

A Work Project, presented as part of the requirements for the Award of a Master's degree in Management from the Nova School of Business and Economics.

The Impact of Executive Substitution on Executive Pay: Internal versus External Hires.

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The Impact of Executive Substitution on Executive Pay: Internal versus External Hires.-The United States market perspective.

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Abstract

This research examines the dynamics of executive pay during turnover events in four different regions. It explores executive compensation practices in France, Germany, the United Kingdom, and the United States. By distinguishing between internal and external hires, we uncover patterns and implications of compensation adjustments. Our findings reveal inconsistent results for each market, highlighting the effects of different corporate governance practices across regions that have a distinct impact on CEO recruitment and executive compensation. Contrary to the prior literature, we find that compensation levels of CEO successors are not significantly driven by the previous employment relationship in the US, France, and the UK. However, our analysis of German firms shows that internal CEO successors earn significantly more than external ones. By identifying different determinants of CEO succession, the research contributes to the broader discourse on executive compensation and provides actionable insights for boards and stakeholders.

Keywords: Executive Compensation, Turnover Events, Internal Hires, External Hires, Corporate Governance.

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List of abbreviations

ARUG	<i>Act Implementing the Second Shareholders' Rights Directive</i>
CAC.....	<i>Cotation Assistée en Continu</i>
CEO.....	<i>Chief executive officer</i>
DAX	<i>Deutscher Aktienindex</i>
DW	<i>Durbin-Watson</i>
e.g.	<i>For example (Lat: exempli gratia)</i>
EBIT	<i>Earnings before interest and taxes</i>
EBITDA	<i>Earnings before interests, taxes, depreciation and ammortization</i>
EBT	<i>Earnings before taxes</i>
ESG	<i>Environmental, Social and Governance</i>
et al.	<i>And others (Lat: et alia)</i>
FTSE.....	<i>Financial Times Stock Exchange</i>
GDP	<i>Gross domestic product</i>
Ibid	<i>In the same place (Lat: ibidem)</i>
Log	<i>Logarithm</i>
LTIP	<i>Long-term incentive plan</i>
MDAX.....	<i>Midcap-Deutscher Aktienindex</i>
OLS	<i>Ordinary Least Squares</i>
R&D	<i>Research and Development</i>
ROE.....	<i>Return on equity</i>
RSUs.....	<i>Restricted stock units</i>

S&P	<i>Standard and Poor's</i>
TSR.....	<i>Total shareholder return</i>
UK.....	<i>United Kingdom</i>
US.....	<i>United States (of America)</i>
USA.....	<i>United States of America</i>
VIF	<i>Variance inflation factor</i>
VorstAG.....	<i>Act on the Appropriateness of Management Board Remuneration</i>

1. Introduction

The 2008 financial crisis marked an essential moment in the corporate world and the global economy; it not only exposed vulnerabilities in financial systems but also raised profound concerns about excessive executive compensation. Since then, there has been a growing scrutiny of CEO pay. This is particularly relevant in large markets, where compensation packages for top executives are often a subject of heated debate. The disparity between CEO earnings and those of average workers raises questions about fairness, transparency, and the impact on organizational performance. This debate has only recently resurfaced during the Covid 19 crisis and was also driven by the question of the relevance of a CEO. In an era characterized by unprecedented economic challenges and rapid technological advancements, the role of top executives within organizations has assumed great importance. These visionary leaders bear the weighty responsibility of navigating companies through difficult times, making strategic decisions that impact not only the firm's financial health but also the livelihoods of its employees and the wider communities it serves. Consequently, executive compensation exceeds its financial dimension reflecting an organization's values, priorities, and commitment to sustainable growth. Also, the current highly competitive business landscape, where innovation, adaptability, and long-term growth are of maximal importance, gives top-level leadership considerable significance. The substitution of CEOs is therefore a very important event for corporations. Firms have two different paths they can choose when hiring a new CEO, where the new CEO can be promoted from the inside or hired from outside the company. Promoting an internal candidate or recruiting new talent externally is a crucial choice that can profoundly impact an organization's capacity to prosper. Internal promotions recognize long-term commitment being tied to the company's culture and in-house expertise, whereas external hires bring new perspectives and skill sets to tackle contemporary challenges.

This thesis aims to provide a comparative analysis across four distinct regions: the United States of America, France, Germany, and the United Kingdom. We offer a comprehensive perspective on how different variables can influence the compensation of CEO successors. In this context, the observation of potential compensation differences between internal and external hires is the central object of the work. Our study aims to deliver individual analyses for each of the four markets by performing multiple regression analyses, striving to understand the reasons behind the variations in executive compensation models from one market to another. Based on the results of the studies, we can investigate whether region-specific corporate governance standards shape the effect of executive substitution on CEO pay. Therefore, we enhance the existing knowledge of executive substitution impact, while bringing a scope to the analysis, helping future executives, policymakers, and scholars in comprehending the nuanced relationship between executive pay disparities and corporate governance models in global financial markets. Ultimately, our thesis contributes to the ongoing dialogue about responsible corporate leadership in an ever-evolving global business landscape.

The initial part of the paper deals with a summary of the literature on the subject to date. First, chapter 2.1 lays the foundations for the classification of CEO activities in the context of corporate governance. We then take a detailed look at executive board compensation in chapter 2.2, examining the historical development, composition, determinants, and effects of CEO pay. This is followed by an analysis of the relevant literature on CEO turnovers in chapter 2.3, which examines the reasons and explores external and internal succession options. Chapter 2.4 elaborates on region-specific characteristics of CEO turnovers and pay for our four observed markets, before summarizing the results of the relevant literature on specific effects of executive turnovers on CEO pay in chapter 2.5. This forms the basis for the following analysis section. Chapter 3 summarizes the research questions encompassing all analyses. In the following four

chapters, the region-specific analyses are subdivided similarly. Specific research hypotheses are set out in advance and the sample selection is described. This is followed by a descriptive overview of the data sets before the research results are presented. The analysis sections then end with the documentation of the robustness check of the multiple regression models. Chapter 8 contains the discussion of the results, which are evaluated and compared across regions in Chapter 8.1. This is followed by possible implications for science and practice as well as limitations and a research outlook in chapters 8.2 and 8.3.

2. Literature Review

2.1 The Role of the Management within Corporate Governance

In corporate governance, management emerges as a foundation, necessary in implementing governance practices effectively. Peter Drucker (1954) argues that management's essence is in setting objectives, organizing resources, motivating, and engaging with staff, evaluating performance, and nurturing personnel development. These functions are instrumental in directing a corporation toward its strategic goals (Drucker 1954). Management enables the organization to adjust to current conditions, which is critical in leading organizations towards future growth and adaptation. This concept is extensively supported by the rich body of literature on diverse aspects of corporate governance (Ibid).

Corporate governance is the structural framework for attaining a company's objectives, encompassing various management activities. This area includes strategic planning, internal controls, performance assessment, and corporate disclosure (Monks and Minow 2011). Governance structures and principles define the distribution of rights and responsibilities among various corporate stakeholders, setting clear rules and procedures for corporate decision-making. The management's role is to transpose these directives throughout the corporation's value chain (Ibid).

Corporate governance has been a central topic in academic and public discourse, particularly highlighted by financial scandals that exposed significant failures in governance systems. Farinha (2003) notes the term "corporate governance" refers to mechanisms, both internal and external, designed to manage the relationships and interests among stakeholders, especially shareholders and managers. There is a tight, though quite important, limit between corporate performance and financial scandals. This limit can be satisfied by the collaboration of management, the board, and stakeholders (Farinha 2003).

Progressing to the legitimization of shareholder interests, an interesting concept, is the theory of property rights (Jensen and Meckling 1976). In this context, companies are viewed as nexuses of contractual relationships, placing shareholders in a unique ownership position. This perspective is crucial as shareholders, unlike other stakeholders, are protected by contracts and risk diversification, depending on their ability to monitor and influence executive decisions in favor of their interests. Hence, Jensen and Meckling (1976), and Zingales (1998) emphasize the necessity of governance mechanisms that align management actions with shareholder interests. This alignment is very significant when it comes to corporate financial health. Following this idea, management failing to satisfy shareholders' interests, especially in large companies, will most likely be replaced.

Another quite important topic surrounding corporate governance is the principal-agent theory. It provides a framework for understanding the relationship complexities between shareholders and executives (Jensen and Meckling 1976). The theory emphasizes the dynamics where shareholders, as principals, delegate company operations to executives or agents who possess more information about the company's performance. This information asymmetry can lead to moral hazard, with executives potentially exploiting their advantage for personal gain at the expense of shareholder interests (Jensen and Meckling 1976). The composition and dynamics

of corporate boards become critical in this context. Independent directors often benefit firm performance and protect minority shareholders' interests (Naz et al. 2021). However, role duality (CEO and chairperson) can compromise board effectiveness, leading to conflicts of interest and reduced firm performance (Di Vito et al. 2021; Naz et al. 2021). For this reason, management has a very complex role in corporate governance since they must balance their own convictions with shareholders' interests to keep their positions.

Regarding this aspect of corporate governance, the legal environment significantly influences corporate governance practices. Berle and Means (1932) explain the potential conflicts of interest between shareholders and managers due to the separation of ownership and control in modern corporations. The law establishes fiduciary duties, binding managers to act in the corporation's and its shareholders' best interests (Berle and Means 1932).

Enhancing this discussion, the stakeholder theory, introduced by Freeman (1984) and later developed by Donaldson and Preston (1995), proposes a more inclusive approach to business management. It suggests that businesses consider the interests of all parties affected by the company's actions, shifting from the traditional shareholder-centric model (Freeman 1984). The theory argues that stakeholder-focused management can improve corporate performance because the corporation is more inclined to answer its value chain needs and demands (Donaldson and Preston 1995). Clarkson (1995) also suggests that effective stakeholder management can grant a sustainable competitive advantage, with the firm building strong links with its stakeholders. This enables the firm to achieve sustainable performance within good and bad economic conditions (Clarkson 1995). This theory influenced the corporate governance model, aiming for ethical business practices and sustainable development. It enables management and corporate governance to align their interests through a larger scope.

Before moving on to the next part of the discussion, it is essential to summarize the key points of this review. First, considering executive substitution's impact on executive pay, these theoretical perspectives underscore the crucial role of corporate governance in mitigating conflicts of interest. We understood that effective governance mechanisms, such as independent boards and appropriate legal frameworks, are crucial in aligning executive actions with shareholder interests. Also, the design of executive compensation structures must also address moral hazard risks, ensuring executive incentives align with long-term shareholder value creation. This comprehensive approach to governance surrounding legal, managerial, and board dynamics, is important to create an environment where corporate objectives align with shareholder aspiration.

2.2. Executive compensation

2.2.1 CEO compensation over time

The evolution of CEO compensation reflects broader economic and societal changes. In the early 20th century, CEOs were often compensated modestly compared to today's standards. Frydman and Saks (2010) provide a long-term perspective, showing how the composition and size of CEO pay have changed since the 1930s. Their study reveals that, while the 1970s saw relatively stable CEO compensation, the 1980s marked the beginning of a steep upward trend, which was caused by a significant paradigm shift. This steep ascent in executive pay can be largely attributed to a paradigmatic shift towards shareholder value maximization, which became the predominant corporate objective, as emphasized by Murphy (2012). This transition not only reflected a transformation in the underlying principles of corporate strategy but also substantially revamped the frameworks for executive compensation to be more closely tied to company performance, especially with incentives linked to stock options.

