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SERGIO FOLDES GUIMARÃES

ESSAYS ON CEO AND EXECUTIVE TURNOVER IN BRAZIL: THE ROLE OF CORPORATE GOVERNANCE

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ESSAYS ON CEO AND EXECUTIVE TURNOVER IN BRAZIL: **THE ROLE OF CORPORATE GOVERNANCE**

A thesis presented to the Instituto COPPEAD de Administração, Universidade Federal do Rio de Janeiro, as part of the mandatory requirements for the degree of Doctor of Sciences in Business Administration (D.Sc.)

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This thesis is dedicated with love to my sons, Felipe and Bernardo, and to my wife, Adriana. To the memory of my grandparents, my greatest examples.

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Being most of my 26 years career at BNDES an executive, the inspiration for this research came in part from my experience at the bank. When discussing financial support to companies, corporate governance and succession themes were important qualitative aspects considered in the decision process.

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As an SOE, BNDES´s top management team is appointed by the government in place, but BNDES was fortunate to have in general above par executives appointed to run the bank, supported by a talented internal pool of human capital. At BNDES I served 17 CEOs and dozens of directors, they all served as an inspiration to this research, but I specially thank Professor Luciano Coutinho, a brilliant intellectual with amazing executive capacity for his lessons.

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ABSTRACT

GUIMARAES, Sergio Foldes**. ESSAYS ON CEO AND EXECUTIVE TURNOVER IN BRAZIL**: **THE ROLE OF CORPORATE GOVERNANCE**, 2020 120f. Tese (Doutorado em Administração) - Instituto COPPEAD de Administração, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2020.

This thesis is composed of three essays about corporate governance influence on CEO and executive turnover in Brazil. The first essay brings evidence that CEO turnover in state-owned enterprises (SOEs) is greater than in private companies due to political and electoral processes, making its succession and governance processes unique. A longitudinal study of impacts of election outcomes and CEO successions on market prices of the three largest SOEs in Brazil over 24 years is presented. Elections and CEO successions can generate abnormal returns on SOEs stocks. As CEO successions happen more often in SOEs, investors must monitor political events and deal with specific governance risks to invest in SOEs. The second essay analyzes the relation between CEO turnover, corporate governance, and ownership structure. While CEO turnover is usually associated with negative firm performance, it can also be affected by corporate governance quality and ownership characteristics. Analyzing a unique dataset of CEO turnover including Brazilian firms that voluntarily adopt good governance practices through listing on “Novo Mercado”, we find a negative relation between CEO turnover and firm performance, which indicates that low performance increases the likelihood of CEO turnover. We also document that firms with good corporate governance practices tend to change CEOs more frequently than traditional firms, due to increased monitoring of their executives. The third essay extends the analysis of the previous one by looking also at executive turnover and industry aspects, with special focus on family-controlled companies, the most relevant group in our sample. Industry aspects help shape the governance of companies and other relevant corporate governance aspects to be considered when analyzing the CEO and executive turnover relation to firm performance are top management team and board size and board composition.

Keywords: Corporate governance, CEO turnover, executive turnover, firm performance, ownership

RESUMO

GUIMARAES, Sergio Foldes**. ENSAIOS SOBRE TROCAS DE CEO E DE ALTOS EXECUTIVOS NO BRASIL**: **O PAPEL DA GOVERNANÇA CORPORATIVA**. 2020 120f. Tese (Doutorado em Administração) - Instituto COPPEAD de Administração, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2020.

Essa tese é composta por três ensaios sobre os impactos da governança corporativa na troca de CEOS e altos executivos no Brasil. O primeiro ensaio foca no impacto de resultados de eleições e de processos de sucessão em ações de empresas estatais. Por meio de estudos de evento, investigamos longitudinalmente por 24 anos os efeitos desses eventos nas ações das principais estatais listadas. As estatais enfrentam maior rotatividade do que seus pares privados na alta administração, especialmente quando muda o poder central e por isso, deve-se atentar para eventos políticos e riscos de governança específicos ao investir em estatais. O segundo ensaio analisa a relação entre troca de CEOs, governança corporativa e estrutura de propriedade. A troca de CEOs é em geral associada ao desempenho negativo da firma, mas ela pode ser afetada pela qualidade da governança corporativa e pela estrutura de controle. Analisando um banco de dados único sobre trocas de CEOs em empresas brasileiras, incluindo as que voluntariamente aderiram as boas práticas de governança através da listagem no segmento do “Novo Mercado”, achamos uma relação negativa entre troca de CEO e performance, que indica que firmas com baixa performance tem maior chance substituir CEOs. Também se conclui que empresas listadas no Novo Mercado tendem a substituir CEOs com mais frequência que empresas tradicionais, graças ao maior monitoramento de seus executivos. O terceiro ensaio estende a análise anterior para incorporar a troca de altos executivos e a análise por setor econômico, com foco em empresas de controle familiar. Questões setoriais influem na governança, como no tamanho do time executivo e do conselho das empresas, bem como sua composição que são fatores relevantes para a relação entre a substituição de altos executivos e o desempenho das companhias.

