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

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Abstract

This research examines the dynamics of executive pay during turnover events. It explores executive compensation practices in Germany. By distinguishing between internal and external hires, we uncover patterns and implications of compensation adjustments. The findings reveal inconsistent results for different markets, highlighting the effects of different corporate governance practices across regions that have a distinct impact on CEO recruitment and executive compensation. 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 .... *Act Implementing the Second Shareholders' Rights Directive*

CAC .... *Cotation Assistée en Continu*

CEO .... *Chief executive officer*

DAX .... *Deutscher Aktienindex*

DW .... *Durbin-Watson*

e.g. .... *For example (Lat: exempli gratia)*

EBIT .... *Earnings before interest and taxes*

EBITDA .... *Earnings before interests, taxes, depreciation and ammortization*

EBT .... *Earnings before taxes*

ESG .... *Environmental, Social and Governance*

et al. .... *And others (Lat: et alia)*

FTSE .... *Financial Times Stock Exchange*

GDP .... *Gross domestic product*

Ibid .... *In the same place (Lat: ibidem)*

Log .... *Logarithm*

LTIP .... *Long-term incentive plan*

MDAX .... *Midcap-Deutscher Aktienindex*

OLS .... *Ordinary Least Squares*

R&D .... *Research and Development*

ROE .... *Return on equity*

RSUs .... *Restricted stock units*

S&P .... *Standard and Poor's*

TSR... *Total shareholder return*

UK .... *United Kingdom*

US.. *United States (of America)*

USA .... *United States of America*

VIF .... *Variance inflation factor*

VorstAG................................Act on the Appropriateness of Management Board Remuneration

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 Stated 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 form 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) underscoe 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 Germany

Understanding the dynamics of CEO turnover and CEO compensation in Germany requires an analysis of the unique corporate governance structures and market conditions. Germany differs from other economies in its specific corporate governance and co-determination tradition, which is also reflected in the patterns of CEO turnover and compensation schemes (Mallin, 2019). As Köke states, the German corporate governance is characterized by the dualistic structure of the executive board and supervisory board. The supervisory board plays a crucial role, especially as it includes employee representatives, which is not common in international practice. This structure has a direct impact on CEO turnover and compensation practices and contributes to a greater consideration of employee interests and could therefore influence compensation structures towards greater appropriateness and sustainability (Köke, 2002).

In the early years of Germany, CEO turnover was primarily characterized by long-term corporate strategies and strong company loyalty. According to a study by Streeck and Thelen (2005), the focus was on long-term stability, with CEOs remaining in office for more than a decade on average. With globalization and the influence of international markets, the frequency of CEO turnover increased. An analysis by Heidrick and Struggles (2018) shows that the average tenure of CEOs fell to around 6 years in the 2000s. This development was driven by increased pressure to perform and shareholder value orientation. Internal factors such as company performance and strategic realignment are often decisive for the decision to replace a CEO in the German area. External factors such as economic changes and industry trends also play a role but are considered less influential compared to internal causes (Meyer, 2010).

In the 1980s and 1990s, CEO pay in German companies was relatively moderate compared to today. Rapp and Wolff (2010) show that average compensation rose steadily, but not exorbitantly, during this period. The focus was on fixed salaries with limited variable components.

The beginning of the new millennium marked a turning point in CEO pay in Germany. A study by Fabbri and Marin (2012) illustrates that both total compensation and the proportion of variable pay increased significantly. This trend reflects a stronger link to company performance and shareholder interests and was observed later in Germany than in the United States or United Kingdom. Rapp and Wolff (2010) emphasize that the link between compensation and company performance is more pronounced in Germany than in many other countries. This reflects the tendency to reward CEOs for the long-term development of the company.

The legal framework for CEO compensation in Germany has been increasingly discussed in recent years. The *Act on the Appropriateness of Management Board Remuneration* (*VorstAG*), introduced in 2009, aims to promote a stronger link between pay and long-term corporate goals (Federal Ministry of Justice, 2009). In addition, the *Act Implementing the Second Shareholders' Rights Directive* (*ARUG II*) strengthened the powers of shareholders in determining Management Board compensation (Deutscher Bundestag, 2019). These laws reflect a trend towards greater transparency and accountability in remuneration policy.

