UNIVERSIDADE CATÓLICA PORTUGUESA

Executive Compensation and Stock Price Reaction: Decoding the Puzzle of Shareholder Value Creation

Insights from a decade of the top 100 U.S. M&A deals

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Insights from a decade of the top 100 U.S. M&A Deals

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Resumo

A estrutura da remuneração de executivos e o impacto que esta pode ter nas operações de Fusões e Aquisições (F&A) têm vindo a despertar interesse no mundo das finanças empresariais. Esta tese dedica-se a explorar a forma como diferentes tipos de remuneração - monetária e baseada em ações - influenciam os resultados a curto prazo de operações de F&A, focando-se especialmente na existência Retornos Anormais Acumulados (RAA).

Analisámos as 100 maiores transações de F&A da última década (2010-2020) e os resultados mostram uma correlação negativa significativa entre a compensação monetária e o RAA. Isto sugere que as empresas que privilegiam a compensação executiva em dinheiro podem não estar a obter o máximo valor possível para os seus acionistas.

Por outro lado, quando a remuneração é feita através de ações, a relação com o RAA torna-se positiva. Isto indica que a concessão de ações como forma de remuneração pode incentivar a realização de operações de F&A que geram valor para a empresa, gerando também valor acrescido para os acionistas.

É importante referir que este estudo tem limitações. O foco nos resultados de curto prazo das operações de F&A não permite avaliar o seu sucesso a longo prazo. Adicionalmente, o uso das 100 maiores transações pode não ser representativo de todas as empresas e setores.

Apesar destas limitações, os resultados deste estudo têm implicações importantes para a teoria e prática das finanças empresariais, podendo ser usados para auxiliar a decisão de políticas de remuneração de executivos, orientar estratégias de F&A e ajudar os investidores a fazer escolhas mais informadas.

Palavras-chave: Remuneração de Executivos, Fusões e Aquisições, Retornos Anormais Acumulados, Compensação Monetária, Compensação Baseada em Ações.

Contagem de Palavras: 9966

Abstract

The complexity of executive compensation structures and their potential effects on the market reaction to the announcement of Mergers and Acquisitions (M&A) transactions has been a subject of increasing interest for both practitioners and scholars in the realm of corporate finance. This research adds to the ongoing discourse by investigating the effects of different types of executive compensation - cash and equity-based - on short-term M&A outcomes, particularly the cumulative abnormal returns (CAR) around the announcement date.

Utilizing a comprehensive dataset composed of the 100 largest M&A transactions of the past decade (2010-2020), we conducted detailed and robust regression analyses.

The empirical findings of the study are both significant and revealing. There is a statistically significant negative correlation between cash-based compensation and CAR. This suggests that firms which compensate their executives heavily with cash are less likely to achieve value-enhancing M&A transactions, thereby experiencing lower or insignificant abnormal returns during the announcement period.

On the other hand, our analysis revealed a positive relationship between equity-based compensation and CAR. This implies that when executives are rewarded with equity, a stake in the company, they may be more motivated to undertake M&A transactions that enhance firm value, thereby yielding more favorable short-term financial outcomes.

However, it is important to acknowledge the limitations of this study. The focus was solely on the short-term impacts of M&A transactions, and we did not measure whether the deals were successful over the long term. Moreover, our

dataset comprised only the 100 largest deals, which may over-represent certain types of firms or industries. Potential illegal insider trading could convey information to the market, prior to the formal M&A announcements, a factor could also influence CAR, that was not accounted for in the study (Ahern, 2017; Augustin et al., 2014).

Keywords: Executive Compensation, Mergers and Acquisitions, Cumulative Abnormal Returns, Cash Compensation, Equity-Based Compensation.

Word Count: 9966

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1.Introduction

Mergers and Acquisitions (M&A) constitute a significant component of corporate finance, strategic management, and capital restructuring worldwide, attracting extensive scholarly attention. This report investigates the relationship between executive compensation structures and shareholder value creation in the context of M&A activities, focusing on the top 100 largest M&A deals in the U.S. equity markets from 2010 to 2020.

Executive compensation is a crucial topic in corporate governance due to its potential to influence executive behavior and decision-making (Murphy, 2013). Several studies have examined the effect of executive remuneration on firm performance, with inconsistent results, highlighting the complexity of this relationship (Tosi et al., 2000). This report aims to contribute to this ongoing debate by focusing specifically on M&A activities, which represent significant strategic decisions with substantial implications for shareholder value.

We utilize an event study methodology to quantify the abnormal returns surrounding M&A announcements and relate these to executive compensation structures, following the approach used by Binder (1998). By focusing on the top 100 largest M&A deals from 2010 to 2020, our study aligns with previous research emphasizing the significance of studying M&A in large firms due to their considerable impact on the economy and markets (Harford, 2005).

Our study also contributes to the literature by exploring the U.S. market exclusively, an important and highly influential market in global finance.

The following sections will detail our research methodology, including data collection, sample selection, and regression analyses. Our findings will provide insight into the relationship between executive compensation structures and

shareholder value creation in M&A activities, enriching our understanding of the impact of executive remuneration on firm performance and shareholder wealth.

1.1 Background and Motivation

An extensive body of research highlights the significance of effectively structuring remuneration packages to align management's interests with those of the shareholders (Frydman & Jenter, 2010). Aligning strategic objectives and conducting thorough due diligence is key to preventing a decrease in shareholder value during transformative corporate actions such as M&A (Zollo & Meier, 2008).

The remuneration packages typically comprise fixed and variable components (Edmans & Gabaix, 2016). The fixed component includes salaries and bonus that do not vary with company performance. The variable component, conversely, is performance-based and may include bonuses, stock options, and long-term incentive plans (Murphy, 2013). This structure is rooted in the agency theory, which argues that incentivizing executives through performance-based compensation aligns their interests with the shareholders (Jensen & Meckling, 1976).

M&A transactions are strategic decisions taken to realize diverse objectives such as operational synergies, market presence expansion, diversification, and acquisition of new technologies or skills (Cartwright & Schoenberg, 2006). These transactions, however, involve high stakes and significantly impact shareholder value, requiring thorough due diligence focusing on long-term value creation for shareholders.

According to the Efficient Market Hypothesis, stock prices instantaneously integrate all available information (Fama, 1970), therefore, any abnormal stock

price movements around the M&A announcement may represent the market's perception of the transaction's potential impact on shareholder value.

While executive compensation and its correlation with firm performance is well studied, there's a need to understand the specifics, especially in relation to unique market events like M&As. This study, therefore, aims to examine the impact of various executive compensation components on stock price reactions to M&A announcements.

Executive compensation schemes have attracted attention given their potential to shape top managers' actions and decisions, for example, performance-based compensation might stimulate executives to take measures that enhance firm value and consequently align their interests with shareholders (Edmans & Gabaix, 2016). Thus, a compensation scheme that promotes value-enhancing behavior can be especially important during corporate actions, such as M&As.

However, the relationship between executive remuneration and firm performance might be bidirectional, with each potentially affecting the other. This endogeneity concern needs to be carefully addressed in our research. High-performing firms might be more likely to offer higher remuneration, leading to an upward bias in the estimates of the performance-remuneration relationship. Conversely, if executives with higher remuneration exert more effort or make better decisions leading to better performance, it could result in a downward bias in the estimates. Therefore, the endogeneity of executive remuneration to firm performance is a critical concern that will be carefully addressed in this study.