Palavras-chave: Governança corporativa, substituição de Presidentes, substituição de executivos, desempenho empresarial, controle acionário

LIST OF TABLES

FIRST ESSAY

SECOND ESSAY

THIRD ESSAY

LIST OF ABBREVIATIONS

AR: Abnormal return

B3: Bolsa do Brasil (Brazilian Stock Exchange)

BB: Banco do Brasil

CAR: Cumulative abnormal return

CEO: Chief Executive Officer

CFO: Chief Financial Officer

CVM: Comissão de Valores Mobiliários (Brazilian stock market regulator)

IBOVESPA: Brazilian main stock index

IR: Investor Relations

NM: Novo Mercado (highest governance segment at B3)

ROA: Return on Assets

ROE: Return on Equity

SOE: State-owned enterprise

S&P500: S&P 500 index

TMT: Top Management Team

SUMMARY

1 – INTRODUCTION

This thesis is composed of three essays about corporate governance influence in CEO and executive turnover in Brazil, written in a context where the role of leadership, performance and governance causes heated debates in the public and private sectors worldwide.

One of the objectives is to look with different lenses at these phenomena to observe how shareholders perceive the governance risks and value how companies are managed. By looking at distinct performance metrics, we try to understand what matters to the top management team, to board members and ultimately to shareholders.

Performance and governance are important topics to every company and every investor should pay attention to them. But not all companies are alike, and the wonder of how different organizations deal with these themes is one of the reasons of this investigation.

There is important research related to CEO and executive turnover in labor economics, human resources, leadership, strategy, finance, corporate governance, and other fields, but few dedicated studies to emerging markets in general. In Brazil, succession planning in privately held family companies is a theme more studied than CEO turnover in listed companies.

CEOs and top management actions are naturally linked to firm performance and are evaluated in the short and in the long run. Important theories in management study the role of top management in generating firm performance, from romance of leadership theory (Meind, Ehrlich, & Dukerich, 1985) to upper echelons theory (Hambrick & Mason, 1984) with the controversy of the real role of management resulting in estimations of the “CEO effect” (Hambrick & Quigley, 2013).

CEO and executive turnover are complex processes that companies must face. Succession and contingent plans for replacing executives are important concerns of any organization, but the ability to do so when needed and provide an effective response will vary from company to company. The acclaimed and awarded “Succession” television show portraits how a family deals with an aging entrepreneur to handle the disputes on who will manage the family businesses in the future,

dealing with shareholders and competitors, something that is not unlikely even in markets such as the US market, where dispersed ownership is more common.

Farah et al. (2019) showed in a systematic review how different types of organizations, from public listed to privately owned (mostly family) companies, but also including political organizations, that must also deal with the same phenomenon (leadership turnover) where performance is a key factor and political organization context is another that moderates the impacts of performance. Rowe et al. (2005) analyze results from the hockey teams over 60 years and find important evidence that the leader can have a major influence in performance.

Recently, Bennedsen, Pérez-González & Wolfenzon (2020) have shown that even temporary CEO health licenses affect performance. The hype about the exact contribution of leaders to performance and how they should be compensated is still an unsolved puzzle that is heavily debated.

CEO and executive turnover are relevant turning points where antecedents and consequences of changes in management can be studied. It is also object of attention from stakeholders in general, as those events affect how companies and management are seen in the market.

Corporate governance has importance in setting the grounding rules that will define why and when turnover takes place. Corporate governance quality will also be evaluated on how turnover is linked to firm performance. As firms are managed according to these rules, differences in corporate governance characteristics, including the presence and nature of controlling shareholders and industry characteristics, may impact firm objectives, effectiveness, disclosure, shareholders rights and valuation.