Recently, a trend towards a stronger emphasis on sustainability and social responsibility in CEO compensation has been observed in Germany. Rühmkorf (2019) points out that non-financial criteria such as environmental, social and governance (ESG) factors are increasingly being integrated into remuneration schemes. This trend is reinforced by the growing public and stakeholder-orientated attention to corporate responsibility.

To summarize, turnover and compensation of CEOs in Germany is deeply rooted in the specific corporate governance structure and is influenced by the legal framework as well as cultural and market-specific factors. Current trends point to an increasing focus on long-term and sustainable corporate goals as well as increased transparency and accountability in CEO pay.

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 DAX companies

4.1 Specific Research Questions

Building on the existing body of research surrounding the impact of CEO substitutions on CEO compensation, this section delves into the implications of such changes for major German stock corporations. Most of the studies shading light on such impact and especially the differences between internal and external successors refer to the Anglo-Saxon or Asian region, but not to German stock corporations. The following research is intended to close this research gap. Given the unique corporate governance framework in Germany, it is anticipated that CEO turnovers may have a country-specific impact. This distinctiveness is partly due to the crucial role of the supervisory board in German corporations. The supervisory board is distinct from and oversees the management board. It consists of various stakeholder groups, including employee representatives (Schilling, 2002). It is also instrumental in selecting the CEO and setting their compensation, making it a critical factor in the analysis (Jurgens and Rupp, 2002).

The first question that will be investigated within this analysis is how the CEO successors' pay differs from that of their predecessors. Prior studies have found that the total compensation of succeeding CEOs in US companies is significantly higher compared to preceding CEOs (Elsaid et al. 2009; Graefe-Anderson, 2014). My research focuses on the strategic use of CEO turnover by German companies as an opportunity to revise the CEO's compensation contract and how this differs between external and internal hires. To examine this, a univariate analysis will be performed in the descriptive statistics part.

The main research question concerns the investigation of the specific factors that influence the compensation of CEO successors in Germany. This includes observing whether the power exercised by the new CEO, competitive pay, or other elements play a significant role in shaping their pay structure. More specifically, not only the effects of the successor externality, but also experience and turnover characteristics on the compensation level of successors are examined. Previous research state that outside CEO successors receive greater total compensation than insiders (Gilson and Vetsuypens 1993; Murphy 2002; Elsaid et al. 201; Graefe-Anderson 2014). Additionally, the literature has established that CEOs with prior experience within a CEO role earn a compensation premium (Harris and Helfat 1997; Graefe-Anderson 2014; Bragaw and Misangyi 2017).

The investigation will then be extended to consider whether and how the performance of a company influences the compensation of CEO successors. A crucial aspect of this inquiry focuses on discerning if the pay of internally promoted or externally appointed CEOs is more closely tied to the company's performance. Previous literature has shown that the compensation of externally hired CEOs is closer tied to the firm-performance. (Gilson and Vetsuypens 1993; Elsaid et al. 2009; Elsaid et al. 2011; Graefe-Anderson 2014). To guide through the analysis, the following research hypotheses are proposed:

H1: After a CEO turnover event, the total CEO compensation increases, implying that successors earn more than their predecessors.

H2: CEOs appointed from outside the organization receive higher compensation compared to those promoted internally.

H3: CEO successors with prior CEO experience receive higher pay than those without such experience.

H4: The circumstances around a CEO turnover have a significant effect on the compensation level of the incoming CEO.

H5: The compensation of CEOs appointed from outside the company is more heavily influenced by short-term performance metrics compared to those promoted from within the organization.

The presented hypotheses emerge from the fundamental research questions that drive this study. They collectively aim to unravel the complexities of CEO compensation in the context of executive turnover, specifically within the unique framework of German corporate governance. By addressing these hypotheses, the chapter seeks to provide comprehensive insights into the dynamics of executive compensation and the factors influencing its variation during periods of CEO transition.