Over the past few decades, CEO compensation has consistently outpaced the wage increases of the average worker., a trend that has drawn significant public and academic attention. Piketty and Saez (2003) document this growing disparity, noting that by the early 21st century, CEO compensation had reached unprecedented multiples of the average worker's salary. According to Bivens and Kandra (2022), CEO pay based on realized pay increased by 1,460% between 1978 and 2021, far outpacing the rise of the S&P stock market (1,063%) and the top 0.1% earnings growth (385%). By comparison, the average worker's compensation increased by a mere 18.1% between 1978 and 2021.

The differences caused by this pay gap are manifold. It not only shapes perceptions of fairness and equity within the economic landscape but also fuels the broader discourse on wealth distribution, corporate responsibility, and the societal role of business leadership. This growing gap between CEO compensation and the wages of the average worker has sparked debates about income inequality and social justice, highlighting the need for policy interventions and corporate governance reforms. Additionally, it has raised questions about the ethical and moral dimensions of executive compensation, as well as the responsibilities of companies to their employees and the communities they operate in.

2.2.2 Main components of CEO compensation

Frydman and Jenter (2010) identify the following five compensation components as the most common across firms: salary, annual bonus, payouts from long-term incentive plans, restricted option grants, and restricted stock grants. These components are complemented by pension plans, various perquisites, and severance payments in case of the departure of CEOs.

The base salary is the most straightforward component of CEO compensation. However, as noted by Jensen and Murphy (1990), bonuses, both in cash and stock options, often constitute a larger proportion of the total compensation package. These bonuses serve as powerful

incentives, motivating CEOs to focus on short-term performance indicators, such as annual profits or share price increases. This emphasis on short-term goals can lead to a potential misalignment between immediate financial outcomes and the long-term sustainability and growth of the company.

Long-term incentives, mainly in the form of stock options and restricted stock, are intended to align the CEO's interests with those of the shareholders. This is emphasized by the Agency Theory, arguing that compensation packages should be designed to incentivize CEOs to act in the best interests of shareholders, thereby mitigating the principal-agent problem. Hall and Liebman (1998) discuss how these incentives are designed to encourage CEOs to focus on long-term value creation.

Beyond salary and incentives, CEOs often receive substantial benefits and perquisites. Yermack (2006) brings attention to these supplementary components, which extend beyond basic retirement and insurance plans to more lavish conveniences like the use of corporate jets and elite club memberships. These benefits, while less transparent in terms of their monetary value, form a significant portion of the total compensation package. Yermack's analysis underscores the need for a more holistic consideration of CEO pay, acknowledging that these non-salary benefits may also influence executive behavior and company outcomes, often operating outside the scope of traditional performance metrics.

Apart from the facets of financial incentives and perks, it is important to recognize that CEO compensation is significantly shaped by the framework of corporate governance and the legal landscape. Berle and Means (1932) shed light on the inherent conflicts of interest that can emerge as a result of the division between ownership and control within contemporary corporations. This disconnect has the potential to create tensions and misalignments between the shareholders and the managerial leadership. To address these challenges, regulatory

mechanisms have been put in place, such as the Sarbanes-Oxley Act of 2002 in the United States. This legislative act was instituted with the aim of imposing more stringent standards and requirements on corporations, thereby fostering enhanced adherence to compliance, transparency, and accountability principles.

2.2.3 Determinants of CEO Compensation

The determination of CEO compensation is a multifaceted process influenced by various theories, each offering a different perspective on why and how CEO pay is structured and awarded. These theories provide insights into the complex interplay of power dynamics, market forces, organizational needs, and individual traits that shape CEO compensation. Compensation theory, which encompasses various models including tournament theory and social comparison, suggests that CEO pay is influenced by internal and external labor market dynamics, firm-specific characteristics, and individual CEO traits. The tournament theory views CEO pay as a prize in a competition, where executives are incentivized to outperform their peers to move up the corporate ladder, as described by Connelly et al. (2013). Modern executive compensation theories, as discussed by Edmans and Gabaix (2015), align with observed practices and suggest that executive pay does not need to be inefficient. O'Reilly, Main, and Crystal (1988) highlighted the strong association between CEO compensation levels and the remuneration of outside board members, suggesting that internal organizational structures and external market comparisons play a significant role in determining pay. Gabaix and Landier (2006) argue that the increase in CEO pay is a result of the increased market capitalization of large U.S. companies, suggesting that market forces are at play, with CEO pay reflecting the competitive market for executive talent.

On the other hand, the Managerial Power Theory, as proposed by Bebchuk and Fried (2004), suggests that CEO compensation often reflects the influence and negotiating power of CEOs

over boards, rather than market or performance factors. As a result, CEOs often influence the structure of their compensation packages, frequently at the expense of shareholder interests. Van Essen, Otten and Carberry (2015) found evidence supporting this theory, showing higher CEO compensation levels when CEOs have greater power over the pay settings. Laan (2010) provided support for the Managerial Power theory by demonstrating variations in CEO compensation based on nationality, suggesting that managerial power can influence pay. Tosi et al. (2000) on the other hand defend the competitive pay model, suggesting that high compensation is necessary to attract and retain the best executive talent. Conversely, rent extraction, as discussed by Bebchuk, Grinstein, and Peyer (2010), posits that CEOs may exploit their positions to secure compensation that exceeds their marginal contribution to the firm, often as a result of weak corporate governance structures.

2.2.4 Impact of CEO Compensation

The relationship between CEO compensation and its impact on various aspects of corporate dynamics is a complex subject. This sub-chapter aims to dissect the interrelations between CEO compensation and company performance, firm value, and other corporate factors by analyzing theoretical viewpoints and empirical findings.

The influence of CEO compensation on company performance has been a focal point of research. As mentioned before in the research, optimal contracting theories, as explored by Edmans and Gabaix (2009), suggest that CEO compensation structures are crafted to align the interests of CEOs with shareholders, incentivizing performance while considering risk and market conditions. Murphy (1985) supports this perspective with empirical analysis, finding a strong positive correlation between executive compensation and corporate performance. Conversely, Bertrand and Mullainathan (2001) find little evidence to support this link, presenting a contrasting viewpoint. Similarly, Core, Holthausen, and Larcker (1999) present a

contrasting view, noting that excessive CEO compensation in poorly governed firms negatively impacts performance. Hall and Liebman (1998) underscore the significant pay-performance sensitivity, indicating that effective compensation is reflective of firm value. Furthermore, Al-Shammari (2021) emphasizes the behavioral aspect, positing that CEO compensation impacts firm performance directly through CEO behavior, such as risk-taking. Smirnova and Zavertiaeva (2017) contribute to this discussion by highlighting the importance of accounting-based measures in CEO compensation, relative to firm performance.

The link between CEO compensation and firm value is equally critical. Studies like those by Luo, Liang, and Wieseke (2013) demonstrate that CEO base pay positively affects customer satisfaction, which in turn mediates the relationship between CEO pay and firm value. Vieito (2012) provides an interesting gender-based perspective, showing that female-led firms tend to have smaller compensation gaps and achieve higher performance, suggesting that gender dynamics influence compensation structures and outcomes.

Davis, DeBode, and Ketchen (2013) argue that boards can maximize CEO performance and enhance firm value by creating strong incentives, benchmarking performance, and addressing CEOs' equity feelings. The work of Fahlenbrach (2009) underlines the role of compensation contracts in aligning shareholder interests with the CEOs in firms with weaker governance, impacting the firm's market valuation.

2.3 Executive substitution

2.3.1 Reasons for CEO turnovers

CEO turnovers represent critical junctures in a corporation's lifecycle, driven by a complex interplay of factors. Empirical research has diligently sought to discern the driving forces behind CEO turnovers. For instance, Hambrick and Fukutomi (1991) conducted a seminal

study, revealing a robust correlation between firm performance and CEO turnover. Their findings suggest that CEO turnovers are not merely reactionary measures but are often part of a broader strategic recalibration by the board. This reorientation might stem from a necessity for new leadership skills adept at handling evolving market scenarios or aligning the company with upcoming trends in the industry. Their research also illuminates the performance benchmarks that usually trigger these changes in leadership, providing a deeper understanding of the interplay between firm performance and CEO turnover.

Similarly, Kaplan and Minton (2006) also explored the impact of financial distress on CEO turnovers, asserting that organizations facing financial difficulties may strategically opt for CEO replacements to address these challenges. Their research accentuates the pivotal role of a company's financial health in shaping CEO turnover decisions. Weisbach (1988) further explored this by emphasizing the significance of board composition in CEO turnovers. His study highlighted that boards comprising a higher proportion of outside directors exhibit a greater inclination to replace CEOs. This insight prompts critical inquiries into the influence of board dynamics and governance structures on the CEO turnover process.

According to Agency theory proposed by Jensen and Meckling (1976), conflicts of interest between shareholders and executives are significant factors potentially triggering CEO turnovers. However, Mehran and Yermack (1997) introduced a compelling perspective, revealing an inverse correlation between the likelihood of CEO turnover and the degree to which a CEO's compensation exceeds expected norms. Their findings suggest that exceptionally high compensation might decrease the likelihood of turnover, potentially signaling either the CEO's exceptional performance, their negotiation prowess, or the board's perception of their value. This revelation suggests that executive compensation plays a multifaceted role in shaping CEO turnover decisions.

In contrast, stewardship theory, championed by Donaldson and Davis (1991), emphasizes CEOs aligning their interests with shareholders'. It suggests CEOs act as stewards, prioritizing shareholders' long-term welfare over personal gain. Bushman, Dai, and Wang (2010) ventured into the realm of risk and CEO turnovers, revealing that idiosyncratic risk augments turnover, while systematic risk exerts a dampening effect. This intricate risk-related dynamic, as discussed by Bushman, Dai, and Wang, underscores the complex interplay between risk factors, CEO turnover, and executive compensation.

Trojanowski and Renneboog (2002) argue that CEO turnovers serve as disciplinary mechanisms, particularly for addressing corporate underperformance. Their research underscores the dual role of executive pay in both motivating performance and addressing underperformance. They argue that the threat of CEO replacement in cases of underperformance acts as a stern reminder to both current and future executives about the serious implications of not meeting performance benchmarks. This aspect of executive turnover is intricately tied to the structure of CEO compensation packages, which are often heavily contingent upon performance-related incentives.

In exploring the various triggers for CEO turnovers, the impact of legal challenges faced by a company stands out as a critical factor. Collins, Reitenga, and Sánchez (2008) conducted a thorough analysis, revealing a heightened probability of CEO turnover amidst class action lawsuits. Their extensive study extends beyond simply indicating an increased likelihood of CEO turnover due to legal matters. For CEOs embroiled in legal disputes, the consequences are not confined to the immediate outcomes of litigation, such as restatements following class action lawsuits. Instead, they expose a broader spectrum of repercussions, where CEOs might face punitive actions in their compensation structures because of these legal complications. This observation by Collins, Reitenga, and Sánchez (2008) emphasizes the seriousness with which

legal factors are regarded in the corporate world, especially in their influence on high-stakes decisions like executive turnover.