Although CEO and executive turnover are among the most researched subjects in management and a hot topic to the specialized media and to whoever follow markets and corporate decisions, there are still important research gaps in less developed markets, including Brazil.

These essays addresses some of those gaps, shedding light in aspects that were not studied before and bringing insights on how companies and their management have been evaluated by investors, considering the relevant differences in corporate governance, ownership and industry in Brazil.

The first essay was just published in RBGN – Revista Brasileira de Gestão de Negócios, Rev. Bras. Gest. Neg. São Paulo v.22, Special Issue. 2020 p. 462-481, in a special issue dedicated to Corporate Governance. It is named "Elections and CEO successions in Brazilian state-owned companies", which explores the uniqueness of CEO successions in the most important Brazilian SOEs, affected by political events. CEO successions in these SOEs are more frequent than in private peers over the last 20 years and the impacts for investors are presented through event studies.

It is important to discuss governance of SOEs in the context of recent political and institutional crisis, with corruption scandals affecting SOEs and several important private companies and reaching important politicians in Brazil, in a process that culminated in a presidential impeachment in 2016, with a slow recovery afterwards, that still has consequences for the economy.

By making clear that SOEs have a different corporate governance due to its controlling shareholder, being subject to political events determining changes in the TMT, differently than private peers, the essay highlights the role and the risks that investors face in SOEs.

The differences of how SOE are managed will also appear in different analysis in the second and third essays, which address listed companies in general in Brazil and where governance aspects are linked to top management turnover events and to performance, providing estimates of the CEO performance sensitiveness according to its governance. To pursue these essays, we built a unique database with CEO and executive turnovers through access information filed by companies in CVM systems via GetDFPData library by Perlin, Kirch & Vancin (2019) in R. Statistical analysis was also made in R studio programming environment.

The emergence of the “Novo Mercado” (NM) segment in Brazil is a landmark of the recognition of the importance that corporate governance practices have for investors. The NM segment has been important to mitigate risks and concerns of expropriation, translating in higher valuations and better access to capital. Companies listing on NM segment are committed to better practices in corporate governance and information disclosure, to granting minority shareholders more rights than required by law and keeping minimum share liquidity requirements. NM listing is a key variable to differentiate companies in the second and third essays.

A version of the second essay has been submitted for publication on a top international journal and is named “Do performance, ownership, and governance influence CEO turnover? Evidence from Brazil”. It addresses the importance of the NM segment for enhancing the effectiveness for investors of the monitoring role of executives, making CEO evaluation more linked to performance in companies with different kinds of controlling shareholders. It shows that firm performance and corporate governance matter to CEO turnover, especially in family-controlled companies.

The third essay, named “Governance, performance, and industry influence on CEO and Top Management turnover in Brazil”, looks beyond CEO turnover, performance, and corporate governance aspects by incorporating analysis of executive turnover in general and industry dimensions, besides other governance variables related to board size and composition, with a special interest in family-controlled companies, the most important group in our sample. Those dimensions help to explain the role of performance and how much it matters in CEO and executive turnover in Brazil, for different types of companies. It documents the growing trend in executive turnover in general, confirming the importance of corporate governance to greater CEO and executive turnover sensitivity.

In the conclusion chapter, we relate and summarize the key findings of this thesis and make suggestions for future studies that can advance the corporate governance research agenda on CEO and executive turnover in Brazil.

2- ELECTIONS AND CEO SUCCESSIONS IN BRAZILIAN STATE-OWNED COMPANIES

Abstract
This paper brings evidence that CEO turnover in state-owned enterprises (SOEs) in Brazil is greater than in private companies due to political and electoral processes, making its succession and governance processes unique. A longitudinal study of impacts of election outcomes and CEO successions on market prices of the three largest SOEs in Brazil, from 1994 to 2018, through event studies is presented. Elections and CEO successions can generate abnormal returns on SOEs stocks. As CEO successions happen more often in SOEs, investors must monitor political events to invest in SOEs and deal with specific governance risks.