The current study is particularly interested in the role of equity-based compensation in overall shareholder value, controlled by an M&A event. While it is expected that firms with more equity-based compensation will be more likely to undertake M&A decisions that enhance shareholder value, empirical validation is needed. This research aims to fill this gap, providing insights into

how executive compensation structures affect M&A outcomes, and consequently, shareholder value.

1.2 Research Question and Objectives

The primary research question of this study is: "Does the structure of management's remuneration, particularly the variable incentive-based components, influence the stock price reactions during the announcement of mergers and acquisitions (M&A)?" This overarching question can be subdivided into the following specific objectives:

1. To identify the structure of executive remuneration, focusing on variable components, in the selected sample of firms undertaking M&A.
2. To measure the stock price reactions, reflected as abnormal returns, around the announcement of M&A.
3. To assess the relationship between the structure of executive remuneration and abnormal returns during M&A announcements.
4. To evaluate the potential endogeneity and simultaneity in the relationship between executive remuneration and firm performance.

While the relationship between executive compensation and firm performance has been extensively researched (Conyon, 2006; Edmans & Gabaix, 2016; Tosi et al., 2000), the impact of management's remuneration on stock price reactions during M&A is relatively less explored.

The objectives are in line with the agency theory, suggesting that aligning the interests of management and shareholders through appropriate incentive structures could potentially lead to decisions that enhance shareholder value

(Jensen & Meckling, 1976). Specifically, this research is interested in whether such alignment of interests leads to positive stock price reactions during M&A announcements.

1.3 Contribution to the Literature

The association between executive pay and general firm performance has been the subject of numerous research studies (Edmans et al., 2021; Murphy, 2013), yet the specific dynamics in the context of M&A events have been somewhat overlooked. Scholars have proposed that incentive-based remuneration has the potential to inspire executives to make decisions that lead to shareholder wealth maximization (Edmans et al., 2021). However, it is also recognized that this impact is not consistent across different corporate scenarios and decision-making contexts, as such, by narrowing its focus to M&A announcements, this research is poised to shed light on the specific circumstances under which incentive-based compensation can either align or misalign with shareholder interests, and therefore enrich our understanding of the role of executive compensation in these critical corporate events.

This research aims to make a unique contribution to the M&A literature by incorporating an executive compensation perspective into the analysis of stock price reactions. Traditional M&A research has primarily focused on factors such as the strategic fit, payment method, industry conditions, and corporate governance structures (Bruner, 2002; Martynova & Renneboog, 2008a; Moeller et al., 2004). By weaving in the consideration of executive compensation, this study provides a fresh viewpoint, thereby enhancing our understanding of the stock market's assessment of M&A transactions.

Lastly, the study offers methodological contributions by meticulously addressing potential endogeneity and simultaneity issues in the relationship between executive compensation and firm performance. The issue of endogeneity has been a substantial concern in executive compensation research, often complicating the interpretability of the results (Acharya et al., 2011; Roberts & Whited, 2013), a matter that will be addressed in this study.

2. Literature Review

2.1. Management's Remuneration Structure

Fixed compensation includes a set salary and benefits that do not vary with the company's performance. This component serves as a baseline reward for the services provided by the executive and is intended to attract and retain talent, reflecting the size and complexity of the organization and the responsibilities and skills required for the role (Murphy, 1999).

Variable compensation, on the other hand, is tied to the performance of the company and is designed to incentivize the executive to achieve strategic objectives and enhance shareholder value. This variable component can take several forms, including annual bonuses, stock options, restricted stock grants, long-term incentive plans (LTIPs), and other forms of performance-based pay (Edmans et al., 2017).

While the basic principles of remuneration design are widely accepted, the specific structure and composition of remuneration packages can vary significantly across companies, industries, and countries. This variation reflects differences in corporate strategy, governance norms, regulatory environments, and other factors. For example, there has been an ongoing debate about the relative merits of stock options versus restricted stock grants, with some arguing that options provide stronger incentives for risk-taking while others believe that restricted stock promotes a longer-term perspective (Bebchuk & Fried, 2006).

A well-structured remuneration package can motivate executives to pursue M&A opportunities that create long-term shareholder value, while a poorly structured package might incentivize actions that enhance executive wealth at the expense of shareholders (Harford & Li, 2007). Consequently, the analysis of

the impact of management's remuneration structure on stock price reactions during M&A events forms the core of this study. The structure of executive compensation will be dissected to understand its influence on the alignment of management decisions with shareholder interests.

2.1.1. Components of Executive Compensation

Executive compensation, which is a key facet of corporate governance, encompasses a variety of elements that collectively constitute the remuneration package for high-level executives within an organization. These elements have undergone substantial evolution over time, with the intention of aligning executives' interests with those of shareholders (Conyon, 2006). It is this alignment that helps mitigate the potential agency conflict between executives and shareholders. The structure of executive compensation typically comprises the following components:

Fixed Salary: This is the base pay that executives receive, unaffected by company performance. The determination of this amount often entails benchmarking against industry standards, along with consideration for the executive's experience, skills, and role within the company.

Bonuses: These are short-term incentives, usually linked to the attainment of specific performance targets that are established at the onset of a performance period, often annually. These targets may be financial (e.g., earnings per share, return on equity) or non-financial (e.g., project completion, operational targets).

Stock Options: Options grant executives the privilege to purchase company stock at a predetermined price, irrespective of its future market price. As a long-term incentive, they serve to align the interests of executives with those of shareholders, as the executives stand to gain from an increase in the company's stock price (Murphy, 1999).

Restricted Stock/Stock Awards: These are actual shares of the company awarded to executives. However, they usually come with vesting requirements that are contingent upon time or performance conditions, ensuring executives' focus on the company's long-term success.

Long-term Incentive Plans (LTIPs): These are performance-based plans that reward executives for meeting strategic objectives over an extended period, often spanning multiple years. They can take various forms, including performance shares, cash awards, and deferred shares. The intention behind LTIPs is to foster sustainable, long-term performance.

Pension Plans and Deferred Compensation: Executives frequently receive retirement benefits through defined contributions or benefit plans. Deferred compensation involves an executive's income being paid out at a future date, offering tax benefits and retention advantages.

Perquisites (Perks): These are non-cash benefits provided to executives that add significant value to their compensation package. Perks may encompass a variety of benefits, including company cars, private medical insurance, life assurance, and financial counseling. Notably, perks also extend to privileges like access to corporate jets, as examined by Yermack (2006). Despite constituting a small fraction of total compensation, they play an essential role in executive

compensation due to their potential impact on the executive's behavior and, consequently, on firm performance. Yermack's study found that firms providing perks such as corporate jet access tend to experience lower shareholder returns, emphasizing the substantial implications of these seemingly minor components of executive remuneration.

These elements are designed to provide an appropriate balance of risk and reward. By tying a substantial portion of the executive's potential earnings to the company's performance, executive compensation emphasizes the objective of aligning the interests of executives with those of shareholders (Edmans et al., 2017). The use of performance-based remuneration, particularly long-term incentives like stock options and LTIPs, fosters a forward-looking orientation among executives, encouraging them to undertake strategic actions that enhance shareholder value in the long term.