Finally, the research by Hartzell (1998) illuminates a significant correlation: the increased probability of forced CEO turnovers tends to weaken the relationship between changes in CEO compensation and firm performance. This finding suggests that when a CEO's departure is imminent, particularly under coercive circumstances, the decision-making process surrounding executive compensation becomes more complex and less straightforward. It indicates that in scenarios where a CEO is likely to be replaced, the typical patterns of compensation adjustments in response to firm performance metrics may not hold. This could be due to a shift in focus from performance-based incentives to considerations around transition and succession planning.

These empirical studies collectively underscore the multifaceted nature of CEO turnovers, showing how performance-related factors significantly influence these events. At the same time, they recognize that the specifics of CEO turnovers can vary substantially based on organizational circumstances and governance arrangements.

2.3.2 Internal versus External CEO successors

The selection of a Chief Executive Officer represents a crucial decision for any organization, with far-reaching implications for its performance and future trajectory. A fundamental aspect of this decision-making process is the choice between internal and external CEO successors. CEO succession, as a transformative event in corporate leadership, has attracted substantial attention from scholars and practitioners alike. It encompasses the identification, evaluation, and appointment of a successor to lead the organization (Dalton et al. 2003). Central to this process is the choice between promoting an internal candidate, typically from within the organization's ranks, or hiring an external candidate from outside the firm.

One prevalent argument in favor of internal CEO successors lies in their familiarity with the organization's culture, operations, and industry. They often possess an in-depth understanding of the company's history, values, and objectives (Bertrand et al. 2002). This familiarity can facilitate a smoother transition, minimize disruptions, and maintain organizational continuity. Furthermore, internal successors have established relationships with key stakeholders, including employees, board members, and shareholders.

The research by Keasy and Wright (1999), suggests that these connections are typically nurtured over an extended period and stand as valuable assets for a CEO. On the contrary, external CEO successors bring a fresh perspective to the organization, potentially introducing innovative ideas and strategies. They are not bound by the company's past practices and can challenge the status quo (Keasy and Wright, 1999). The appointment of an external CEO can serve as a governance mechanism to mitigate agency problems, as the newcomer is less entangled in existing power dynamics and potential conflicts of interest (Dalton et al. 2007). Their lack of prior involvement in the company's internal affairs minimizes biases and preconceptions that may cloud decision-making (Lipton and Lorsch, 1992).

This objectivity can foster a more transparent and accountable governance structure. The appointment of an external CEO can be perceived as a tangible commitment to aligning leadership with shareholder interests (Donaldson and Davis, 1991). This alignment is especially crucial in environments where there is skepticism about the organization's internal leadership pool (Bushman et al., 2010). The choice between internal and external CEO successors is influenced by many factors. These include the firm's specific circumstances, the industry context, the board's composition, corporate governance practices, and the organization's performance (Hermalin and Weisbach, 1998). The S&P 500 adds another layer of complexity to the study of CEO turnovers.

The appointment of an external CEO can be perceived as a tangible commitment to aligning leadership with shareholder interests (Donaldson and Davis, 1991). This alignment is especially crucial in environments where there is skepticism about the organization's internal leadership pool (Bushman et al. 2010). Moreover, the decision to opt for either an internal or external CEO successor is shaped by a multitude of factors, as indicated by Hermalin and Weisbach (1998). These factors encompass the specific circumstances of the firm, the broader industry context, the composition and the dynamics of the board, prevailing corporate governance norms, and the overall performance of the organization. This decision is not merely about choosing a leader; it reflects a strategic response to the firm's current state and its aspirations for future growth. It involves a careful consideration of the potential impacts on stakeholder relations, company culture, and long-term strategic goals.

This complexity in CEO succession is mirrored in the diverse governance models and regulatory frameworks across the various global markets examined in this study. This variance leads to distinct patterns in CEO transitions, highlighting the multifaceted nature of corporate leadership changes.

2.4 Executive Compensation and Turnovers in the observed markets

2.4.1 USA

Since the mid-1990s, the compensation landscape for Chief Executive Officers in the largest US firms has experienced a notable transformation, marked by a significant increase compared to the earnings of previous decades. This increase in remuneration does not correspond with a rise in the value of skills or contributions to firms' productivity.

The notable shift over time lies in the CEOs exercising their influence to autonomously determine their compensation. From an economic standpoint, this trend implies that CEO pay often includes significant “rents”- income that surpasses the level justified by genuine productivity (Bivens and Kandra, 2023). Between 1978 and 2020, top CEO compensation outpaced stock market growth by approximately 60%, far exceeding the modest 18% increase in the average worker's annual compensation, with CEO granted compensation surging by an impressive 970.2% during this timeframe (Mishel and Kandra, 2021). Also, the structure of CEO compensation has been transforming, moving from a reliance on stock options to a greater use of stock awards. In 2006, stock options accounted for just over 70% of the stock-related component in realized CEO compensation. By 2022, this figure had declined to only 34%, with vested stock awards making up the remainder portion (Bivens and Kandra, 2023). In 2020, the combined value of vested stock awards and stock options reached \$20.1 million, constituting a substantial 83.1% of the average realized CEO compensation (Mishel and Kandra, 2021).

While we pay great attention to the changes in CEO compensation, it is essential to look at the trend of CEO turnover as it is one crucial element influencing the corporate landscape. From 1992 to 2005, CEO turnover stood at 14.9%, suggesting an average CEO tenure of less than seven years. In the more recent period since 1998, the overall CEO turnover rate has risen to 16.5%, indicating an average CEO tenure of slightly over six years (Kaplan and Minton, 2006).

In 2022, the frequency of CEO transitions closely resembled that observed in the pre-pandemic era, indicating a semblance of a return to regular patterns at the helm of S&P 500 companies. Following two consecutive years marked by many CEOs prolonging their tenure to navigate through global uncertainties, the tenure and departure ages of CEOs in 2022 exceeded the customary benchmarks (Spencer Stuart, 2023). Throughout 2022, boards of the S&P 500 companies exhibited a consistent preference for internal candidates in the appointment of new CEOs, with internal promotions accounting for 82% of all transitions, a proportion not seen since 2016. Remarkably, even amid the challenges posed by the pandemic in preceding years, this 80/20 split in favor of internal appointments remained remarkably stable (Ibid).

To sum up, considering the transformative shifts in CEO turnover and compensation dynamics, it seems unlikely that the pre-2020 'normal' will fully reestablish itself. Therefore, it is crucial for boards to adeptly navigate these changes, underlining the critical role of CEOs in adapting to evolving business landscape.

2.5 Effects of CEO turnovers on executive compensation

In the ever-evolving realm of corporate governance, the departure of a CEO signifies a critical juncture in the life of an organization. CEO turnovers, whether initiated by retirements, resignations, or strategic decisions, set off a series of repercussions within the intricate web of a leadership, strategy and organizational dynamics. A particularly intriguing aspect of this interplay is the examination of how CEO turnovers impact executive compensation, a crucial element of firms' human capital strategy for attracting and retaining talent (Jensen and Murphy, 1990).

Recent research by Chulkov and Barron (2022) has illuminated a noteworthy aspect of the interconnection between CEO turnovers and executive compensation. Their findings indicate that the foreseen occurrence of CEO turnover heightens the responsiveness of the current CEO's compensation to the present performance of the firm. Dechow and Sloan (1991) discovered that CEOs tend to decrease discretionary R&D expenditures as they approach departure from the firm, aiming to enhance short-term performance. However, the impact of this tendency is alleviated when CEOs have substantial stock ownership in the company.

Baber, Kang, and Kumar (1998) highlight an intensified association between accounting earnings and cash compensation in proximity to CEO retirement. Cheng (2004) notes the efficacy of option grants in counteracting the tendency of myopic reduction in R&D activities as CEOs approach retirement. Conversely, Guay, Kepler and Tsui (2019) discover an increase in bonus pay with executive tenure but do not observe a corresponding heightened sensitivity of bonus payouts to the financial performance of firms as CEOs approach retirement.

Chulkov and Barron (2022) introduce a principal-agent model that outlines circumstances in which a reduction in the anticipated likelihood of future employment leads to enhanced optimal sensitivity of bonus pay to performance. This effect is particularly pronounced when the CEO's

efforts exert persistent influences on firm performance. According to their model, an escalation in the firm's expectations of CEO turnover diminishes the efficacy of future incentives in promoting the simultaneous effort of the CEO. This allows the companies in general to provide better incentives based on the CEO's current performance. Edmans et al. (2012) demonstrate that with a prolonged CEO tenure, the remaining time for the CEO to derive lifetime utility diminishes. Consequently, a more substantial increase in compensation is required to effectively encourage the CEO's effort.

Research on new CEOs' experiences shows that those replacing forced-out predecessors often receive similar compensation packages. In contrast, successors of voluntarily departed CEOs typically receive higher pay than their predecessors (Graefe-Anderson, 2014). Additionally, if incoming CEOs have prior experience as CEO and/or chair, they are more likely to assume board chair roles sooner, attain greater centrality within the board, and maintain chair positions for longer durations (Horner and Valenti, 2012). Gender plays a role as well, with female CEOs, under similar circumstances, receiving higher severance packages- an outcome attributed to perceived increased vulnerability to termination (Klein et al, 2019). Moreover, Hutzschenreuter et al. (2018) proposed that new CEOs seek to distinguish themselves from their predecessors.

Their study on German firms found that when new CEOs and their predecessors exhibit similarities, the likelihood of divesting organizational units increases. While previous studies highlighted negative labor market outcomes for dismissed CEOs, Schepker and Barker (2018) discovered that dismissed CEOs face less stigma if they possess diverse elements of human and social capital. Prior research relates firm performance to compensation structure and to changes in firm performance surrounding executive turnover. For instance, Mehran (1995) identifies a positive correlation between firm performance and the portion of a manager's compensation linked to equity. Analyzing CEO turnovers spanning 1985 to 1988, Denis and Denis (1995)

observe a notable increase in industry-adjusted operating income in the years subsequent to CEO replacement. Notably, they discern substantial differences in this effect when comparing forced resignations and normal retirements. Forced resignations are marked by significant enhancements in operating income after turnover, while the sample of normal retirements demonstrates only marginal post-turnover improvements in operating income.

Additionally, Huson et al. (2004) finds that firms hiring CEOs from outside the organization tend to experience post-turnover performance improvements. Blackwell, Dudney, and Farrel (2007) discovered that CEOs who step into their roles following both forced and voluntary turnover receive notably higher proportions of new stock and option grants as a part of their total compensation compared to their predecessors. Their research also establishes a positive correlation between the percentage of compensation allocated as new stock grants for the incoming CEO and the subsequent performance of the firm. Additionally, the study revealed that an increase in the new stock grants for the incoming CEO relative to the outgoing CEO corresponds with a subsequent rise in operating income after the turnover event. Chakraborty, Sheikh and Subramanian (2009) conclude that there is a positive relationship between CEO compensation incentives and performance related turnover. This phenomenon suggests that firms implementing robust incentives may be more inclined to terminate their CEOs following poor performance, particularly when CEOs are not entrenched.