Keywords: CEO succession; corporate governance; state-owned enterprises; event studies

2.1 – INTRODUCTION

This study investigates how elections and executive turnover affects State-Owned enterprises (SOEs), an important part of the Brazilian economy. In the past two decades, discussions about governance and strategic importance of these companies have been on the headlines, swinging between privatization wishes and defendants of greater role of SOEs in the economy. Concerns about governance in SOEs has been a theme for political discussions and debate in the Brazilian society, as they have been often involved in corruption scandals and faced management and governance problems caused by political interference.

Recent changes in law try to minimize these problems but real impacts are yet to be seen. However, its first tests may provide evidence that political interference has not finished. A recent case of CEO (Chief Executive Officer) succession in the most important Brazilian SOE (Petrobras) shows that political interference can still impact markets and be a determinant of executive turnover in SOEs.

CEO succession has been a key theme for researchers but not on SOEs, despite their presence being relevant in several economies. We posit that successions in SOEs are linked to political and electoral processes, with executive turnover in SOEs being greater than in private companies, making succession and governance processes in SOEs unique.

In general, there is a downward trend for CEO tenure that Charan (2005) calls the CEO crisis, more dramatic in companies without successors ready to take the helm. Shorter CEO tenure provokes corporate instability and market uncertainty which may harm company´s image and affect all stakeholders. It is in this context that succession matters more than ever.

A recent survey[1] by the World Economic Forum mentions lack of leadership as a global trend, as 86% of the respondents think there is a leadership crisis. Brazil has one of the smallest confidence indexes on leadership.

In democracies, politicians must face elections every few years and in companies, CEOs must be confirmed by shareholders and boards and are threatened by the possibility of being ousted. In fact, besides the election or general assembly period, there is always the chance of a non-expected turnover.

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[1] World Economic Forum (2015) - http://reports.weforum.org/outlook-global-agenda-2015/top-10-trends-of-2015/3-lack-of-leadership

CEOs of listed SOEs are often seen as executives *and* politicians, as they are appointed by governments and are subject to double pressure, by government and market participants.

The political praxis in Brazil, now unveiled by “Operation Car Wash”, has been to let different political parties forming a coalition appoint names to top positions in Brazilian SOEs. Often this leads to corruption scandals. The President of Brazil, as the chief of the executive power, can appoint 22.500 persons to public positions, far more than the 4.000 in the US, 300 in the UK or 500 in France or Germany, according to Claudio Abramo, from the Non-governmental organization Transparência Brasil.

Brazilian national SOEs are historically among the most important listed companies in B3 (Brazilian stock exchange). This paper will focus on succession processes at the national SOEs in Brazil listed at B3 and part of the IBOVESPA benchmark index: Banco do Brasil (BB), Eletrobras and Petrobras.

We will analyze through a longitudinal study spanning more than two decades the impact of elections and successions in the market value of those companies. During this time span, at least once, all three companies had losses attributed to mismanagement and political use to promote unsustainable policies favored by different governments.

Thus, analyzing SOE´s performance linked to CEO appointment is relevant for understanding how perceptions of political influence drive market reactions.

Brogaard & Detzel (2015) have shown how uncertainty related to government economic policies affect decision making processes of investors and companies in general, being an important risk factor. Election periods are prone to increased uncertainty and outcomes of polarized elections can have dramatic impacts on markets. Bialkowsli, Gottschal & Wisniewski (2006) highlighted that elections processes in 27 OECD countries do promote market volatility.

Besides market volatility and uncertainty related to government economic policies, elections affect SOEs directly, as changes in top management are dependent on the political process, potentially affecting their strategy.

Several conflicts of interest may arise in SOEs, seen as hybrid organizations (Bruton et al., 2014), as they play additional roles given by Government while shareholders complain management does not seek value maximization. Carvalho

(2014) shows how governments can shape public policies and use SOEs to implement them, favoring political allies in elections.

The relation of succession and performance in SOEs has additional challenges, as the life cycle of its main executives is subject to the political cycle, with changes in the balance of power in government affecting the top management of those companies. Thus, the relevance of succession on SOEs is paramount but not fully understood.

Management turnover and CEO succession in SOEs is different than in private peers and linked to the political process. To gather evidence of this phenomenon, we investigated yearly changes in management in official documents filed at CVM, with special attention to changes after election years.

By analyzing those changes in top management disclosed in official, we have found that the CEO turnover in SOEs is bigger than in private companies and can be linked to the political cycle, which makes relevant to analyze impacts of elections and CEO turnover on market performance.