2.1.2. Incentive Alignment and Agency Theory

The concept of incentive alignment is an integral part of agency theory, which is widely applied to understand and manage the relationship between shareholders (principals) and executives (agents) in the context of corporate governance. Agency theory postulates that there is an inherent conflict of interest between shareholders and managers. Principals (shareholders) hire agents (managers) to operate the firm and make decisions on their behalf. However, agents may not always act in the best interest of the principals due to information asymmetry and differing objectives (Jensen & Meckling, 1976). Managers may be tempted to pursue their personal goals which could deviate from wealth maximization objectives of the shareholders, a situation often referred to as the agency problem.

Incentive alignment is viewed as a potential solution to the agency problem. By aligning the interests of executives with those of shareholders, it seeks to mitigate agency problems and encourage managers to act in the best interests of the shareholders. This is typically achieved through the structure of executive compensation, particularly through performance-based pay such as bonuses, stock awards, and stock options. Performance-based pay creates a direct link between executive remuneration and firm performance, thereby encouraging executives to strive for better company results (Bebchuk et al., 2009; Eisenhardt, 1989).

Stock options incentivize executives to work towards enhancing shareholder value (Hall & Murphy, 2002). Similarly, bonuses tied to firm performance can incentivize managers to work hard and make decisions that maximize shareholder wealth (Jensen & Murphy, 1990).

While incentive alignment is conceptually appealing, its effectiveness in practice has been a subject of ongoing debate. For instance, stock options can sometimes lead to risk-seeking behavior, as executives stand to gain significantly if risky projects succeed, while their downside risk is limited (Coles et al., 2006). Additionally, performance-based pay can sometimes lead to short-termism, with executives focusing on short-term performance at the expense of long-term sustainability (Bebchuk & Fried, 2006)

Nevertheless, incentive alignment through performance-based pay remains a cornerstone of executive compensation policy. It is a complex issue requiring careful design and implementation to balance the need for incentivization, risk management, and long-term sustainability.

2.2. Mergers and Acquisitions

M&As are considered significant business activities that involve the reconfiguration of the organizational structure through the consolidation or acquisition of other companies. These activities are usually strategic in nature, aimed at achieving a variety of business objectives such as increasing market share, entering new markets, reducing costs, or acquiring new technologies or competencies (Bruner, 2004), thus having significant implications for shareholder value and corporate performance (Haleblian et al., 2009)

The decision to merge with or acquire another firm is often a response to environmental changes, industry trends, and firm-specific needs coming with potential risks, including a failure to achieve projected benefits, a struggle to integrate different corporate cultures, or the overpayment for the acquired entity (Agrawal et al., 1992).

2.2.1. Types of M&A Transactions

M&As occur in a multitude of forms and types, each with its distinct motives, strategies, and implications. The following categorization expands upon the broad types of M&A transactions, providing a more nuanced understanding of this complex corporate phenomenon.

Horizontal Mergers: This type of merger involves two companies operating in the same industry or sector, essentially being direct competitors. Horizontal mergers are driven by the goal to consolidate the market, achieve economies of scale, eliminate competition, and improve market power (Besanko et al., 2009). Moreover, these mergers can lead to synergies by integrating similar functions,

processes, or technologies. However, the challenge lies in dealing with potential regulatory concerns associated with monopolies and anti-competitive practices.

Vertical Mergers: In vertical mergers, companies at different stages of the production process merge. This could involve a company merging with its supplier (backward integration) or with a firm to which it sells its products (forward integration). Vertical mergers aim at reducing transaction costs, securing critical supply chains, enhancing control over the production process, and improving coordination in the supply chain (Perry & Porter, 1985). While such mergers can offer competitive advantages, they also require careful integration to harmonize disparate operational stages effectively.

Conglomerate Mergers: Conglomerate mergers refer to the combination of firms operating in entirely unrelated industries. The main motives behind these transactions are diversification of business risk, expansion into new markets, cross-selling opportunities, and potentially leveraging managerial competencies across a variety of business domains (Amihud & Lev, 1981).

Market-Extension Mergers: This type of merger occurs between two companies that sell the same products but in different markets. The goal here is to gain access to a larger market and customer base. This merger allows companies to enjoy an expanded geographic footprint, which can drive growth and enhance competitive positioning.

Product-Extension Mergers: In this scenario, two companies selling different but related products in the same market merge. The strategic intent is to combine related products that appeal to the same customer base, enhancing the product offering and cross-selling opportunities.

Friendly vs. Hostile Acquisitions: M&A transactions can also be classified based on the nature of the agreement between the target and acquirer. In a friendly acquisition, the management of the target company supports the transaction. In contrast, a hostile acquisition occurs when the acquiring company makes a bid for the target without the consent of its management, often leading to resistance from the target company's leadership (Schwert, 2000).

Each type of M&A transaction comes with its unique strategic motivations and potential value-creation opportunities. However, they also carry distinct integration challenges and risks. Understanding these variations in M&A transaction types is crucial for executives to formulate effective M&A strategies and for investors to evaluate the potential impact on their investments.

2.2.2. M&A Motives and Stock Price Reactions

The motives behind M&As are multifaceted and can have significant implications on stock price reactions. Understanding these motives is essential as they help explain the variation in the stock market's response to M&A announcements.

Value Creation

A primary motive behind M&As is the potential for value creation, which is expected to manifest in positive stock price reactions. The expected value creation can arise from several sources, such as operational synergies, market power, tax shields, and diversification (Alexandridis et al., 2013; Bouwman,

2011). Operational synergies, achieved through economies of scale and scope, and improved efficiency, often lead to cost savings and increased profitability (Seth, 1990). Market power, acquired through the increase in market share post-merger, can lead to increased pricing power and hence increased firm value (Eckbo, 1983). Tax shields can be achieved through the utilization of target's tax credits and loss carryforwards by the acquiring firm (Auerbach & Reishus, 1988). Diversification, especially in conglomerate mergers, can lead to reduced earnings volatility, improving the firm's debt capacity, and reducing the cost of capital (Lewellen, 1971).

Managerial Motives

While the aforementioned motives primarily center on shareholder wealth maximization, M&As can also be driven by managerial motives that do not necessarily translate into positive stock price reactions. The managerial hubris hypothesis suggests that overconfident CEOs overestimate their ability to generate value from M&As, often leading to value-destructive acquisitions (Roll, 1986). Empire-building motives, where managers pursue M&As to increase the size of the firm and, thus, their compensation, can lead to negative stock price reactions as these mergers are not always in the best interest of the shareholders (Mueller, 1969).

Information Asymmetry and Market Perception

Another important consideration in M&A transactions is information asymmetry and the market's perception of the deal. Information asymmetry arises when managers have more information about the firm's prospects than outside investors. M&As, especially those financed with stock, can signal the

management's private information about the firm to the market (Myers & Majluf, 1984). If the market perceives the M&A as a positive signal, it can lead to a positive stock price reaction. Conversely, if the market interprets the M&A as a negative signal (e.g., overpayment signal), it can lead to a negative stock price reaction (Vermaelen, 1981).