4.2 Sample selection

The research predominantly relies on data sourced from Bloomberg, a comprehensive database that offers extensive information on publicly traded companies. This data is supplemented by additional resources including Reuters, annual company reports, corporate websites, and newspaper articles, which were accurately researched by the author himself. The dataset encompasses 39 companies, representing the largest entities from Germany's two primary indices: the DAX40 and MDAX. It focuses on the most recent CEO turnover within each of these 39 companies, covering a period from January 1, 2011, to January 1, 2023. While the initial intention was to analyze all entities within the DAX40 index, which includes the 40 largest German companies based on free float market capitalization, this approach was adjusted due to certain prerequisites for data inclusion. Ten companies from the DAX40 were excluded because they did not all meet the following criteria:

1. At least one CEO turnover occurred after January 1, 2011.
2. The company has been publicly traded for a minimum of three years prior to the CEO turnover.
3. A single individual occupied the CEO position for at least one year before and after the turnover, excluding any co-CEO arrangements.

These criteria were established to ensure the reliability and precision of the data. Particularly, the last condition is critical for isolating the distinct performance impact attributable to individual CEOs, which is challenging to assess objectively from an external perspective. To preserve the dataset's robustness, the largest companies by market capitalization from the MDAX, Germany's second-tier index, were incorporated into the dataset, provided they met the mentioned inclusion criteria.

The dataset utilized in this study is comprehensive, encompassing various dimensions of CEO turnover events in German companies. It includes detailed information on CEO compensation sourced from Bloomberg, which covers salary, bonus payments, other forms of compensation, and total compensation. To assess compensation levels accurately, the dataset considers the last year of compensation for the outgoing CEO and the first full year for the incoming CEO.

Additionally, the dataset incorporates person-specific data about the CEOs, such as the tenure of the outgoing CEO and the background of the incoming CEO, distinguishing between internal and external hires. An external hire is defined as a successor who has not been employed by the company for more than one year prior to their appointment. This CEO-specific data was gathered using Bloomberg People Search.

Company-specific data is also included, featuring total assets of the firm, historic total annual shareholder return (TSR), Return on Equity (ROE), Beta, and Earnings before interest and taxes (EBIT), along with industry-specific variables. TSR, sourced from Bloomberg's Total Return Analysis function, captures shareholder wealth changes through capital gains and dividends. ROE is calculated by dividing net income by shareholders' equity, with data taken from company annual reports. Beta, indicative of stock risk sensitivity, is also obtained from Bloomberg and is calculated by dividing the covariance of the stock with the market by the market's variance. The analysis considers the alternative accounting practices of banks and insurance companies, which typically do not publish EBIT figures. Hence, Earnings Before Taxes (EBT) are considered for these entities. Due to these distinct business practices, other key figures also vary; for instance, financial companies often have higher volumes of total assets. To address these disparities, a dummy variable for financial companies is included.

Additional data elements in the set include GDP growth, indicators for forced CEO turnovers, and indicators for turnovers during financial distress, defined as negative cash flow in the year preceding the replacement. These are further complemented by year-specific dummies to account for temporal variations. Forced turnovers were identified through analysis of Reuters reports and historical press releases.

4.3 Results

4.3.1 Descriptive Statistics

The study examines a total of 39 turnover events, which represent the most recent changes in leadership for the selected companies. The timeframe of these turnovers spans from the first observed event on 1 October 2012 to the last on 1 June 2021. Among these, five turnovers, or 12.8% of the total, were identified as forced turnovers initiated by the supervisory board. The rest, accounting for 77.2%, comprised retirements, planned replacements, or resignations not categorized as forced. However, as Denis and Denis (1995) highlight, the actual number of forced CEO substitutions may be ambiguous, given that company press releases often do not specify the reasons for the termination of a CEO's tenure. Additionally, 17.9% of these CEO changes occurred during periods of financial distress, with an interesting observation that three out of the five forced turnovers happened in such challenging times. The average tenure of the departing CEOs was found to be 6.79 years. In terms of the succession, 28.2% of the successors were recruited externally, while the majority, 71.8%, were promoted from within the organization. Notably, 59% of these successors had previous experience in a CEO role. This experience varied significantly between external and internal hires; 72.7% of external hires had prior CEO experience compared to only 25% of internal hires. Furthermore, it was observed that 71.4% of companies facing financial distress chose internal candidates for succession, and 60% of forced turnovers led to the appointment of an external successor.