3. Research Questions and Hypothesis

The purpose of this work is to gain a comprehensive understanding of CEO compensation and its determinants across various global markets, with a particular focus on the four markets mentioned before. By examining factors such as company size, CEO experience, company performance, and the rules and regulations in each country, we aim to deepen our understanding of executive pay. Through this study, we seek not only to enrich our understanding of executive

compensation but also to address several questions related to the dynamics of CEO pay in diverse market environments, such as the following ones:

- *Is the compensation of newly hired CEOs determined by external drivers?*
- *Is the compensation of newly hired CEOs determined by internal drivers?*

Our analysis begins with a detailed examination of how CEO compensation is influenced, starting with the impact of external variables like GDP growth. We consider whether broader economic conditions might significantly dictate compensation trends, drawing on insights from Frydman and Jenter (2010) about the influence of external market forces on executive pay structures. In parallel, the study explores internal factors specific to each company. These internal variables include elements such as company performance metrics and organizational structure, which are hypothesized to have a distinct and significant influence on CEO compensation, independent of external economic conditions.

Hypothesis 1: *CEOs hired externally will receive higher compensation than those promoted internally.*

We further examine the relationship between a CEO's prior experience and their compensation, drawing on insights from Murphy and Zábojník (2004). This aspect of the study probes whether experience in similar roles is reflected in higher compensation packages. Extant literature suggests that CEOs with previous experience in similar roles tend to receive higher compensation compared to their less experienced counterparts. This study aims to investigate this linkage further, assessing whether prior experience equates to higher remuneration due to an inherent valuation of seasoned expertise in the market.

Hypothesis 2: *CEOs with prior experience in similar roles will receive higher compensation compared to those lacking such experience.*

In addition, our second hypothesis scrutinizes the impact of the source of hiring—internal versus external—on the structure of compensation. Guided by Bidwell's (2011) findings, which highlight that external hiring can bring new capabilities and ideas to an organization, potentially enhancing its performance, we anticipate that externally hired CEOs might receive higher compensation.

Hypothesis 3: *It is anticipated that firms selecting external hires for their CEOs will demonstrate superior performance, and correspondingly, these high-performing firms are expected to provide more substantial equity compensation to their chief executive officers.*

The third hypothesis explores the connection between firm performance and compensation strategy, particularly regarding equity-based compensation. Supported by Hall and Liebman (1998), we hypothesize that better-performing firms may offer more substantial equity compensation to align CEO and shareholder interests. Additionally, we investigate if firms preferring external hires exhibit enhanced performance, potentially due to the introduction of new skills and perspectives, based on findings by Zhang and Nagarajan (2010).

4. Quantitative analysis of CEO successor compensation determinants in the S&P 500 companies

4.1. Specific Research Questions

The investigation into CEO Compensation in the S&P 500 companies addresses unique aspects that shape the complex landscape of executive remuneration. Through these delineated questions, the study seeks to unveil intricate connections between internal promotions, CEO age, and company CEO tenure and their influence on executive compensation within this corporate context.

To investigate the relationship between internal promotions and CEO compensation, the specific question we focus on is: “Does CEO compensation demonstrate a significant difference between those promoted internally and those hired externally within selected S&P 500 companies?” This question aims to uncover whether there is a discernible distinction in compensation levels based on the origin of CEO appointments. A challenge accompanies the shift toward recruiting CEOs from outside the organization: firms possess comparatively less information about external candidates than their internal counterparts. In response, the study demonstrates that the increase in the hiring of CEOs externally will be accompanied by increased use of equity in compensation packages and, consequently, CEO pay (Palomino and Peyrache, 2013).

Concerning hypothesis 2, the specific question guiding the investigation is: “Do former CEOs receive higher compensation compared to those who have never held the position of CEO before.” This inquiry stems from the perception that prior CEO experience contributes significantly to executive leadership and decision-making, potentially justifying higher compensation. Newly appointed CEOs with previous experience as chief executives receive

higher initial total compensation compared to their counterparts without such prior experience (Nathan A. Bragaw and Vilmos F. Misangy, 2017).

To delve into the association between CEO tenure and compensation, a key question is: “Is CEO compensation positively correlated with tenure, particularly with ten or more years of service, within the selected S&P 500 companies?”. This question forms the basis for understanding the potential link between the length of CEO service and their compensation, exploring whether long-term strategic leadership and sustained corporate performance contribute to variations in pay. The extended duration allows CEOs to intricately align their compensation packages with personal preferences, potentially circumvent established monitoring, and align incentives over time. The consistent directional relationship suggests that as CEOs accumulate tenure, they may bolster their positions relative to stockholders (Charles W. L. Hill and Phillip Phan, 1991).

Lastly, “Does CEO compensation demonstrate a significant correlation with the total size of a company, as measured by its total assets in millions, within the selected S&P 500 companies?”. This question aims to investigate whether there is a discernible relationship between the total assets (firm size) of a company and the compensation levels of its CEO within the context of the S&P 500. Regardless of the metric employed to quantify company size, be it assets, market value, sales revenue, or the number of employees, a consistent trend emerges where larger firms exhibit a pronounced propensity to remunerate their executives significantly higher than their smaller counterparts (Hallock, 2011).

Hypothesis 1: CEOs promoted internally receive higher compensation than those hired externally in the selected S&P 500 companies, reflecting the belief that internal candidates possess firm-specific knowledge, cultural understanding, and a track record of success within the organization.

Hypothesis 2: CEOs with previous experience as chief executive officer within the selected S&P 500 companies receive higher compensation compared to their counterparts who have never held the position of CEO before.

Hypothesis 3: CEOs with a tenure of 10 plus years receive higher compensation compared to those with shorter terms in the selected S&P 500 companies as a reward for long-term strategic leadership and sustained corporate performance.

Hypothesis 4: There is a significant relationship between firm size represented by total assets in millions and CEO compensation in the selected S&P 500.

4.2. Sample selection

A systematic approach was employed to select a diverse and comprehensive sample of 40 firms from the S&P 500 index. We decided to use the S&P 500 as a representation of the U.S. market. As the 500 largest publicly traded companies listed on the American stock exchanges, the S&P 500 represents a diverse array of industries and sectors, providing a holistic snapshot of the nation's economic landscape. Its broad inclusion ensures a representative cross-section of the U.S. market, encompassing major players from technology, finance, healthcare, and other vital sectors.

The sample was strategically drawn from eight distinct sectors, each representing a vital segment of the economy: Technology, Industrials, Consumer Staples, Energy, Financials, Healthcare, Utilities, and Communication Services. Firms were chosen through a random sampling process to ensure the randomness and impartiality of the selection process. By navigating through a website with all the 500 firms, the selection was made on a page-by-page basis. The number of firms chosen per page varied organically, ranging from 2 to 5 companies, reflecting the inherent randomness of the sampling process. This approach aimed to introduce

an element of unpredictability, reducing the potential for selection bias and enhancing the representativeness of the final sample. Furthermore, the use of the S&P 500 index as the sampling frame ensures that the selected firms collectively represent a substantial portion of the U.S. stock market, thus enhancing the external validity of the findings. The S&P 500, being a market-capitalization-weighted index, reflects the performance of large-cap companies and is widely regarded as a reliable benchmark for the U.S. equity market.

This study relies on a diverse and comprehensive dataset sourced from reputable platforms, including Bloomberg, annual reports, SEC Filings, and Yahoo Finance. The dataset is thoughtfully curated to encompass key variables crucial for gaining insights into executive leadership, corporate performance, and market dynamics. Within the category of CEO attributes, the dataset distinguishes between internal and external CEOs, shedding light on whether leadership transition occurred from within the company or through external recruitment. Additionally, a variable indicates whether the current CEO held a CEO position before, providing valuable historical context to executive leadership trajectories. Regarding financial metrics, EBITDA margin offers insights into the company's operational profitability. The executive compensation section is enriched with variables such as stock compensation as a percentage of the total, illuminating the reliance on stock options in the CEO's compensation package. Another variable captures non-equity compensation in the fiscal year following the CEO's arrival, providing insights into the immediate financial incentives aligned with the CEO's induction. The company's characteristics are detailed by including firm size, measured by total assets and sector identification through dummy variables for financial, energy, and consumer staples sectors. Demographic factors related to the CEO include age, gender, and CEO tenure, each represented by dummy variables. The "age" variable, for instance, distinguishes whether the CEO is above 60, contributing insights into the age dynamics of

executive leadership. The dataset is further enriched by assessing market performance through the percentage annual stock change, indicating the company's stock value fluctuation over the most recent fiscal year.

4.3. Results

4.3.1 Descriptive Statistics

In the context of executive compensation, a thorough examination of various factors provides nuanced perspectives on the complex dynamics in motion. A scrutiny of the CEO compensation last year reveals a notable average annual payout of \$17.1 million, with a median resting at \$16 million. The dispersion is evident, ranging from a minimum of \$4.55 million to a maximum of \$53.2 million.

Shifting attention to the percentage of annual change in compensation, the average of 3.05% and a median of -3.65% underscore the inherent fluctuations in stock performance. The broad standard deviation of 30.4% encapsulates the diversity within the dataset, with changes that range from a minimum decrease of 48% to a maximum increase of 86.6%. Equity compensation as a percentage of cash compensation illuminates the composition of CEO pay structures. The mean allocation of 66.63% to equity, with a median of 70.50%, reveals a spectrum from a minimum of 0% to a maximum of 89%, emphasizing the inherent variability in compensation strategies. An examination of stock compensation as a percentage of total compensation adds another layer to the narrative, with a mean of 46.92% and a median of 47.80%. The standard deviation of 23.6% indicates diverse configurations, spanning from a minimum of 0% to a maximum of 84.1%. Turning to non-equity incentive compensation, the average of the component stands at \$2.56 million, with a median of \$2.71 million. This variable showcases a range from \$0 to \$7.39 million, exemplifying the breadth of compensation structures.

Delving into the growth of CEO Compensation, the dataset showcases a mean growth of 30.31%, emphasizing the varied trajectories of executive pay. Looking at the financial indicators in the provided dataset, the EBITDA margin exhibits a mean of 0.3136. This suggests a relatively stable and consistent performance across the sampled companies. The standard deviation of 0.157 indicates moderate variability, signifying that while many companies maintain a consistent EBITDA margin, there are others with more substantial fluctuations in their operational profitability. Firm size, gauged by total assets, paints a picture of a total of substantial variability. With a mean of \$302,503.70 million and a median of \$104,730.50 million, the data set spans from \$13,083 million to \$3,868,249 million, underscoring the diversity within the corporate landscape. CEO Tenure, encoded as 0 for less than ten years and 1 for ten years or more, showcases an average tenure of 0.225, suggesting that, on average, CEOs have a duration exceeding ten years. The standard deviation of 0.423 signals variability in leadership duration. The binary variable Gender, with a mean of 0.05, indicates a predominantly male sample, while the standard deviation of 0.221 reflects some diversity in gender representation among CEOs. Consumer staples/no consumer staples, Energy/ no Energy, and Financial/ Non-Financial, all binary variables, unveil industry classifications with means of 0.125, pointing to a limited presence in the dataset. Age, coded as 0 for less than 60 years and 1 for 60 years or older, yields an average age of 0.475, suggesting CEOs are slightly older than 60 on average. The standard deviation of 0.506 underscores variability in CEO age. The binary variable Internal / External, denoting CEO promotion origin, has a mean of 0.25, indicating a preference toward internal hires over external appointments. This is evident in the dataset, where 30 instances are attributed to internal CEOs compared to 10 instances of external CEOs. Lastly, Former CEO, another binary variable, with a mean of 0.425, points to a moderate presence of CEOs with previous CEO experience in the dataset.