A key focus of research has been on event studies that estimate the abnormal returns associated with M&A announcements. Here, the methodology typically involves identifying an estimation window to calculate the 'normal' return and an event window to estimate the 'abnormal' return (MacKinlay, 1997).

The abnormal return is then calculated as the difference between the actual return and the normal return. A positive (negative) abnormal return suggests that the market views the M&A as value-enhancing (value-destroying). Importantly, the significance of the abnormal return can be tested statistically to infer whether the market's reaction is different from zero in a meaningful way (Brown & Warner, 1985)

The literature has employed the event study methodology extensively to study stock price reactions to M&A announcements, documenting significant abnormal returns around these corporate events. However, the magnitude and direction of these reactions can depend on several factors, including the characteristics of the acquiring and target firms, the nature and structure of the deal, and the broader market and regulatory environment (Andrade et al., 2001)

In conclusion, the motives behind M&As and their implications for stock prices represent a rich and multifaceted area of research. The continued evolution of this field, driven by changing business practices, societal expectations, and methodological advancements, promises to offer further insights into these complex and impactful corporate decisions.

2.3 Event Studies in Finance

Event studies in finance provide an empirical framework for measuring the impact of a specific event on the value of a firm. This technique is designed to capture the effect of an event, such as a merger or acquisition, on the price of a firm's shares. This is achieved by analyzing the abnormal returns associated with the event (MacKinlay, 1997).

In the last few decades, event study methodology has been applied extensively in finance and accounting research. For instance, it has been used to evaluate the market's reaction to announcements of earnings, dividend policy changes, new equity issues, and, of course, mergers and acquisitions (Kothari & Warner, 2007).

Event studies have also been used to examine the efficiency of markets. Under the semi-strong form of the efficient market hypothesis, all public information is rapidly incorporated into stock prices. Therefore, any significant abnormal returns following the event would suggest that the market is not semi-strong efficient (Fama, 1970).

While event studies are a powerful tool, they have limitations. They require careful construction of the event window and the estimation window. They are also sensitive to model specifications for expected returns. Finally, the test statistics commonly used in event studies are based on the assumption of independence across events, which may not always hold true (Kothari & Warner, 2007).

2.3.1 Methodological Overview

Event studies constitute an indispensable tool in financial research, with their primary goal being the assessment of the market's reaction to a specific corporate event (MacKinlay, 1997). The meticulous process of conducting an event study involves multiple steps:

Selection of the Event Window: This step involves deciding upon the time period to be considered for analysis. The selection depends on the event being studied and the time horizon over which we expect the market to react. For instance, some studies consider short event windows such as -1 to 0 day (Datta et al., 2001) while others expand to -5 to +5 days (Corrado, 2011). The chosen event window should be sufficiently comprehensive to capture the market reaction while avoiding the inclusion of irrelevant information.

Calculation of Abnormal Returns: Abnormal returns are defined as the difference between the actual stock return and the expected return, given the broader market movement. The most straightforward way to compute the abnormal returns involves subtracting the return of a market index from the return of the individual stock (MacKinlay, 1997). This technique isolates the effect of the event on the stock return, abstracting away from the overall market trends.

Aggregation of Abnormal Returns: Once abnormal returns are calculated for each stock in the sample and for each day in the event window, these need to be aggregated. This can be done at the firm-level, averaging abnormal returns across the event window (Cumulative Abnormal Return - CAR) or at the event-level, averaging CARs or abnormal returns across all events (Average Abnormal Return - AAR) (Kothari & Warner, 2007).

Statistical Testing: The final step involves testing if the calculated abnormal returns are statistically different from zero, which would indicate a significant market reaction to the event. This can be done using various statistical tests, such as the t-test or the Wilcoxon signed-rank test, depending on the distributional properties of the data (Kolari & Pynnonen, 2011). This step is crucial as it confirms the statistical significance of the findings, thus lending credibility to the study's conclusions.

2.3.2. Applications to M&A Research

Event studies have been a central method in empirical corporate finance, particularly in mergers M&A research, offering an insightful way to capture the stock market's response to M&A announcements, providing a direct measure of shareholder wealth effects associated with these corporate events (Eckbo, 2009).

One of the seminal studies in this field by Asquith (1983) employs an event study methodology to demonstrate that acquiring firms' shareholders generally experience negative abnormal returns around the announcement of M&A deals. Since then, numerous studies have utilized this method to delve into various aspects of M&A transactions.

For instance, Moeller et al. (2004) use event studies to show that the size of acquiring firms affects the magnitude and direction of the stock market response. In another study, Fuller et al. (2002) employ event study methodology to demonstrate the role of payment method in M&As, showing that stock payments are associated with less favorable market reactions compared to cash payments.

Event study methodology has also been applied to investigate the impact of executive compensation structure on M&A decisions and outcomes. For example, Grinstein & Hribar (2004) employ an event study to show that CEOs with higher equity-based compensation are more likely to undertake acquisitions, which often lead to significant wealth gains for these executives.

Moreover, event studies in M&A research have been extended to incorporate multivariate regression analyses, facilitating a more nuanced understanding of the determinants and consequences of M&A transactions (Eckbo, 2014).

3. Hypothesis Development

The focus of our study is on the composition of CEO compensation, specifically the proportion of equity-based versus cash-based compensation, and its impact on the perceived value of mergers and acquisitions as reflected in the abnormal returns around the announcement period. Our review of the literature and theoretical underpinnings of executive compensation suggest the following hypotheses:

Hypothesis 1 (H1): Firms with a higher proportion of equity-based compensation for executives are more likely to pursue value-enhancing M&A transactions, leading to positive abnormal returns around the announcement period.

The reasoning behind this hypothesis draws on the principle of shareholder-manager alignment. Equity-based compensation, which includes stock options and restricted shares, aligns the interests of executives with those of shareholders, as both stand to gain from an increase in the firm's stock price. Therefore, executives compensated with a high proportion of equity-based pay have a direct financial incentive to make decisions that enhance shareholder value, including pursuing profitable M&A transactions. Several empirical studies support this line of reasoning, showing a positive relationship between equity-based compensation and firm performance (Coles et al., 2006; Tosi et al., 2000).

Hypothesis 2 (H2): Firms with a higher proportion of cash-based compensation for executives are less likely to pursue value-enhancing M&A

transactions, leading to negative or no significant abnormal returns around the announcement period.

Cash-based compensation, which includes salary and bonuses, may not necessarily align the interests of executives with shareholders. Because cash compensation is guaranteed, irrespective of firm performance, executives may prioritize security over risk-taking, even when the potential payoff from risk-taking could significantly increase firm value. Consequently, firms with a higher proportion of cash compensation may be less likely to pursue value-enhancing M&A transactions. This hypothesis is also supported by empirical research that finds a negative relationship between the proportion of cash compensation and firm performance (Core & Larcker, 2002; Perry & Zenner, 2001)

3.1. CEO Compensation and M&A Transactions

The executive compensation structure in organizations has been a critical area of interest for researchers, considering its direct influence on the decision-making behavior of corporate leaders. Executive compensation broadly includes both cash-based (such as salaries and bonuses) and equity-based compensation (such as stock options and restricted stock grants) (Jensen & Murphy, 1990)

Equity-based compensation mechanisms are based on the belief that executives will undertake actions that enhance shareholder value when their personal wealth is directly tied to the firm's stock performance (Core & Larcker, 2002). Consequently, with equity-based compensation, executives are thought to pursue strategies and decisions, such as M&A transactions, that are expected to increase firm value and thus, the firm's stock price. This directly leads us to our first hypothesis: Firms with a higher proportion of equity-based compensation

for executives are more likely to pursue value-enhancing M&A transactions, leading to positive abnormal returns around the announcement period (H1).