Table 6 shows the compensation structure of both outgoing and incoming CEOs, further categorizing the latter into those hired internally versus externally. An intriguing observation from the data is that the median total compensation for both departing and newly appointed CEOs is consistent, each at €4.43 million. This finding indicates a uniformity in the median total remuneration packages offered to CEOs at the time of their entry into the role.

Table 1: Descriptive statistics summary for DAX CEO compensation levels.

	Mean	Median	Number of Observations
Panel A: All Outgoing CEOs			
Salaries	1,210,000 €	1,240,000 €	39
Bonus	1,280,000 €	1,150,000 €	39
All other compensation	2,000,000 €	1,950,000 €	39
Total Compensation	4,450,000 €	4,310,000 €	39
Panel B: All Incoming CEOs			
Salaries	1,250,000 €	1,250,000 €	39
Bonus	1,220,000 €	1,130,000 €	39
All other compensation	2,080,000 €	1,870,000 €	39
Total Compensation	4,430,000 €	4,310,000 €	39
Panel C: Internal Hires			
Salaries	1,300,000 €	1,300,000 €	28
Bonus	1,350,000 €	1,370,000 €	28
All other compensation	2,340,000 €	2,010,000 €	28
Total Compensation	4,990,000 €	4,760,000 €	28
Panel D: External Hires			
Salaries	1,140,000 €	1,000,000 €	11
Bonus	869,440 €	797,000 €	11
All other compensation	1,410,000 €	803,000 €	11
Total Compensation	3,010,000 €	2,730,000 €	11

Upon closer examination, the table shows that internally hired CEOs have a median (and mean) total compensation of €4.8 million (€5 million), which is significantly higher than their externally hired counterparts, who receive a compensation of €2.7 million (€3 million). This notable disparity, with internal successors receiving about €2 million more than external hires in median compensation, is particularly pronounced in the 'other compensation' category, which includes mainly stock options. Here, the median 'other compensation' for internal hires is €4.76 million, compared to €2.73 million for external hires. However, a definitive relationship cannot be established in this exploratory overview. An interesting point to consider is the variation between the mean and median values in 'other compensations' for external hires (€1.41 million versus €0.8 million). This discrepancy suggests the presence of outliers or a degree of asymmetry in the distribution of these compensations, pointing to factors like individual negotiation outcomes, firm size and performance, or specific industry practices possibly influencing these figures. This aspect of the compensation structure tells how internal and external hires are compensated differently, with various factors potentially contributing to this divergence.

The univariate analysis, illustrated in Table 7, provides a detailed comparison of compensation between outgoing and incoming CEOs across the sample of turnover events. This analysis calculates the difference in pay by subtracting the last full year of compensation of the outgoing CEO from the first full year of the incoming CEO.

Table 2: Univariate Analysis of changes in DAX CEO compensation after turnover.

Median Differences in CEO Pay: Incoming CEO - Outgoing CEO							
	All CEOs	Replacement Insiders	Replacement Outsiders	Replacement with CEO Experience	Replacement without CEO experience	Forced Turnovers	Voluntary Turnovers
Salaries	0 €	0 €	56,000 €	0 €	0 €	0 €	0 €
Bonus	0 €	-35,525 €	0 €	33,994 €	-15,424 €	67,988 €	-21,942 €
All other Compensati	19,348 €	33,885 €	19,348 €	-72,376 €	154,011 €	-730,756 €	106,293 €
Total Compensation	223,000 €	196,708 €	223,000 €	318,050 €	80,881 €	-749,000 €	300,500 €

The differences for the total turnover sample are displayed in the first column. In total, incoming CEOs earned a median of €223,000 more than their predecessors. Columns two and three show the median salary differences in the case of internal successors and external successors respectively. While insider successors in the median earn €197,000 more than their predecessors, outsider replacements typically even earn €223,000 more. These results are consistent with