4.3.2. Main results

In the following analysis, we delve into the main results derived from a comprehensive regression study examining the determinants of CEO Compensation for the last fiscal year. Our focus will be on key findings, particularly emphasizing variables with low p-values, to uncover the statistically significant factors shaping CEO Compensation. To form a regression equation based on the coefficients in the table 2, we use the formula:

$$\text{CEO Compensation} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + \varepsilon$$

Where: CEO Compensation is the dependent variable, β_0 is the intercept, $\beta_1, \beta_2, \dots, \beta_{15}$ are the coefficients of the independent variables $X_1, X_2, \dots, X_{15}$ and ε is the error term. The % of annual change (β_1), non-equity incentive compensation as % of cash compensation (β_2), stock compensation as % of total compensation (β_3), Non-equity incentive compensation (β_4), Firm size (Total Assets) (β_5), CEO Tenure (β_6), Gender (β_7), Consumer staples or non-Consumer staples (β_8), Energy or non-Energy (β_9), Financial or Non-Financial (β_{10}), Age (60 or 60+) (β_{11}), Internal or External (β_{12}), Former CEO (β_{13}), EBITDA margin (β_{14}), Compensation Growth (β_{15}).

Table 1: Model Fit measures of S&P 500 incoming CEOs compensation levels.

Model Fit measures							
Model	R	R ²	Adjusted R ²	Overall Model Test			
				F	df1	df2	p
1	0.768	0.590	0.334	2.30	15	24	0.033

Starting with the global model evaluation that provides a comprehensive view of the overall model performance. The R² value of 0.59 indicates that approximately 59% of the variability

in CEO Compensation is explained by the included predictor variables. The F-statistic, with a p-value of 0.033, attests to the overall statistical significance of the model, reinforcing the collective impact of the predictors.

Table 2: Regression Results of S&P 500 incoming CEOs compensation levels.

Model Coefficients - Y=Total Compensation

Predictor	Estimate	SE	t	p
Intercept	19 600 000	10500000,00	1,864	0,075
% annual change	8 610 000	9670000	0,89	0,382
Non-equity incentive compensation as % of cash compensation	1 380 000	10300000	0,134	0,894
Stock compensation as % of total	-0,000000105	8820000	-1,195	0,244
Non-equity compensation	-0,249	1,15	-0,217	0,83
Firm size (Total assets in millions)	5,126	2,44	2,105	0,046
CEO Tenure (10 or 10+ years)				
1 – 0	-0,000000159	4620000	-3,441	0,002
Gender				
1 – 0	20 600 000	8100000	2,542	0,018
Consumer staples/ non Consumer staples				
1 – 0	3 240 000	4530000	0,714	0,482
Energy/ non Energy				
1 – 0	-875 008,78	7960000	-0,11	0,913
Financial/ non Financial				
1 – 0	2 910 000	5900000	0,482	0,627
Age (60 or 60+ years)				
1 – 0	3 930 000	3340000	1,176	0,251
Internal/ External				
1 – 0	3 110 000	4000000	0,777	0,445
Former CEO				
1 – 0	-551 632	3030000	-0,182	0,857
EBITDA margin	-0,00000132	10900000	-0,121	0,905
Compensation growth	678 544,23	771003,65	0,88	0,388

Within this exploration, certain variables have emerged as pivotal contributors, each distinguished by a critical p-value, signifying their statistical significance and influence on executive pay dynamics. The variable “Firm Size” stands out with a notable p-value of 0.046, indicating a statistically significant relationship with CEO Compensation. This finding suggests that changes in firm size play a crucial role in shaping the compensation structures of chief executives. Arguably, one of the most influential factors, “CEO Tenure” demonstrates robust statistical significance with a p-value of 0.002. This compelling result challenges conventional expectations, implying that the duration of a CEO’s tenure significantly impacts their compensation. The variable “Gender” unveils a noteworthy association with CEO Compensation, supported by a p-value of 0.018.

In the extensive landscape of executive compensation analysis, specific variables, while lacking statistical significance, retain importance and warrant attention in the exploration of CEO Compensation. The binary variable representing CEO promotion origin, classified as “Internal/External,” does not attain statistical significance with a p-value of 0.445. Nevertheless, this variable holds strategic relevance as it reflects the source of CEO appointments. Similarly, the variable “Former CEO” does not achieve statistical significance as the p-value is 0.857. Despite this, its inclusion in the regression analysis is noteworthy for understanding the implications of having a former CEO within the organizational structure.

So, looking at the hypothesizes, with a p-value of 0.445, we do not reject the null hypothesis 1 for the variable “Internal/External.” This suggests that there is no statistically significant difference in CEO compensation between internal promotions and external hires within the selected S&P 500 companies. The evidence does not support the hypothesis that CEOs promoted internally receive higher compensation compared to their externally hired counterparts.

The p-value for “Former CEO” is 0.857, indicating that we do not reject the null hypothesis 2. The results do not provide sufficient evidence to support the hypothesis that CEOs with a history of serving as a CEO receive higher compensation compared to those without such prior experience.

Given the low p-value (less than the conventional significance level of 0.05), we reject the null hypothesis for CEO tenure and compensation in the selected S&P 500 companies. The evidence supports the hypothesis that CEOs with a tenure of 10 or more years receive higher compensation compared to those with shorter tenures. This finding aligns with the expectation that long-term strategic leadership and sustained corporate performance are associated with increased executive pay.

Finally, the obtained p-value for firm size is 0.046, which is below the commonly used significance level of 0.05. As a result, we reject the null hypothesis and accept the alternative hypothesis, suggesting that there is significant relationship between firm size and CEO compensation in the selected S&P 500. The statistically significant relationship indicates that the total assets (firm size) of a company have a discernible impact on the compensation levels of its CEO within the S&P 500. Larger companies, as indicated by their total assets, exhibit a distinct pattern in compensating their CEOs compared to smaller counterparts within this index.

4.3.3. Robustness check

In the pursuit of a robust and reliable regression model for the CEO compensation, a series of diagnostic tests and checks have been employed to fortify the validity of our findings. The Durbin-Watson test examines whether there is first-order autocorrelation in the residuals of our regression model. The obtained test statistic was 2.07, coupled with a p-value of 0.866. The test suggests a slight positive autocorrelation, but it is not statistically significant at conventional levels (with p-values lower than 0.05). This outcome affirms the assumption of independence among the error terms, reinforcing the reliability of our regression results. In terms of multicollinearity, the correlation among predictor variables, can compromise the interpretability of regression coefficients. Our examination of VIF and tolerance values indicates that most of the predictors exhibit acceptable levels of multicollinearity, with VIF values below 5, with the variable “percentage of annual change showing moderate VIF (5.65). The Shapiro-Wilk test scrutinizes the normality of the residuals, with a calculated statistic of 0.986 and a p-value of 0.894, the high p-value indicates that there is no strong evidence to reject the null hypothesis of normality. The residuals are reasonably normally distributed based on the Shapiro-Wilk test. Similar to the Shapiro- Wilk test, the Kolmogorov-Smirnov’s p-value of 0.832 indicates that there is no significant departure from normality. The Anderson- Darling

test is another test for normality that gives more weight to the tails of distribution. Again, the high p-value of 0.568 suggests that there is no strong evidence to reject the null hypothesis for normality. This finding strengthens the reliability of our regression model, ensuring that our conclusions are not skewed by deviations from normality. After examining the three different heteroskedasticity tests, both Goldfeld-Quandt Test and Harrison-McCabe Test have high p-values which suggests that there is no significant evidence of heteroskedasticity. The low p-value of the Breusch-Pagan Test may indicate that there is presence of heteroskedasticity in the data.

When looking at the Cooks Distance, as we can see in the table above, the range of Cook's distance is 0.690, indicating variability in the influence values among observations. This suggests that certain observations may have a more notable impact on the regression coefficients than others. The average Cook's distance is 0.0163, suggesting that, on average, individual observations have relatively modest influence on the regression coefficients. This implies that the majority of observations are not exerting a substantial impact on the model. The standard deviation is exceptionally small ($1.02e-6$), indicating minimal variability in Cook's distance values. This implies that most observations exhibit a consistent level of influence, with little deviation from the mean.

8. Discussion

8.1 Analysis of Research Findings

This chapter presents a summary of the results of the research conducted in four regions: the United States, France, Germany, and the United Kingdom. The focus is on the impact of executive substitution on executive pay, distinguishing between internal and external hires. Our analysis complements the current literature with region-specific effects of CEO turnovers on compensation. This allows us to draw conclusions about the different corporate governance systems in the respective countries. A multiple linear regression model with the total compensation of the CEO successor in their first full year as the dependent variable was established for the US, France and Germany. However, it is important to note that the descriptive and control variables may differ in various analyses to ensure the robustness of the respective regressions, as the regions differ in their characteristics. The results of the analyses vary significantly and will be examined and compared in detail below. For the UK, a regression analysis was conducted with the absolute difference between the compensation of the existing and entering CEO as the dependent variable.

The comprehensive analysis of the US region (S&P 500) reveals its dynamics that shape executive pay structures. Among the key findings, certain factors seem to influence the level of CEO successor pay with statistical significance. Among that, the size of the firm, emerges as a key determinant. This underscores the influential role of changes in firm size in shaping executive compensation structures. CEO tenure also shows robust statistical significance, challenging conventional expectations and suggesting that the length of the previous CEO's tenure has a significant impact on his or her successor's compensation. Surprisingly, the variable "gender" also shows a notable association with CEO pay. Contrary to prior literature, the much-discussed factor, whether the incoming CEO is an insider or outsider, fails to achieve

statistical significance. This implies the absence of a statistically significant difference in CEO compensation between internal promotions and external hires within the US region. Additionally, the analysis indicates a lack of compelling evidence for the hypothesis that previous CEO experience allows the CEO to elevate their compensation.

In the context of the CAC40 index, our research revealed notable differences in compensation packages awarded to internally and externally appointed CEOs. This variation, as our analysis indicates, is influenced by a mix of factors, both intrinsic to the executive substitution process and external economic elements. The significance of CEO age emerged as a key factor, suggesting a correlation between age and compensation levels. Additionally, it was observed that companies with assets under €20,000 million tend to offer more generous compensation to newly hired CEOs, highlighting asset size as a determinant in executive pay decisions. Furthermore, the analysis of French companies reveals the relevance of EBIT in shaping CEO compensation, affirming its role as a critical financial performance metric. Surprisingly, our findings revealed that, while nearly significant GDP growth was nearly significant, did not show a definitive impact on CEO pay scales. This could indicate a nuanced relationship between macroeconomic factors and individual corporate compensation strategies. Interestingly, contrary to some expectations, the status of the CEO as an external hire did not show significant influence on their compensation package. This suggests that, within the CAC40 market, the origin of the CEO (internal vs. external) might not be as crucial in determining pay as other factors like age, company assets, and financial performance. On the other hand, while looking at descriptive statistics for this market, we were able to observe that there is a significant difference in compensation packages between externally and internally hired CEOs. These insights align well with existing literature, for instance, during the literature review we stated that Hameed (2018) argued that the CAC40 market shifted towards a

performance-based compensation. Hence, after our quantitative analysis, we can infer that factors surrounding CEOs' performance strongly influence their compensation.