On the other hand, cash compensation, which includes components such as salary and bonuses, could lead to different executive behaviors. Executives whose compensation is heavily cash-based might not have as strong an incentive to take actions that would increase stock price, such as engaging in value-enhancing M&A deals (Perry & Zenner, 2001). This theoretical understanding forms the basis of our second hypothesis: Firms with a higher proportion of cash compensation for executives are less likely to pursue value-enhancing M&A transactions, leading to lower or no significant abnormal returns around the announcement period (H2).

Several empirical studies have offered support for these propositions. For example, a study by Core et al. (1999) revealed that equity-based compensation could lead to increased firm performance. Similarly, Mehran (1995) found that the use of options and restricted stock in compensation could enhance the firm's value. On the contrary, the research by Perry and Zenner (2001) suggested that executives with higher cash compensation were less likely to take riskier actions that could potentially increase the firm's value.

3.2 Abnormal Returns as a Measure of M&A Success

It is standard practice to measure the success of an M&A transaction by examining abnormal returns around the announcement date of the transaction (Andrade et al., 2001; Brown & Warner, 1985; Schwert & Simon, 1996). Positive abnormal returns indicate that the market perceives the transaction as value-enhancing, whereas negative abnormal returns signal a value-reducing transaction.

The methodology for calculating abnormal returns generally involves establishing an estimation window to determine the expected return model, followed by applying this model over the event window, which is usually a short period around the announcement date (Mcwilliams & Siegel, 1997). The differences between the actual returns and the returns predicted by the model over the event window are the abnormal returns.

The rationale behind this approach is that stock prices encapsulate all public information about a firm's expected future cash flows, including the market's assessment of the likely impact of an M&A deal. Therefore, any significant deviation from expected returns around the M&A announcement date can be attributed to the new information brought by the announcement itself (Fama, 1970).

In this study, CAR as our dependent variable in the regression analysis, following the model suggested by Datta et al.(2001) and others. The use of CAR as opposed to simple abnormal returns allows for the capture of the total impact of the M&A announcement over a specific period, thus giving a clearer picture of the overall market response.

4. Data and Methodology

4.1. Sample Selection and M&A Event Definition

The chosen sample comprises of U.S. publicly traded companies that have announced the top 100 largest M&A transactions between the years 2010 and 2020. The concentration on U.S. publicly traded firms is driven by the availability and transparency of their financial data and CEO compensation information. These firms are obliged to adhere to stringent disclosure regulations, resulting in reliable, easily accessible data for academic study (Matolcsy & Wright, 2011).

Furthermore, financial firms and private equity firms have been intentionally excluded from the analysis because in light of the unique financial structure, regulation, and operations of these firms which might distort the effect of CEO compensation on M&A decisions and outcomes (Loughran & Ritter, 1997).

The selection of the top 100 largest M&A transactions in the U.S. from 2010 to 2020 allows the study to capture a significant, robust dataset of impactful M&A events. Larger M&A deals are known to exert more substantial effects on firm value and are therefore more likely to reflect distinct stock price reactions (Moeller et al., 2004). The ten-year window of analysis facilitates a comprehensive understanding of these effects over time, mitigating the impact of any short-term economic fluctuations.

Focusing specifically on the compensation of CEOs is integral to this study. As key decision-makers, CEOs play a decisive role in the strategic direction of a company, including M&A decisions (Yermack, 2006). Therefore, a deep understanding of the correlation between CEO compensation and M&A outcomes can offer valuable insights into corporate governance and strategic management.

In terms of event definition, the announcement of an M&A transaction is considered as the event for this study. This decision is anchored in the efficient market hypothesis, which postulates that markets react swiftly to the release of new information (Brown & Warner, 1985). Nonetheless, it is important to note that anticipatory price movements may occur due to potential information leakage ahead of official announcements (Meulbroek, 1992)

4.2 Data Sources and Variables

The M&A deals were manually gathered to ensure that they were among the top 100 biggest deals in the U.S. between 2010 and 2020. This approach, while labor-intensive, offers the advantage of precision and specificity, ensuring that the dataset is optimally tailored to the study's research objectives (Shelley & Krippendorff, 1984).

Executive compensation data was manually extracted from company proxy statements. These documents are public and reliable sources that detail the executive compensation packages available on the company's investor relations webpage and/or in EDGAR's database (Murphy, 2013). The focus of this study is on CEO compensation as CEOs, being the top decision-makers in firms, have significant influence over strategic decisions such as M&As (Matolcsy & Wright, 2011; Yermack, 2006). To calculate the percentage of equity and cash compensations, one should first identify the total compensation for a CEO, which typically comprises salary, bonuses, stock and option grants, non-equity incentives, pension changes, and other forms of compensation. The equity compensation component generally includes stock and option grants, while the cash compensation typically consists of salary and bonuses.

The proportion of equity-based compensation can be calculated by dividing the total amount of stock and option grants by the total compensation. This calculation yields the percentage of total compensation that is equity-based. Similarly, the proportion of cash compensation can be calculated by dividing the sum of salary and bonuses by the total compensation, yielding the percentage of total compensation that is cash-based.

Control variables, including firm-level financial information, stock prices and index prices (that were used to compute the abnormal returns) were sourced from the Refinitiv Datastream database.

The CAR is chosen as the dependent variable in this study as it provides a measure of the total abnormal return resulting from an M&A event over a specified event window (MacKinlay, 1997). In the context of this study, it represents the aggregated unexpected return, attributed to the M&A announcement, that is not explained by general market movements.

The use of CAR as the dependent variable allows for capturing the total impact of the M&A event on the firm's stock price, which is essential for understanding the implications of CEO compensation structure on M&A outcomes (Datta et al., 2001).

The primary independent variables for this study are the proportion of Equity-based Compensation and the proportion of Cash Compensation in the total CEO compensation package. Equity-based Compensation, as a percentage of total compensation, includes Stock Awards and Option Awards, while Cash Compensation, as a percentage of total compensation, comprises Salary and Bonus.

Control variables include Research & Development, Capital Expenditures, Leverage measures (Debt-to-Equity Ratio), Market-to-Book Ratio, Return on Assets, Cash levels, and Executive Members' Gender Diversity. The inclusion of these variables is grounded in the extant literature, indicating their potential

influence on firm decision-making and stock price reactions (Bharath et al., 2013; Faccio et al., 2016; Feng, 2005; Klassen & Mawani, 2000; Titman & Wessels, 1988).

4.3. Event Study Methodology

4.3.1. Estimation Window and Event Window

The estimation window refers to the period used to estimate the parameters of the model (in this case, the Market Model) to generate expected returns. In this study, an estimation window of 200 trading days prior to the event window is used, in line with Datta et al. (2001) and MacKinlay (1997). This relatively long estimation window provides a robust basis for the model, incorporating a substantial amount of historical data to estimate the model parameters, thereby reducing the potential influence of short-term market anomalies or company-specific shocks.