Murphy (2002) and Graefe-Anderson (2015). The aggregate data for the entire sample of turnovers shows that incoming CEOs earned a median amount of €223,000 more than their predecessors, suggesting a general upward trend in CEO compensation at transition. When breaking down this increase by the type of succession, internal successors received a median of €196,708 more than their predecessors, while external successors saw an even greater median increase of €223,000. These findings align with the literature, such as the works of Murphy (2002) and Graefe-Anderson (2015), indicating that these trends have been consistent over time. Diving deeper, the analysis indicates that CEO successors with previous experience in the role have higher compensation, earning a median of €318,050 more than their predecessors, which underscores the value placed on experience in the executive labor market. On the other hand, those without prior CEO experience have a more modest median increase of €80,881 which still points to a general preference for maintaining or increasing compensation levels following a turnover. However, the dynamics shift noticeably in the event of forced turnovers. Here, successors tend to receive a median of €749,000 less than their predecessors, particularly in the category of 'other compensation’. This substantial decrease in 'other compensation' during forced turnovers may suggest a strategic move by firms to adjust for the risks or uncertainties introduced by such transitions. Overall, the statistics show that, regardless of whether they are external or internal hires, and whether they are experienced or not, successors tend to receive higher median compensation than their predecessors. Therefore, the null hypothesis for H1 can be rejected. Notably, the base salary remains largely unaffected by the turnover event, while 'all other compensation', predominantly comprising share options, is significantly influenced. This differential impact highlights the complex dynamics of CEO compensation in executive turnover scenarios and suggests that non-salary compensation components like stock options are key levers in the adjustment of executive pay. In conclusion, the descriptive statistics clarify the complex dynamics of CEO compensation in relation to executive turnover, with discernible differences between internal promotions and external hires. These findings underscore the importance of considering the broader context of CEO turnover when evaluating compensation structures and the potential implications for governance and retention strategies.

4.3.2 Test statistics

To address the main research hypothesis (H2-H5), a multiple linear regression was conducted. To observe the combined effect of the independent variables on the dependent variable, we use a multiple regression model with the following general equation:

$$y_i = \beta_0 + \beta_1 \cdot x_{i1} + \beta_2 \cdot x_{i2} + \beta 3 \cdot x_i 3 + \ldots + \beta_k \cdot x_{ik} + e_i$$

The parameters are estimated using the least squares method, also known as the OLS method and our significance level (α) is 0.05.

The dependent variable of the analysis is first total year's total compensation of the successor around a turnover event. Five independent (explanatory) variables were selected to measure their combined influence on the pay of the CEO successor. Firstly, and *External Hire* is a Dummy that equals 1 if the CEO successor comes from another firm. *CEO before* is a Dummy Variable that equals 1 if the newly hired CEO has held any CEO position before. *Forced Turnover*, also a Dummy, equaling 1 if the predecessor was forced out of his position. The fourth predictor *Distress* is representing a Dummy that equals 1 if the company presented a negative cashflow in the year prior the turnover event. Lastly, *Tenure* is a continuous variable, indicating the tenure of the predecessor in his position as the CEO.

Additionally, six control variables were installed to control for firm characteristics as well as economic conditions, which may drive CEO pay and be correlated with the selected explanatory variables. Because a large part of CEO pay might be determined by performance-based compensation packages, it was essential to control for firm performance. *ROE* was used to measure the firm's financial profitability, generating income from its equity financing. As negative net income or prior retained loss can cause misleading ROE figures, I decided to add the *EBIT* as another control variable. *TSR* was used to control for the performance from shareholder view. As larger firms have in general more financial capabilities to allocate, *Assets*, representing the total amount total assets, controls for the firm size. *Beta* controls for the systematic risk sensitivity of the firm. In order to regulate for economic conditions, like the covid crisis, *GDPgrowth* was used.

In addition, dummy variables to control for sector specific characteristics were included for the following sectors: *Chemicals* (Chemical and Biotech industry), *Manufacturers* (e.g., automotive industry), *Utilities* (e.g., gas and energy industry), *ConsumerGoods* (e.g., cosmetic and fashion industry) and *Finance* (e.g., banks and insurance companies). Finally, the dummies *YearBefore17* and *YearAfter20* were included, as most of the sample turnovers took place between 2017 and 2020, which is the only time span represented in the sample that is characterized by a decline in economic growth rates.