It has been observed that in the event of a CEO turnover in German stock corporations, the CEO's salary is significantly modified. Successors, both internal and external, appear to earn more than their predecessors. The premium on the predecessor's salary is not added as a cash payment but is primarily reflected in the form of other forms of compensation, such as stock options. The central result of the analysis is that internal successors seem to earn a higher compensation than internal successors. In addition, previous experience in a CEO position is also rewarded with a higher level of pay. However, the circumstances of the company in which the CEO is replaced, and the company's performance have no impact on the compensation of CEO successors. Furthermore, the analysis points to the trend that the compensation of external successors is more strongly linked to company performance than that of internal successors.

In the UK's FTSE 100 market, our focus was on the absolute difference in compensation between incoming and outgoing CEOs. This analysis highlighted that firm size is a significant determinant of executive compensation, consistent with broader regional findings. These findings align with Agency theory, suggesting that the scale of an organization influences its executive pay structure. Our analysis indicates that larger UK firms tend to offer more substantial compensation packages, reflecting the greater responsibilities and complexities of managing larger enterprises.

Interestingly, our analysis in the UK market challenges some established expectations regarding CEO recruitment sources. Contrary to the advantages of internal hires suggested by Dalton et al. (2003), we observed no significant difference in compensation between internally promoted and externally hired CEOs. This finding suggests a unique valuation of CEO attributes in the UK market, irrespective of their internal or external origins. Moreover, our study reveals that

the tenure of the outgoing CEO significantly influences the successor's compensation, aligning with Smith and Johnson's (2021) observation of varying trends across markets.

In the UK context, this trend underscores the importance of the predecessor's legacy and tenure in shaping the new CEO's pay package. It highlights a nuanced approach to leadership transitions, where the historical performance and tenure of the outgoing CEO play crucial roles in structuring the successor's compensation.

8.2 Theoretical and Managerial Implications

The findings from our study have both theoretical and managerial implications, drawing support from existing literature. In the following chapter, we will discuss the region-specific implications.

When looking at the S&P 500, the substantial R^2 value of 0.59 and the overall statistical significance of the model challenge conventional theories regarding CEO compensation. Theoretical frameworks should evolve to incorporate the nuanced impact of variables like firm size (total assets of the firm), CEO tenure, and gender, reflecting the intricate dynamics of contemporary executive compensation. The robust statistical significance of CEO tenure indicates that the duration of a CEO's tenure significantly influences compensation. The theoretical landscape needs to consider the evolving nature of executive roles over time, acknowledging that sustained leadership may be a pivotal determinant in shaping compensation structures. The insight articulated by Charles W. L. Hill and Phillip Phan (1991), indicates that tenure allows CEOs the opportunity to cultivate influence within companies. Consequently, this extended period enables them to align compensation packages more closely with their individual preferences.

The noteworthy association between gender and CEO compensation emphasizes the importance of incorporating gender dynamics into theoretical models. The findings prompt reevaluating existing theories to address gender biases and inequalities. The research presented by Massimiliano Tani, Keiran Sharpe, and Andrew Valentine in 2023, revealed that newly appointed female CEOs receive comparable or slightly higher pay than male CEOs. Upon closer examination, they found out that within English-speaking countries (Australia, Canada, New Zealand, the United Kingdom, and the United States), there is a noteworthy difference. Although the average compensation for male and female CEOs is similar, male CEOs receive a higher percentage of fixed compensation, while a larger portion of female CEOs' pay is performance-based. In the Anglo-Saxon context, female CEOs earn equivalent overall compensation but must demonstrate performance to a greater extent.

Regarding managerial implications, while the "Age" variable lacks statistical significance, it retains strategic relevance. In 2022, the average age of CEOs in the S&P 500 decreased to 53.8, marking the largest year-over-year drop since 2000. This trend, with approximately 30% of newly appointed CEOs being under 50, suggests that boards may be favoring a long-term approach in CEO succession, prioritizing potential over extensive experience (Spencer Stuart, 2023). Furthermore, the lack of statistical significance in the 'Internal/External' variable aligns with the continuing preference of S&P 500 boards for internal candidates, as evidenced by 82 percent of all transitions in 2022 favoring internal promotions – the highest proportion since 2016 (Spencer Stuart, 2023).

For the CAC40 market, the observations can be linked to theoretical studies, such as the significance of CEO age in determining compensation aligns with the human capital theory, as posited by Becker (1993). Becker suggests that experience and skills acquired over time are valuable assets, which could explain why older CEOs might command higher pay. This idea is

further supported by studies like Murphy (1985), who emphasizes the role of experience in executive compensation decisions. From a managerial perspective, the observation that firms with assets under 20,000 offer higher compensation to new CEOs can be interpreted through the lens of resource-based theory (Barney, 1991). This theory suggests that companies, especially smaller ones with limited resources, may use higher compensation as a strategy to attract and retain top talent, which is crucial for their competitive advantage. Moreover, the significance of EBIT in CEO compensation underscores the alignment of pay with corporate performance, a principle deeply rooted in agency theory (Jensen and Meckling, 1976), which advocates for aligning executives' financial interests with those of the company to mitigate agency problems. However, the near insignificance of GDP growth in determining CEO compensation challenges some traditional economic perspectives, indicating a potential differentiation of macroeconomic indicators from individual firm-level decisions. This could reflect the evolving nature of corporate governance and compensation strategies, as discussed by Tosi et al. (2000), who argue that external economic conditions are not always directly mirrored in executive pay. Lastly, the finding that the status of the CEO as an external hire is not significantly influencing compensation packages suggests a potential shift in the traditional view of the labor market for executives, as discussed by Finkelstein and Hambrick (1996). This might indicate a growing emphasis on internal talent development and succession planning.

The analysis of the impact of executive substitution on executive pay in Germany offers profound insights about regional implications, also through the lens of human capital theory. The finding that internal promotions command higher compensation than external hires substantiate the theory's core premise, as elucidated by Becker (1964), that accumulated firm-specific knowledge and networks are highly valued. This aspect of human capital theory is critical, as it suggests a tangible premium on internal experience and familiarity with company

operations, culture, and strategies. Moreover, the positive correlation between a successor's prior experience as a CEO and their compensation package is another fascinating manifestation of human capital theory in practice. It reflects the German marketplace's valuation of experience and skill, resonating with Spence's (1973) job market signaling theory. The implication here is that firms are willing to invest significantly in individuals whose previous roles signal competency and potential for high productivity.

Furthermore, the positive correlation between a CEO's prior experience and their compensation package resonates with the agency theory (Jensen and Meckling, 1976), which posits that executive compensation should align with shareholder interests. The willingness to pay a premium for experienced CEOs suggests that shareholders and boards perceive experienced CEOs as less risky in the German area, potentially due to their proven track record in navigating corporate complexities. This aligns with the agency theory's emphasis on mitigating risks associated with principal-agent relationships. Interestingly, the study's finding that the circumstances of the predecessor's departure do not significantly influence the incoming CEO's compensation challenges the assumptions of the stewardship theory (Davis, Schoorman, and Donaldson, 1997), which advocates for a more holistic consideration of organizational context in executive decision-making. This indicates a potential governance focus on individual attributes of the incoming executive in Germany, suggesting that boards might prioritize leadership qualities and potential over the situational nuances of the predecessor's exit.

Shifting focus to the UK market, our findings carry specific theoretical and managerial implications that are substantiated by existing literature. The works of Cadbury (1992) and the subsequent UK Corporate Governance Code have emphasized the importance of aligning executive pay with long-term corporate goals and shareholder interests. This aligns with the global trend towards sustainability and social responsibility in remuneration packages, as noted

by Eccles and Serafeim (2013). Furthermore, the impact of shareholder activism in shaping executive compensation practices is evident in studies such as Hermalin and Weisbach (1991), which emphasize the need for boards and executives to be responsive to shareholder concerns, fostering transparency and accountability in compensation decisions.

Moreover, the prevalence of performance-based elements in CEO pay in the UK aligns with the principles of agency theory, as advocated by Jensen and Meckling (1976). Scholars like O'Reilly and Main (2010) have discussed the significance of tying executive compensation to company performance. Managerially, these findings suggest that UK firms should continue emphasizing sustainable and socially responsible practices in executive compensation, while also paying close attention to shareholder feedback and the performance-oriented nature of compensation packages. This approach aligns with the UK Corporate Governance Code and is supported by studies such as Aggarwal and Samwick (1999), underlining its importance for long-term corporate success.

8.3 Limitations and Future Research

While the regression analysis provides valuable insights, it is essential to acknowledge certain limitations that may influence the interpretation findings. The study's findings are contingent to 40 companies of each market. As executive compensation practices can vary across industries and company sizes, the results may not be universally applicable. The dataset used for the analysis may not capture all pertinent variables influencing CEO Compensation. There are many factors like industry-specific metrics, CEO performance indicators, or external economic conditions that could potentially impact executive pay but are not accounted for in the current study. Also, the study employs a cross-sectional design, meaning that data is collected at a single point in time, providing a snapshot or cross-section of the phenomena under investigation. Lastly, the analysis is subject to the challenge of unobserved confounding

variables that might influence both the predictors and the dependent variables. Examples of unobservable factors could be the CEO's decision-making style, corporate culture, or external economic conditions.

The present study's findings provide a foundation for future research aiming to deepen our understanding of CEO Compensation dynamics. Future research could delve into industry-specific nuances that might influence CEO Compensation. Different sectors may exhibit distinct patterns in compensating executives based on industry performance metrics, regulatory environments, and market dynamics. Also, examining CEO performance metrics could shed light on the specific criteria driving compensation decisions. Metrics such as shareholder value creation and strategic goal attainment may be crucial in determining executive pay. Considering the influence of external economic factors on CEO compensation is a valuable avenue. Economic conditions, market volatility, and global economic trends may impact compensation decisions. Future research could investigate how CEO's pay responds to changes in the broader economic landscape. To further complement, qualitative research methods such as interviews or surveys can provide a deeper understanding of the contextual factors influencing CEO compensation. Capturing the perspectives of key stakeholders, including board members, shareholders, and executives, would enrich the understanding of the intricate dynamics at play. Investigating CEO succession planning and its impact on compensation could be a fruitful area of research. Understanding how companies plan for leadership transitions and how this planning relates to compensation decisions can provide valuable insights.

9. Conclusion

Our study's empirical findings and theoretical analysis have illuminated the complexities of executive compensation models, revealing how they respond to corporate governance practices, market conditions, and broader societal changes. Particularly in the context of CEO turnovers

across diverse markets, it has unveiled a multifaceted landscape shaped by connections of internal and external factors.

In the United States, CEO compensation shows a strong correlation with both the size of the firm and CEO's tenure. Our findings suggest that larger firms tend to offer higher compensation, and longer CEO tenures are associated with increased executive pay. This aligns with the perspective that larger firms possess more resources to attract and retain top executive talent and that longevity in leadership roles is rewarded with higher compensation due to accumulated experience and proven track records. Notably, our study did not find significant differences in compensation between internally promoted and externally hired CEOs, challenging conventional expectations about internal hires' compensation advantage.