The event window, on the other hand, is the period during which the market is anticipated to react to the event of interest. Following Datta et al., 2001, this study uses a narrow event window spanning from day -1 (one day before the announcement) to day 0 (the day of the announcement). This brief window is chosen to capture the immediate market response to M&A announcements, minimizing the potential for other events or information to affect stock returns and potentially confound the analysis.

It's crucial to note that if the announcement occurs on a non-trading day, the event day (day 0) is adjusted to refer to the following trading day, the same goes for the day -1 (adjust to reflect the trading day before the announcement day). This adjustment ensures the accurate capturing of the market reaction to the announcement, which could only be reflected in stock prices on a trading day.

4.3.2. Abnormal Return Calculation and Statistical Tests

The computation of abnormal returns (AR) follows two steps. First, the expected return of the firm's stock is computed based on the Market Model using stock return data from the estimation window (200 trading days prior to the event (Datta et al., 2001; MacKinlay, 1997). The Market Model is expressed as follows:

$$R_{it} = \alpha_i + \beta_i * R_{mt} + \varepsilon_{it},$$

Where:

- **R_it** is the return of firm **i** at time **t**
- **α_i** and **β_i** are the parameters of the model to be estimated
- **R_mt** is the return on the market portfolio at time **t**
- **ε_it** is the error term.

Second, the abnormal return is calculated as the difference between the actual return and the expected return on the event day (day 0) and the day before (day -1). The AR is then defined as:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i * R_{mt}),$$

Where:

- **AR_it** is the abnormal return for firm **i** at time **t**.

The CAR is calculated as the sum of abnormal returns over the event window (-1 to 0) (Datta et al., 2001). The use of CAR allows for the capturing of the total impact of the M&A announcement over the specified period.

To test the significance of the abnormal returns and assess the impact of CEO compensation on these returns, regression analysis is employed. The CAR serves as the dependent variable, while the independent variables include the CEO compensation components and the set of control variables.

The regression model is estimated using the ordinary least squares (OLS) method, and the significance of the coefficients is tested using t-tests. Potential issues of heteroscedasticity are addressed by using robust standard errors in the regression analysis.

4.4 Regression Model

For Hypothesis 1, which posits that firms with a higher proportion of equity-based compensation for executives are more likely to pursue value-enhancing M&A transactions, leading to positive abnormal returns around the announcement period, the regression model is represented as follows:

$$\mathbf{CARi = \alpha + \beta 1 EquityComp\_i + \beta 2 ControlVariables\_i + \varepsilon i}$$

Where:

- **CARi** represents the cumulative abnormal return of firm **i** around the M&A announcement period, our dependent variable

- **EquityComp_i** represents the proportion of equity-based compensation (i.e., Stock Awards and Option Awards) in the total compensation for executives in firm **i**, our key independent variable.

- **ControlVariables_i** are various firm-level control variables such as firm size, leverage, and profitability for firm **i**. The inclusion of these control variables is to account for their potential influence on the CAR (Hitt et al., 2001).

- **εi** is the error term for firm **i**.

For Hypothesis 2, which suggests that firms with a higher proportion of cash compensation for executives are less likely to pursue value-enhancing M&A transactions, leading to lower or no significant abnormal returns around the announcement period, the regression model is:

$$\mathbf{CARi} = \alpha + \beta\mathbf{1CashComp\_i} + \beta\mathbf{2ControlVariables\_i} + \varepsilon\mathbf{i}$$

Where:

- **CashComp_i** represents the proportion of cash compensation (i.e., Salary and Bonus) in the total compensation for executives in firm **i**, our key independent variable for this hypothesis.

- The other variables carry the same meaning as in the model for Hypothesis 1.

It's important to note that multicollinearity, a situation where the independent variables are highly correlated, can inflate the variance of the coefficient estimates and make the estimates very sensitive to minor changes in the model. Therefore, the Variance Inflation Factor (VIF) will be calculated to ensure there's no multicollinearity issue in the regression models (O'Brien, 2007).

Furthermore, given that the data could potentially be heteroscedastic, we will employ robust standard errors, following the methodology proposed by Huber (1967) and White, (1980) to ensure the validity of the regression results.

This analytical approach is well-suited to the research objectives of this study and aligns with the methodology employed by similar studies in the field (Kale et al., 2009; Tosi et al., 2000).

5. Results and Discussion

5.1. Descriptive Statistics

Table 1 represents the descriptive statistics of all the variables used in the study. From the difference in the value of mean and standard deviation, we can access that the data is highly dispersed.

Variable	Mean	Std. Dev.	Min.	Median	Max.
CAR	-0.001	0.074	-0.180	-0.00140	0.227
Cash Compensation (%)	0,500	0,279	0,007	0,429	1,000
Equity Based Compensation (%)	0,500	0,279	0,000	0,571	0,993
R&D (Millions $)	2,707	3,974	0,000	0,926	16,085
Capital Expenditures (Millions $)	2,986	4,651	0,006	1,032	20,944
Debt-to-Equity Ratio	2,097	15,106	-41,070	0,708	144,616
Market-to-Book Ratio	5,223	15,549	-18,690	2,870	111,300
Return on Assets	6,995	5,302	-3,610	6,185	34,130
Cash (Millions $)	11,522	25,678	0,002	2,581	132,536
Executive Gender Diversity (%)	14,421	12,135	0,000	11,110	41,670

Table 1- Descriptive Statistics

With a mean CAR of -0.001, we might infer that the returns in our sample are, on average, slightly negative. The descriptive statistics presented provide critical insights into the distribution and characteristics of the variables under study. Notably, the two components of executive compensation - cash and equity-based compensation - show a balanced distribution with each constituting roughly 50% of total compensation on average. This parity highlights the mixed approach firms tend to adopt when it comes to executive compensation.

In terms of corporate investment, the data reveals that firms are investing substantial amounts in innovation and capital assets, as evident from the mean values for Research & Development and Capital Expenditures. The wide-ranging Total Debt to Common Equity ratio indicates a considerable variation in firms' debt financing strategies, with an average ratio suggesting moderate use of debt.

The Market-to-Book ratio, with a mean value of 5.223, underscores the differences in perceived and intrinsic values across the firms in the sample. Furthermore, the mean Return on Assets of 6.995 signifies the efficiency of these firms in generating profits from their assets.

The liquidity of the firms, as indicated by the mean cash value, is substantial, suggesting a relatively comfortable position to meet short-term obligations. Lastly, the data on Executive Members' Gender Diversity demonstrates a moderate level of gender diversity within executive teams, indicating a level of commitment to inclusion and diversity, although this varies significantly across firms.

5.2. Cumulative Abnormal Returns Around M&A Announcements

The average CAR for the firms in our sample, calculated over an event window surrounding the M&A announcement date, is -0.0019. This negative mean CAR implies that, on average, the market reacts slightly negatively to the M&A announcements made by the companies in our sample. This finding aligns with the mixed evidence in the extant literature concerning the market reaction to M&A events (Aktas et al., 2013; Alexandridis et al., 2017)

Variable	Obs	Mean	St. Err.	Median	Std. Dev	95% confidence interval		P-value
CAR	200	-0.0019	0.00017	-.00140	0.074	-0.0022	-0.0016	0.000

Table 2 - Cumulative Abnormal Return Summary

The standard error of 0.00017 provides a measure of the statistical reliability of the mean CAR estimate. The smaller this standard error, the more confident we can be about the precision of our estimate. Moreover, the 95% confidence interval for the CAR ranges from -0.0022 to -0.0016. This interval signifies that, were we to repeat this study many times under the same conditions, we would expect the average CAR to fall within this range 95% of the time.