Applying the discussed variables to the general multiple regression equation the following individual regression model is set up as follows:

$$CEO\ Successor\ Pay = \beta 0 + \beta 1 * External\ Hire + \beta 2 * CEO\ before + \beta 3 * Forced\ Turnover + \beta 4 * Distress + \beta 5 * Tenure + \beta 6 * ROE + \beta 7 * TRA + \beta 8 * Beta + \beta 9 * EBIT + \beta 10 * \mathrm{Assets} + \beta 11 * \mathrm{GDPgrowth} + \beta 12 * \mathrm{YearBefore17} + \beta 13 * \mathrm{YearAfter20} + \beta 14 * \mathrm{Chemicals} + \beta 15 * \mathrm{Manufacturers} + \beta 16 * \mathrm{Utillities} + \beta 17 * \mathrm{ConsumerGoods} + \beta 18 * \mathrm{Finance}$$

4.3.3 Main results

The R^2 value of 0.728 in the regression analysis indicates a strong explanatory power of the independent variables in accounting for the variability in the total compensation of CEO successors. This substantial figure suggests that the model is robust in capturing the factors that influence CEO pay following a turnover event. The adjusted R^2 of 0.483, applying a penalty for the number of predictors in the model, suggests that some of the independent variables may not be effective at explaining the variation in the dependent variable. However, it indicates that nearly half of the variability in the dependent variable can be explained by the model, which can be considered a moderate amount.

Table 8 presents the coefficients and the parenthesized t-values for three Panels. The first Panel represents the full sample, which is the main component of the analysis. Delving into the results for the full sample, the coefficient for *External Hire* is negative and statistically significant, indicating external hires, on average, receive lower total compensation than internal promotions, holding other factors constant. The coefficient of -2,250,000 implies that the salary will fall by an average of €2.25 million in the event of an external successor. The p-value of 0.046 is within the 5%-significance level, thus that the null hypothesis for H2 can be rejected. However, H2 cannot be accepted due to a contrasting result compared to my expectation. This result aligns with the notion that internally promoted CEOs may command higher pay due to their accumulated firm-specific human capital and established internal networks. The coefficient of *CEO before* is positive and the p-value within the 5% significance-level, indicating statistical significance. All other variables being equal, the successor's prior experience as a CEO is associated with an average increase of €1.86 million in its total compensation as indicated by the estimated coefficient. Therefore, all conditions are met to reject the null hypothesis for H3. This finding is of considerable interest within the corporate governance discourse as it quantifies the premium that firms are willing to pay for a CEO with a proven track record. The result aligns with human capital theory, which posits that experience and skills acquired from previous roles contribute to an individual's productivity and, hence, their market value (Becker 1964). It also supports the notion that firms perceive experienced CEOs as less risky, possibly because they are assumed to bring valuable expertise and leadership that can navigate the firm through complex challenges and market dynamics.

Table 3: Regression Results of DAX incoming CEOs compensation levels.

	Total Compensation		
	1) Full sample	**2) External Hires**	**3) Internal Hires**
Intercept	4,360,000	2,070,000	4,040,000
	(2.36)	(1.82)	(4.90)
External Hire:	-2,220,000	-	-
	(-2.12)		
CEO before:	1,850,000	-	-
	(2.11)		
Forced Turnover:	-251,933	-	-
	(-0.18)		
Distress:	468,565	-	-
	(0.36)		
Tenure	-46,834	-	-
	(-0.57)		
ROE	-2,805	153,144	14,522
	(-0.07)	(1.66)	(0.11)
TRA	-293,366	-	-
	(-0.34)		
Beta	39,740	-	-
	(0.02)		
EBIT	270	-	-
	(1.83)		
Assets	3.01	3.89	8.48
	(0.94)	(0.45)	(2.60)
GDPgrowth	453,262	134,141	229,063
	(1.59)	(0.85)	(1.13)
Industry Dummies	Yes	Only Finance	Only Finance
Year Dummies	Yes	No	No
rsquared	0.728	0.673	0.255
N	39	11	28