The French market, following global trends, indicated that CEO compensation is influenced by a combination of factors, including corporate performance, company size, and macroeconomic conditions. Interestingly, our analysis revealed that smaller companies are more inclined to pay higher compensation, potentially reflecting their need to attract top talent to compete with larger corporations. Additionally, the age of incoming CEOs and the tenure of their predecessors emerged as influential factors, suggesting that transition dynamics play a crucial role in shaping compensation packages.

The results of the compensation analysis of German stock corporations surprisingly match previous literature on the impact of executive turnovers on CEO pay the most. Despite its unique corporate governance structure, the research indicates that internal successors tend to earn a higher amount of compensation than external ones. We could also show that firms increase the non-cash compensation after a CEO turnover, with cash-compensation staying on a similar level. Another finding of the study is that the remuneration of external successors is more closely linked to company performance.

In the UK's unique governance environment, CEO compensation and turnover patterns exhibit considerable variation, influenced by an intricate blend of factors. A pronounced focus on sustainability and social responsibility is increasingly shaping CEO remuneration strategies, aligning them with broader long-term organizational goals and ethical governance principles. Our analysis uncovers that the source of CEO recruitment—whether internal or external—has a limited impact on compensation alterations in the UK market. This challenges the conventional wisdom regarding the perceived advantages of internal hires, suggesting a UK market that values diverse CEO attributes, irrespective of their origins. This trend underlines the importance of comprehensive leadership skills and strategic vision, beyond mere organizational familiarity, in executive appointments. Additionally, the near-significant effect of GDP Growth on CEO compensation indicates a sensitivity to broader economic conditions. This suggests that in the UK, CEO remuneration is not isolated from wider economic fluctuations, reflecting a responsive and adaptive approach to executive pay that considers both internal company metrics and external economic indicators. These insights collectively present a multifaceted landscape, offering invaluable guidance to UK firms as they navigate the complexities of executive compensation and leadership transitions in an evolving corporate environment.

Overall, our study provides valuable insights into the dynamic mechanisms governing executive compensation, highlighting the importance of deep contextual understanding in shaping compensation structures. This research makes a valuable contribution to the existing body of knowledge providing stakeholders, policymakers, and academic circles, with actionable insights, contributing to informed discussions on executive compensation and governance in today's evolving global business landscape.

Appendix

Table 3: Multiple linear regression analysis results for S&P 500 analysis.

1. Descriptives table

	Mean	Median	Standard Deviation	Number of Observations
Panel A: All Outgoing CEOs				
Former CEO	0,425	0	0,501	40
Internal/ External	0,25	0	0,439	40
Compensation growth	0,3031	-0,0126	2,083	40
EBITDA margin	0,3127	0,3136	0,157	40
Age (60 or 60 +)	0,475	0	0,506	40
Financial/ Non Financial	0,125	0	0,335	40
Energy/ Non Energy	0,125	0	0,335	40
Consumer staples/ Non consumer staples	0,125	0	0,335	40
Gender	0,05	0	0,221	40
CEO Tenure (10 or 10 + years)	0,225	0	0,423	40
Firm size (Total Assets in millions)	302503,7	104730,5	755413,066	40
Non equity compensation	2560000	2710000	1710000	40
Stock compensation as % of total comp.	0,4692	0,478	0,236	40
Non equity incentive compensation as % of cash comp	0,6663	0,705	0,205	40
% annual change	0,0305	-0,0365	0,304	40
Ceo Compensation last year	17100000	16000000	9460000	40

Table 4: VIF tests for S&P 500 analysis

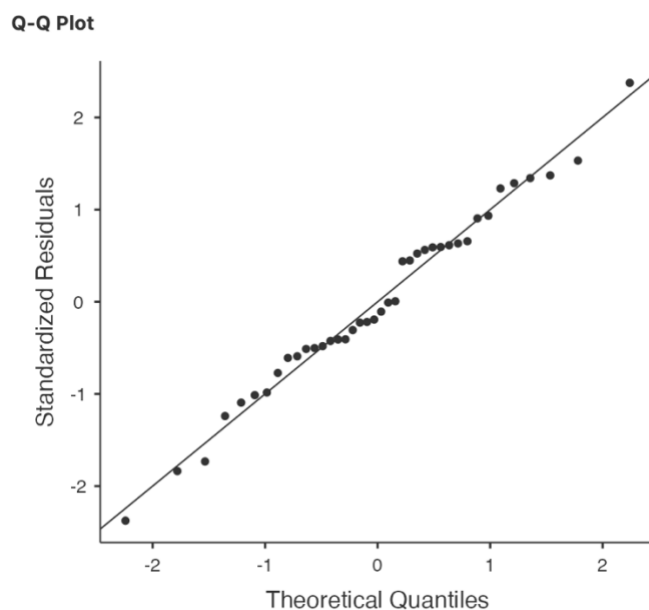
% annual change	5.65	0.177
Non-Equity incentive compensation as % of cash compensation	2.91	0.343
Stock Compensation as % of total	2.83	0.353
Non equity compensation	2.54	0.394
Firm Size (Total Assets in millions)	2.22	0.451
CEO Tenure (10 or 10+ years)	2.49	0.401
Gender	2.09	0.478
Consumer staples or no consumer staples	1.51	0.662
Energy	4.66	0.215
Financial or Non Financial	2.56	0.391
Age (60 or 60+)	1.87	0.534
Internal / External	2.02	0.495
Former CEO	1.51	0.662
EBITDA margin	1.93	0.518
Compensation growth	1.69	0.592

Table 5: Durbin-Watson test for S&P 500 analysis.

Durbin-Watson Test for Autocorrelation		
Autocorrelation	DW Statistic	p
-0.0430	2.07	0.796

Table 6: Cook's distance for S&P 500 analysis.

Cook's Distance				
Mean	Median	SD	Range	
			Min	Max
0.690	0.0163	3.77	1.02e-6	23.9

Table 7: Q-Q Plot for S&P 500 analysis.**Table 8: Normality tests for S&P 500 analysis.**

Normality Tests		
	Statistic	p
Shapiro-Wilk	0.986	0.894
Kolmogorov-Smirnov	0.0948	0.832
Anderson-Darling	0.299	0.568

Table 9: Heteroskedasticity tests for S&P 500 analysis.

Heteroskedasticity Tests		
	Statistic	p
Breusch-Pagan	30.0	0.012
Goldfeld-Quandt	0.0910	0.980
Harrison-McCabe	0.572	0.744

Table 10: Multiple linear regression analysis results for the CAC40 market.

Model Fit measures							
Model	R	R ²	Adjusted R ²	Overall Model Test			
				F	df1	df2	p
1	0.876	0.767	0.533	3.28	16	16	0.011
Model Coefficients - Y=Total Compensation							
Predictor	Estimate	SE	t	p			
Intercept	-0.000000113	6680000.00	-1.69	0.11			
External hire:							
1 – 0	-974170	1600000.00	-0.61	0.55			
CEO before:							
1 – 0	1750000	1490000.00	1.17	0.26			
Dummy finance:							
1 – 0	-0.00000298	1880000.00	-1.58	0.13			
Dummy energy:							
1 – 0	-0.00000224	1650000.00	-1.36	0.19			
Dummy transport:							
1 – 0	95251	2050000.00	0.05	0.96			
Dummy tech:							
1 – 0	-630850	1540000.00	-0.41	0.69			
Log assets	-175570	912915.00	-0.19	0.85			
EBIT	558	150.00	3.72	0.002			
Dummy>100,000:							
1 – 0	1290000	2000000.00	0.64	0.53			
Dummy <20,000:							
1 – 0	4370000	1900000.00	2.30	0.04			
Total return	-0.00000355	1990000.00	-1.79	0.09			
Dummy tenure >11:							
1 – 0	-0.0000016	1260000.00	-1.27	0.22			
Dummy chairman:							
1 – 0	1700000	1300000.00	1.30	0.21			
Dummy financial distress:							
1 – 0	-250742	1320000.00	-0.19	0.85			
Age New CEO	276057	96823.00	2.85	0.01			
GDP growth	30900000	15000000.00	2.06	0.06			

Table 11: Robustness Check for the CAC40 analysis.

Assumption Checks		
Durbin-Watson Test for Autocorrelation		
Autocorrelation	DW Statistic	p
0.0409	1.85	0.688

Collinearity Statistics		
	VIF	Tolerance
Internal vs external	2.49	0.401
CEO before	2.31	0.433
Dummy finance	2.58	0.388
Dummy energy	1.43	0.701
Dummy transport	2.19	0.456
Dummy tech	1.95	0.512
Log assets	1.4	0.714
GDP growth	2.22	0.45
EBIT	2.39	0.418
Dummy > 100,000	4.38	0.228
Dummy <20,000	2.28	0.439
Total return	1.97	0.508
Dummy tenure > 11	1.91	0.523
Dummy chairman	1.86	0.539
Dummy financial distress	2.14	0.468
New CEO age	1.67	0.6

Normality Test (Shapiro-Wilk)	
Statistic	p
0.959	0.247

Table 12: Assumption Checks for the CAC40 analysis.**Assumption Checks**

Normality Tests

	Statistic	p
Shapiro-Wilk	0.959	0.247
Kolmogorov-Smirnov	0.101	0.854
Anderson-Darling	0.362	0.424

Note. Additional results provided by
moretests

Heteroskedasticity Tests

	Statistic	p
Breusch-Pagan	12.4	0.715
Goldfeld-Quandt	NaN	
Harrison-McCabe	NaN	

Note. Additional results provided by
moretests

Durbin-Watson Test for Autocorrelation

Autocorrelation	DW Statistic	p
0.0325	1.87	0.746

[3]

Table 13: VIF tests for the CAC40 analysis.