The p-value associated with the mean CAR is 0.00, indicating a statistically significant departure from zero. This result allows us to reject the null hypothesis of no abnormal returns around the M&A announcement period (Brown & Warner, 1985). These findings suggest a statistically significant, albeit slightly negative, market reaction to M&A announcements for the firms in our sample. This observation motivates a deeper investigation into the determinants of this reaction, particularly focusing on the role of executive compensation structure.

5.3. Regression Results

5.3.1 Equity-Based Compensation and Abnormal Returns

The results from the regression analysis are supportive of Hypothesis 1. Equity-based compensation yielded a significant positive coefficient of 0.361 (p-value < 0.001), in line with prior literature (Datta et al., 2001). This means a 1% increase in equity-based compensation correlates with a 0.361 unit increase in the CAR, implying firms with higher proportions of equity-based compensation are more likely to have successful M&A transactions (Hartzell & Starks, 2003; Jensen & Meckling, 1976c).

Several control variables also proved to be significant. Research and Development (R&D) expenses were negatively associated with CAR, suggesting innovative firms might face higher levels of uncertainty, with the coefficient being in line with Coles et al. (2006) and J. Core & Guay (1999).

Cash Generic had a positive association with CAR, indicating firms with more cash are more likely to execute successful M&A transactions, conforming with prioir literature (Harford, 1999). Market Value to Book was negatively associated with CAR, showing firms with higher growth opportunities and intangible assets might experience lower post-announcement CAR (Dong et al., 2006).

	Coefficient	Std. Err.	t	P-value	95% Conf.	Interval
Equity-Based Compensation	0.3612	0.0637	5.67	0	0.2312	0.4911
Research and Development	-0.1271	0.0351	-3.63	0.001	-0.1986	-0.0556
Capital Expenditures	-0.0019	0.0235	-0.08	0.937	-0.0498	0.0460
Cash	0.0503	0.0174	2.9	0.007	0.0149	0.0857
Debt-to-Equity Ratio	0.0087	0.0004	2.12	0.042	0.0000	0.0017
Market-to-Book Ratio	-0.0133	0.0093	-1.42	0.165	-0.0323	0.0058
Return on Assets	0.0018	0.0051	0.35	0.73	-0.0086	0.0121
Gender Diversity Ratio	0	0.0018	0.06	0.953	-0.0036	0.0038
Constant	0.5719	0.1392	4.11	0	0.2879	0.8559
Companies	82					
Industry Effect	Yes					
R-Square	0.9784					

Table 3 - H1 Regression Results

The model's R-squared value was 0.9784, demonstrating the variables in the model explain approximately 98% of the variation in CAR. However, while the results strongly support our hypothesis, we need to acknowledge the potential for omitted variable bias and the limitation that these results might not be generalizable to other contexts. Further research could consider additional control variables such as market conditions, macroeconomic factors, and sector-specific influences (Brown & Warner, 1985).

5.3.2 Cash-based Compensation and Abnormal Returns

The analysis of our second hypothesis reveals intriguing insights into the relationship between executive compensation structure and M&A announcement abnormal returns. Specifically, the coefficient for the Cash-Based Compensation variable, at -0.361, is both statistically significant (p-value<0.001) and of considerable magnitude. This result lends credence to our Hypothesis 2, positing that firms with higher proportions of executive cash compensation (and, thus, lower equity-based compensation) are less likely to engage in value-enhancing M&A transactions, leading to lower or insignificant abnormal returns around the announcement period, in line with Datta et al. (2001) which delivered a negative coefficient for lower EBC firms.

	Coefficient	Std. Err.	t	P-value	95% Conf.	Interval
Cash-Based Compensation	-0.3611	0.0637	-5.67	0.000	-0.4911	-0.2312
Research and Development	-0.1271	0.0351	-3.63	0.001	-0.1986	-0.0556
Capital Expenditures	-0.0019	0.0235	-0.08	0.937	-0.0498	0.0460
Cash	0.0503	0.0174	2.9	0.007	0.0149	0.0857
Debt-to-Equity Ratio	0.0009	0.0004	2.12	0.042	0.0000	0.0017
Market-to-Book Ratio	-0.0133	0.0093	-1.42	0.165	-0.0323	0.0058
Return on Assets	0.0018	0.0051	0.35	0.73	-0.0086	0.0121
Gender Diversity Ratio	0.0001	0.0018	0.06	0.953	-0.0036	0.0038
Constant	0.9330	0.1720	3.99	0.000	0.5817	1.2843
Companies	82					
Industry Effect	Yes					
R-Square	0.9784					

Table 4 - H2 Regression Results

This conclusion is backed up by the observed t-value of -5.67, substantially exceeding the critical values at 1, 5, and 10% significance levels, further reinforcing the statistical significance of our finding. The direction of the relationship, indicated by the negative beta value, substantiates the notion that

an increase in the proportion of cash compensation vis-à-vis equity-based compensation correlates with a decrease in M&A announcement abnormal returns.

The rationale for this relationship is rooted in the nature of cash compensation, which does not provide executives with a direct ownership stake in the company. Consequently, top executives may be less incentivized to undertake the risks and investments associated with complex M&A transactions. This reluctance could lead to a decreased propensity to engage in potentially value-enhancing M&A deals, which investors may interpret as a lack of substantial value creation for the firm, thus leading to lower abnormal returns.

Furthermore, several control variables exhibited a statistically significant influence. For instance, 'Research and Development' and 'Cash' variables were negatively associated with the CAR, while 'Debt-to-Equity Ratio' showed a positive relationship, in line with Coles et al. (2006) and J. Core & Guay (1999). . The 'Market-to-Book Ratio', despite having a negative coefficient, was not statistically significant at conventional levels, reflecting an ambiguous influence on CAR.

Overall, the model exhibits a robust explanatory power, with an R-square value of 0.9784, suggesting that a large proportion of the variation in the CAR can be explained by the variables included in our model. The industry effect, controlled for in our model, was also found to be significant.

In conclusion, our regression analysis supports Hypothesis 2, suggesting a substantial negative relationship between the proportion of cash compensation in executive pay and the abnormal returns generated around the M&A announcement period. This result underscores the need for careful consideration of compensation structures in influencing managerial behavior and, consequently, firm performance during critical corporate events.

5.4. Robustness Checks

The diagnostic tests conducted to confirm the validity of our regression model include the Variance Inflation Factor (VIF) for detecting multicollinearity, the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity, the Durbin-Watson test for autocorrelation, and the Shapiro-Wilk W test for normality of residuals (Bollinger et al., 1981; Durbin & Watson, 1950; Shapiro & Wilk, 1965).

Our analysis began with the VIF test, which ensured that there was no severe multicollinearity present in the model. All variables returned VIF values below 10, indicating no serious correlations between the predictors that could jeopardize the stability of our regression coefficients.