Forced Turnover, capturing the circumstances under which the previous CEO left the firm, is not statistically significant. The same applies for *Distress*, observing CEO turnovers that took place after the firm reported a negative cash flow. These results let us fail to reject the null hypothesis for H4, suggesting that the circumstances of the predecessor's departure do not have a discernible impact on the compensation of the incoming CEO. This finding may reflect a separation between the events leading to CEO turnover and the contractual negotiations for incoming executives. The Financial performance metrics *ROE* and *TSR* interestingly showed a negative but however insignificant relationship with CEO Pay. *EBIT* is positive and insignificant. However, it should be noted that the p-value of 0.082 is close to threshold of significance. *Beta* shows a positive impact on CEO pay but is not significant. Surprisingly *Assets* indicating a positive impact, is not significant. *GDP growth* is positive but insignificant. The dummy for CEO turnovers before the year 2017 indicates a statistically significant (p-value 0.013) average increase of CEO pay of €456,760 for successors that have been installed before 2017, if the other variables stay constant. This is an interesting result, as the trend for economic outlook was on an upward trend until 2017 implying that CEO compensation may correlate with the economic outlook. Industry effects suggest that some industries pay their CEO successors higher compensation. However, all industry dummies are insignificant.

Two more regressions were run, splitting the sample by external and internal hires, to study the performance-sensitivity of the total compensation. To secure the robustness for the significantly smaller samples, I had to reduce the number of predictors, only testing for *ROE*, *Assets*, *GDPgrowth* and *Finance* as an industry variable. The results are presented in Panel 2 and 3. Although the sample size is small and the selection of regressors is limited, there appears to be a trend in the sensitivity of CEO pay to performance. For external hires, the coefficient for *ROE* is clearly positive, but with a p-value of 0.15 outside of the significance level. For internal hires, the coefficient is almost 10 times smaller and clearly insignificant. The results hint that the compensation of CEO successors from outside the organization may be more strongly linked to short-term company performance, as previously found by Gilson and Vetsuypens (1993), Elsaid et al. (2011) and Graefe-Anderson (2014). However, we fail to reject the null hypothesis for H5 based on the analysis.

4.3.3 Robustness check

In the realm of econometric analysis, the veracity of regression results is contingent upon the satisfaction of key assumptions underlying the OLS regression. This chapter outlines the robustness checks conducted to ensure the reliability of the multiple regression model employed to investigate the determinants of CEO compensation in the context of executive substitution for the full sample.

A quintessential assumption of the OLS regression is the independence of errors. The Durbin-Watson statistic helps in detecting the presence of autocorrelation in the residuals. For this model, the Durbin-Watson statistic stands at 1.96, close to the ideal value of 2, suggesting the absence of first-order autocorrelation. The accompanying p-value of 0.956 strengthens this assertion, indicating a high likelihood that the residuals are not autocorrelated.

The Breusch-Pagan test is utilized to detect heteroskedasticity, a condition where the variance of errors is non-constant. The calculated statistic of 16.5 with a p-value of 0.485 does not provide enough evidence to reject the null hypothesis of homoscedasticity, implying that the variance of the residuals does not systematically vary with the fitted values.

The normality of residuals is inspected using the Shapiro-Wilk, Kolmogorov-Smirnov, and Anderson-Darling tests. The Shapiro-Wilk statistic, valued at 0.955 with a p-value of 0.124, indicates no violation of the normality assumption. This is supported by the Kolmogorov-Smirnov and Anderson-Darling tests, which also fail to reject the null hypothesis of normality with p-values well above the conventional threshold of significance.

Multicollinearity among predictors can inflate the variance of the estimated regression coefficients, leading to misleading results. The VIF and Tolerance statistics are computed to diagnose multicollinearity. All VIF values are below the critical value of 10, and all Tolerance values exceed 0.1, indicating no evidence of multicollinearity that could undermine the regression estimates. The highest VIF observed is 5.80 for *GDPgrowth*, which remains below the threshold of concern.

Cook's Distance is a measure of the influence of individual data points on the regression coefficients. The mean Cook's Distance in this model is 0.0500, with a standard deviation of 0.0848, and ranges from a minimum of 1.30e-5 to a maximum of 0.390. The maximum value is below the common rule-of-thumb threshold of 1, suggesting that there are no influential outliers in the data that would significantly sway the regression results.

These robustness checks validate the empirical findings and therefore, substantiates the methodological rigor with which the study's conclusions are drawn, enhancing the contribution to the scholarly discourse on executive compensation.