Collinearity Statistics		
	VIF	Tolerance
External hire	2.49	0.401
CEO before	2.31	0.433
Dummy finance	2.58	0.387
Dummy energy	1.43	0.701
Dummy transport	2.21	0.453
Dummy tech	1.95	0.512
Log assets	1.46	0.686
GDP growth	2.22	0.451
EBIT	2.46	0.407
Dummy > 100,000	4.38	0.228
Dummy < 20,000	2.28	0.438
Total return	1.97	0.509
Dummy tenure > 11	1.91	0.523
Dummy chairman	1.86	0.538
Dummy financial distress	2.13	0.469
Age	1.67	0.599

[3]

Table 14: Cook's Distance for the CAC40 analysis.**Data Summary**

Cook's Distance				
Mean	Median	SD	Range	
			Min	Max
0.0628	0.0465	0.0697	0.00126	0.330

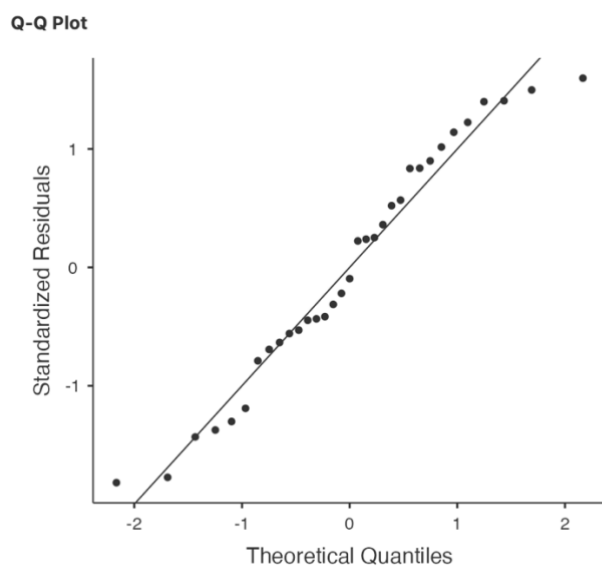
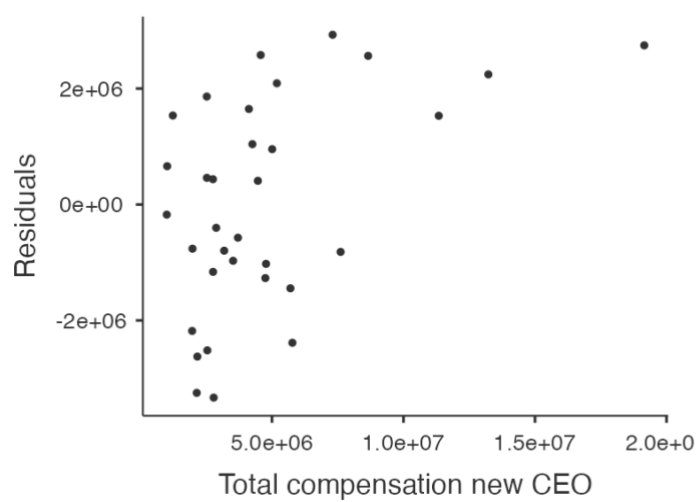
Table 15: Q-Q Plot for the CAC40 analysis.**Table 16: Residual Plot for the CAC40 analysis.**

Table 17: Multiple linear regression results for the DAX analysis

Model Fit measures Germany							
Model	R	R ²	Adjusted R ²	Overall Model Test			
				F	df1	df2	p
1	0.849	0.721	0.495	3.19	17	21	0.007
Model Coefficients - Y=Total Compensation							
Predictor		Estimate	SE	t	p		
Intercept		4,360,000	1.85E+06	2.3597	0.028		
External Hire:							
1 – 0		-2,220,000	1.05E+06	-2.1162	0.046		
CEO before:							
1 – 0		1,850,000	878290.04	2.1095	0.047		
Forced Turnover:							
1 – 0		-251,933	1.37E+06	-0.1838	0.856		
Distress:							
1 – 0		468,565	1.30E+06	0.3608	0.722		
Tenure		-46,834	82204.58	-0.5697	0.575		
ROE		-2,805	38643.37	-0.0726	0.943		
TRA		-293,366	865245.31	-0.3391	0.738		
Beta		39,740	1.66E+06	0.0239	0.981		
EBIT		270	147.55	1.8282	0.082		
Assets		3	3.19	0.9449	0.355		
GDPgrowth		453,262	284976.66	1.5905	0.127		
Finance:							
1 – 0		-1,540,000	1.39E+06	-1.1074	0.281		
Chemicals							
1 – 0		-71,166	1.04E+06	-0.0682	0.946		
Utilities							
1 – 0		-272,739	895304.81	-0.3046	0.764		
ConsumerGoods							
1 – 0		986,410	1.27E+06	0.7771	0.446		
Year<17							
1 – 0		-2,860,000	1.06E+06	-2.686	0.014		
Year>20							
1 – 0		-751,599	849854.89	-0.8844	0.387		

Table 18: Multiple linear regression results for external and internal hire samples within the DAX analysis.

Model Fit measures Germany							
Model	R	R ²	Adjusted R ²	Overall Model Test			
2	0.82	0.673	0.673	F	df1	df2	p
				3.08	4	6	0.106
Model Coefficients - Y=Total Compensation							
Predictor	Estimate	SE	t	p			
<i>Intercept</i>	2,070,000	1,140,000	1.82	0.12			
<i>ROE</i>	153,144	92,016	1.66	0.15			
<i>Assets</i>	134,141	296,775	0.45	0.67			
<i>GDPgrowth</i>	3.89	4.58	0.85	0.43			
<i>Finance:</i>							
1 – 0	-1,710,000	1,470,000	-1.16	0.29			

Model Fit measures Germany							
Model	R	R ²	Adjusted R ²	Overall Model Test			
3	0.505	0.255	0.125	F	df1	df2	p
				1.96	4	23	0.134
Model Coefficients - Y=Total Compensation							
Predictor	Estimate	SE	t	p			
<i>Intercept</i>	4,040,000	824,181	4.90	< .001			
<i>ROE</i>	14,522	136,276	0.11	0.92			
<i>Assets</i>	229,063	202,668	1.13	0.27			
<i>GDPgrowth</i>	8.48	3.26	2.60	0.02			
<i>Finance:</i>							
1 – 0	-3,920,000	2,280,000	-1.72	0.10			

Table 19: Durbin-Watson test for the DAX analysis.

Durbin–Watson Test for Autocorrelation		
Autocorrelation	DW Statistic	p
0.00524	1.96	0.956

Table 20: Heteroskedasticity tests for the DAX analysis.

Heteroskedasticity Tests		
	Statistic	p
Breusch-Pagan	16.5	0.485
Goldfeld-Quandt	1.03	0.572
Harrison-McCabe	0.484	0.477

Table 21: Normality tests for the DAX analysis.

Normality Tests		
	Statistic	p
Shapiro-Wilk	0.955	0.124
Kolmogorov-Smirnov	0.108	0.712
Anderson-Darling	0.580	0.122

Table 22: VIF tests for the DAX analysis.

Collinearity Statistics		
	VIF	Tolerance
External hire	3.12	0.320
CEO before	2.62	0.381
Dummy_Finance	3.04	0.329
Dummy_Chemical_Drugs	2.72	0.368
Dummy_Utilities_Real Estate	1.66	0.602
Dummy_Consumer Goods_Textil	2.09	0.479
TRA	1.87	0.534
Beta	1.30	0.767
Total Assets	4.25	0.236
EBIT	3.33	0.301
Return on Equity	1.69	0.591
Dummy_before 2017	2.35	0.426
GDP Growth	5.80	0.172
Tenure (2)	1.65	0.607
Dummy_after 2020	2.16	0.462
ForcedTurnover	2.95	0.339
Distress	3.49	0.286

Table 23: Cook's distance for the DAX analysis.

Cook's Distance				
Mean	Median	SD	Range	
			Min	Max
0.0500	0.0148	0.0848	1.30e-5	0.390

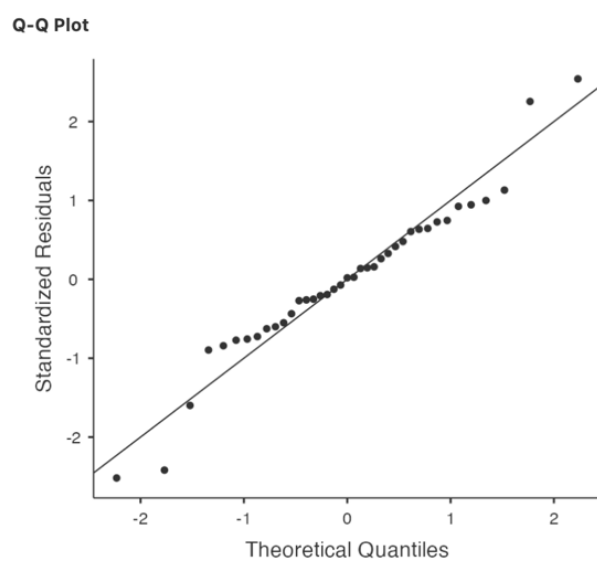
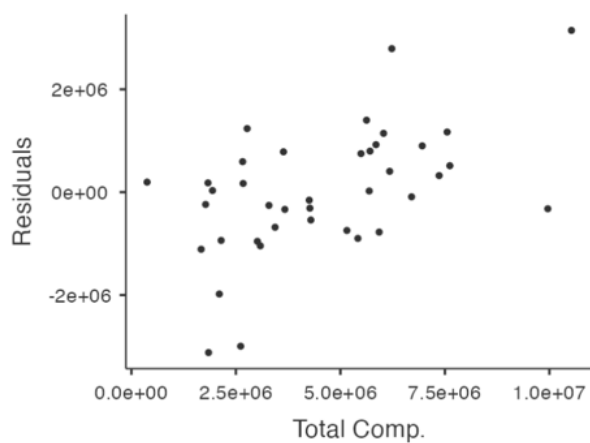
Table 24: Q-Q plot for the DAX analysis.

Table 25: Residual plot for the DAX analysis.**Table 26: Descriptive summary for the FTSE 100 analysis.**

Descriptives	N	Mean	Median	SD
Total comp new CEO	32	-1.01E+05	95985	3.21E+06
External Hires	15	4.34E+06	3637000	2.86E+06
Internal Hires	17	-8.34E+05	-145350	3.01E+06

Table 27: Multiple linear regression results for the FTSE 100 analysis.**Model Coefficients - Y=Total Compensation**

Predictor	Estimate	SE	t	p
Intercept ^a	23,100,000	5.14E+06	4.497	< .001
ROE	-9,567	2.98E+03	-3.214	0.004
Log assets	-4.70e-6	1240000	-3.799	0.001
Sales Turnover	16	7.51E+00	2.092	0.049
Beta	714,806	4.24E+05	1.685	0.107
GDP Growth	81,205	73524.9	1.104	0.282
Dummy Actual Ceo Age >51: 1 – 0	-5.54e-6	1180000	-4.684	< .001
Dummy Finance: 1 – 0	8,520,000	2.25E+06	3.788	0.001
Dummy Tech Company: 1 – 0	-5.06e-6	1.63E+06	-3.096	0.005
Dummy External Hire: 1 – 0	120,277	1120000	0.107	0.916
Dummy Previous Tenure>7: 1 – 0	1,240,000	1.04E+06	1.197	0.245

^a Represents reference level**Table 28: Durban-Watson test for the FTSE 100 analysis.****Durbin-Watson Test for Autocorrelation**

Autocorrelation	DW Statistic	p
0.0236	1.92	0.53

Table 29: Normality tests for the FTSE 100 analysis.**Normality Tests**

	Statistic	P
Shapiro-Wilk	0.953	0.173
Kolmogorov-Smirnov	0.134	0.564
Anderson-Darling	0.554	0.141

Table 30: Heteroskedasticity tests for the FTSE 100 analysis.

Heteroskedasticity Tests		
	Statistic	P
Breusch-Pagan	7.64	0.664
Goldfeld-Quandt	0.143	0.974
Harrison-McCabe	0.62	0.832

Table 31: VIF tests for the FTSE 100 analysis.

Collinearity Statistics		
	VIF	Tolerance
ROE	2.21	0.452
Log assets	8.09	0.124
Sales Turnover	2.28	0.439
Beta	1.53	0.656
GDP Growth	1.19	0.843
Dummy Actual Ceo Age >51: 1 – 0	1.4	0.713
Dummy Finance 1-0	4.4	0.227
Dummy Tech Company: 1 – 0	2.68	0.373
Dummy External Hire: 1 – 0	2.07	0.482
Dummy Previous Tenure>7: 1 – 0	1.77	0.565

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