Following this, we performed the Breusch-Pagan / Cook-Weisberg test, which returned a p-value lower than 0.05. This signified that our model's error variances were not constant, i.e., heteroskedasticity was present. To handle this issue, we employed robust standard errors, a methodology known to effectively correct for heteroskedasticity in the model.

Next, we evaluated the potential issue of autocorrelation using the Durbin-Watson test. The resulting p-value was lower than 0.05, suggesting the presence of autocorrelation in our model. To address this, we adjusted our model using robust standard errors, effectively mitigating the issue of autocorrelation.

To ensure the correct specification of our model, we conducted the Ramsey RESET test. The test revealed no significant issues, indicating that our model is well-specified.

Lastly, the Shapiro-Wilk W test was used to verify the normal distribution of residuals, a key assumption for OLS regression models. The residuals were indeed normally distributed, adding further credibility to our model's findings.

In addition to these tests, we applied a logarithmic transformation to certain variables, specifically Research and Development, Cash Generic, and Capital Expenditure. This transformation reduces skewness, improves interpretability, and fulfills the linearity assumption of the model.

Overall, the results of these diagnostic tests confirmed the validity and robustness of our regression model.

5.5 Interpretation and Implications

Our results offer significant implications for theory and practice in the financial industry. We found that firms with higher proportions of equity-based executive compensation are more likely to make value-enhancing M&A decisions, as reflected by the positive and statistically significant coefficient. This supports the alignment theory of executive compensation, which posits that tying executive pay to company performance aligns the interests of executives with those of the company's shareholders (Jensen & Murphy, 1990)

On the other hand, higher proportions of cash-based compensation are associated with lower or insignificant abnormal returns, implying that such firms are less likely to engage in beneficial M&A deals. This finding supports agency theory, which posits that executives who receive significant cash compensation are less likely to take on risky projects such as M&As due to the absence of direct ownership stakes in the company (Eisenhardt, 1989).

Comparing our findings with previous research, our results are consistent with (Edmans & Gabaix, 2016), who found that performance-based executive compensation encourages optimal risk-taking, which may lead to value-enhancing decisions such as M&A transactions.

Reflecting on our study's strengths, our model controls for various company characteristics, uses a robust regression analysis, and addresses potential heteroskedasticity and autocorrelation issues, which enhances the validity of our findings. However, we recognize several limitations. First, the use of publicly available financial data may lead to potential measurement issues, as not all relevant company-specific factors may be captured in such data. Second, the study assumes a linear relationship between variables, which may not fully capture the complex dynamics of corporate decisions.

Despite the significant insights that our study has provided, it is important to acknowledge certain limitations. Firstly, our focus on short-term abnormal returns around M&A announcement periods provides a snapshot of market reactions, but it may not capture the long-term success or failure of these deals. M&A transactions often have long-term strategic objectives, and their ultimate success or failure might only become evident over a longer period (Aktas et al., 2013).

Secondly, by analyzing the 100 largest M&A deals, our results could be more general and potentially biased towards larger corporations that typically undertake such large-scale deals. The results might be less applicable to smaller or mid-sized firms that also regularly engage in M&As (Martynova & Renneboog, 2008).

Lastly, the event study methodology assumes that there are no leaks or rumors about the M&A before the official announcement. However, in real-world scenarios, such information often leaks out, which could affect the market's reaction (Betton et al., 2008). This limitation could have led to an underestimation or overestimation of the actual impact of M&As on abnormal returns.

As for future research, this study opens new avenues of exploration. For instance, future research might examine how the interplay between executive compensation and other governance mechanisms influences M&A outcomes, or

how these relationships might vary across industries or countries. Furthermore, longitudinal studies could investigate how the impacts of different executive compensation structures on M&A success evolve over the long-term, extending the scope beyond the immediate post-announcement period.

6. Conclusion

To conclude, the insights generated from our study unveil the intricate relationship between executive compensation structures and the outcomes of M&A transactions, thereby filling an existing gap in scholarly literature. Drawing on the work of Edmans, Gabaix, and Jenter (2017), we extend the understanding of executive compensation's role in M&A success. Our findings lend credence to the notion that the proportion of equity-based compensation within the total executive compensation package is influential in predicting the likely success of M&A transactions. The implications of our findings are considerable, extending to areas of corporate governance, M&A strategies, and policies pertaining to executive compensation.

Our research signals that a greater weightage on equity-based compensation within executive packages can potentially indicate a management team's commitment towards creating shareholder value. Aligning with the agency theory postulated by Jensen and Meckling (1976), when the share of equity-based compensation increases, it sends a strong message to the market about the management's confidence in the company's future performance. This can, in turn, influence the market's perception of the firm's prospects, which is particularly relevant in the context of M&A activity.

Contrarily, a higher emphasis on cash compensation may signal a more risk-averse management style, potentially indicating a more conservative approach towards M&A transactions. In line with the work of Bebchuk and Fried (2003), such conservatism can influence the firm's trajectory and potential for growth, which, again, can be a crucial piece of information for investors.

The investors can leverage the insights from this study to better comprehend a company's strategic direction and future performance, particularly in the

context of M&A. As Core et al. (1999) suggest, by looking at the compensation structure, investors can infer the level of risk that the executives are willing to undertake, and how that might translate into the company's M&A strategy. This can aid investors in making more informed decisions about whether a company represents a good or bad investment.

Despite focusing specifically on the top 100 largest M&A deals, our study underscores the critical role of executive compensation structure in driving strategic corporate decisions and shaping their outcomes. This opens up avenues for future research that could examine these dynamics across a broader array of firms, potentially stratifying by industry, firm size or market capitalization, including small-cap, mid-cap, and large-cap firms. This would contribute to a more granular understanding of how these relationships might differ across various types of businesses.

Another promising direction could be to undertake a geographic expansion of this study, conducting similar analyses with the top 100 M&A transactions in other regions such as Europe or Asia. This could unveil regional variations in the effects of executive compensation on M&A outcomes, potentially attributable to differences in corporate governance structures, business cultures, or regulatory environments. In addition, given the global emphasis on gender diversity, our findings related to the insignificant impact of executive gender diversity on M&A outcomes can fuel future research in this area. Following up on the studies of Adams and Ferreira (2009), researchers can delve deeper into understanding how gender diversity in executive positions may influence strategic decisions like M&A and their subsequent success.

Despite the significant findings, this study acknowledges some limitations. Our reliance on manual data extraction instead of established databases like SDC Platinum for the M&A deals and S&P ExecuComp for the executive compensation (used by the majority of academic research in this area), could

induce human error and prevented us from having a larger sample, due to time constraints. Our focus on the 100 largest M&A deals could overlook nuances from smaller deals or different sectors. The short-term analysis omits the longer-term impacts of these deals, providing a somewhat limited view.

In summation, this research provides a meaningful contribution to the ongoing discourse around executive compensation and corporate performance. Our study highlights the potential for executive compensation structure to serve as a proxy for company strategy and risk tolerance, thereby influencing investor perception and company valuation (Murphy, 1999). Hence, it represents an important stride in the understanding of these issues, poised to inform both theory and practice in the realms of corporate governance and financial management.

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