5. Discussion

5.1 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 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.

5.2 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.

5.3 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.

6. 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 4: Multiple linear regression results for the DAX analysis

Model Fit measures Germany							
				Overall Model Test			
Model	**R**	**R²**	**Adjusted R²**	**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 5: Multiple linear regression results for external and internal hire samples within the DAX analysis.

Model Fit measures Germany							
				Overall Model Test			
Model	**R**	**R²**	**Adjusted R²**	**F**	**df1**	**df2**	**p**
2	0.82	0.673	0.673	3.08	4	6	0.106

Model Coefficients - Y=Total Compensation				
Predictor	**Estimate**	**SE**	**t**	**p**
Intercept	2,070,000	1,140,000	1.82	0.12
ROE	153,144	92,016	1.66	0.15
Assets	134,141	296,775	0.45	0.67
GDPgrowth	3.89	4.58	0.85	0.43
Finance:				
1 – 0	-1,710,000	1,470,000	-1.16	0.29

Model Fit measures Germany							
				Overall Model Test			
Model	**R**	**R²**	**Adjusted R²**	**F**	**df1**	**df2**	**p**
3	0.505	0.255	0.125	1.96	4	23	0.134

Model Coefficients - Y=Total Compensation				
Predictor	**Estimate**	**SE**	**t**	**p**
Intercept	4,040,000	824,181	4.90	< .001
ROE	14,522	136,276	0.11	0.92
Assets	229,063	202,668	1.13	0.27
GDPgrowth	8.48	3.26	2.60	0.02
Finance:				
1 – 0	-3,920,000	2,280,000	-1.72	0.10

Table 6: Durbin-Watson test for the DAX analysis.

Durbin–Watson Test for Autocorrelation

Autocorrelation	DW Statistic	p
0.00524	1.96	0.956

Table 7: 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 8: 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 9: 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_Untilities_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 10: Cook's distance for the DAX analysis.

Cook's Distance

			Range	
Mean	Median	SD	Min	Max
0.0500	0.0148	0.0848	1.30e−5	0.390

Table 11: Q-Q plot for the DAX analysis.

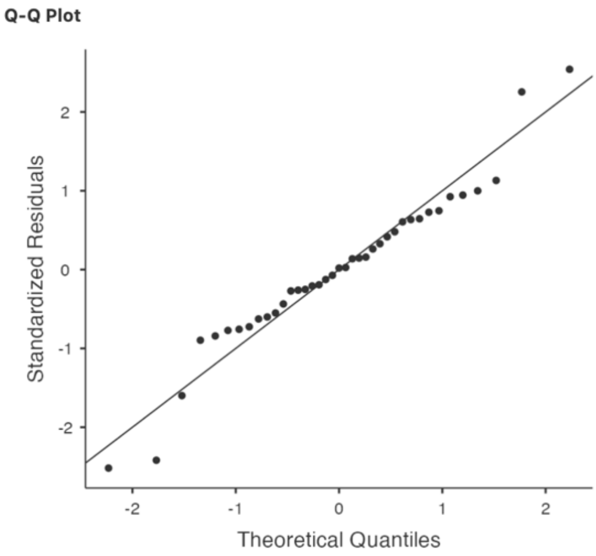
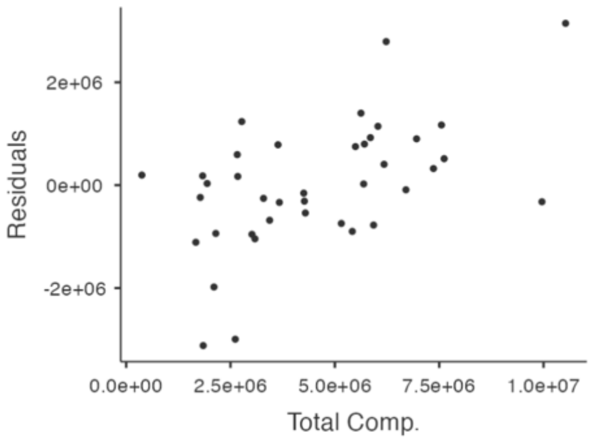


Table 12: Residual plot for the DAX analysis.



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