information in corporate financial statements is often distorted and biased, even in the presence of accounting regulation and external auditing (Palepu, Healy, Peek, 2010). For instance, ROA or ROE are affected by management's choice of asset valuation principles; the use of accelerated depreciation leads to a lower net income and hence in a lower ROA or ROE than straight line depreciation (Brealey, Myers & Marcus, 2007). In addition, as a result of the relative small sample size combined with the variety of industries covered within our research sample, this study does not adjust the accounting based performance measures to different industries. This could potentially bias our results as these measures for public companies can vary substantially and are industry specific.

Endogeneity problems

Another potential shortcoming is the possible presence of endogeneity (i.e. reverse causality vs. omitted variable bias). Renders & Gaeremynck (2006) investigate the impact of endogeneity on the relationship between corporate governance and firm performance. They posit that "*corporate governance studies are plagued with econometric problems of which…endogeneity are among the most important ones*" and find that management first evaluates performance and subsequently decides to improve practices related to corporate performance when corporate performance is low (instead of the other way around). As described in paragraph 2.4, Boone et al. (2007), Coles et al, (2008); Guest (2009) and Linck et al. (2008) showed that board size is dictated by firm specific variables (i.e. firm size, Tobin's q, profitability and financial leverage). The presence of endogeneity could make it very difficult to infer the true relationship between corporate governance and M&A/firm performance (Renders & Gaeremynck, 2006).

Research sample problems

As was stated in paragraph 1.2, this research examines three substantially different and distinct time periods (1999-2002, 2003-2006 and 2007-2010) to examine the relationship between corporate governance and M&A performance. The sample size for the research period '03-'06 has proven to be too small in relation to the number of predictor variables; Regression model 1 appeared insignificant and unable to explain the variance in CARs. Hence, no valuable statements could be formulated for this particular time period. In contrast, for the combined

research period '99-'10 the regression model appeared to be statistically significant for event windows (-2,2;CAR1) and (-1,10;CAR3). The relatively small sample sizes used in our study contributed to the partial violation of the homoscedasticity assumption (partially weakening the statistical significance of our results), as we were unable to omit all outliers. Fortunately, most of the outliers did not appear to have unrealistic values. Likewise, the small sample size used to examine the relationship between corporate governance and firm performance led to some industries (classified using a firm's macro industry definition) being over- and underrepresented.

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