After the recent corruption scandals involving SOEs such as Eletrobras and Petrobras and several private groups in Brazil, linked with corruption of politically appointed executives, congress approved law 13.303/2016, strengthening governance requisites, improving transparency, disclosure, risk management and compliance aspects at SOEs, with special attention to executive and board member appointment processes. The law is quite recent but is already being questioned by congressmen that want to soften its requirements.

Event studies on political events (presidential elections and impeachment processes) and CEO successions at SOEs show that, in several cases, SOE´s market performance was affected and there is evidence of abnormal returns (AR) on event day or cumulative abnormal returns (CAR) around event day.

To the best of our knowledge, this is the first study to combine the analysis of top management changes in documents filed by companies at CVM with quantitative results from short-horizon event studies, which provide unique insight into phenomena that should be more studied: impacts of CEO succession and political process on market prices.

The structure of this paper proceeds along the following sequence: Section 2 brings a literature review on succession, in Section 3 we introduce data and methodology, Section 4 discusses the results and Section 5 concludes.

2.2 – LITERATURE REVIEW

Research on CEO succession has attracted many scholars, looking at succession events through different lenses: human resources, planning, strategy, leadership, and finance. Antecedents and consequences of succession, including firm and CEO characteristics, were reviewed in Giambatista, Rowe & Riaz (2005).

Research also seeks to identify key ingredients for success in succession and the role of executives in leading companies and driving firm performance. A key variable is the origin of the newly appointed CEO, as insiders (working within the company) and outsiders may face different difficulties but can bring different contributions to the company.

CEO origin relation to firm performance is one of the most important streams of research. Zhang & Rajagopalan (2010) look at succession processes interested in how firm performance and strategic change varies according to CEO origin. Jalal & Prezas (2012) examine outsider CEO succession and its relationship with firm performance, finding that insider succession provides better immediate results, but outsiders display better stock performance in later years. Ferris, Jayeraman & Lim (2015) summarize sixty years of research over the origin of the successor and capital allocation decisions on dividends, M&A, and investments.

Industry is another important variable in studying CEO´s succession processes. Industry aspects of succession have been analyzed by Datta & Rajagopalan (1998). Often, the definition of insider has incorporated, besides company-specific, industry-specific knowledge.

Berns & Klarner (2017) published a comprehensive literature review on CEO succession, trying to understand succession in companies as complex processes rather than isolated events when companies have succession planning.

CEO turnover may happen for different reasons. Turnover can be voluntary or forced, planned or unexpected, with different consequences for companies. How each process unfolds may depend on case specific agency problems between

executives and shareholders, according to Jensen & Meckling´s theory of the firm (1976), making it important to understand how shareholders monitor and control the company.

Guo & Masulis (2015) provide evidence of how differences on board structure and monitoring impact CEO turnovers. Greater board independence leads to more rigorous CEO monitoring.

The relationship between CEO succession and firm performance has been studied by many scholars. Jenter & Kanaan (2015) have shown that CEOs may be dismissed by factors outside their control and Huson, Malatesta & Parrino (2004) have analyzed the impact of successions in firm performance, finding that usually performance declines prior to successions to improve afterwards, both through accounting measures and market performance.

CEO successions are often related to poor performance or crisis. Gangloff, Connely & Shook (2014) studied investor reactions to executive succession in companies that run into problems of financial misrepresentation, showing that signaling change or scapegoating are successful strategies to overcome them.

Connelly et al. (2016) analyze market reactions to new CEOs when companies present integrity or competence failures, finding that a common strategy is to communicate that the problem is gone after the former CEO leaves to restore investor confidence and that the type of successor the firm chooses is a critical aspect of successful communication.

Shen & Cannella (2003) show that succession is a common concern for investors, with succession planning being part of the strategic discussion within companies. Investors react favorably when the heir apparent is nominated as the new CEO in good performance companies.

Most of the research on succession is dedicated to developed markets and to widely held companies. The typical agency conflict studied is between shareholders and executives, although notably in companies with relevant shareholders with big influence on management, conflicts between controlling and minority shareholders are common.

This last type of conflict prevails in emerging markets, where usually companies are not widely held but instead have strong controlling groups. This is

exactly the case of SOEs on emerging and transition economies, where Government appoints the management of SOEs and often privileges the execution of public policies rather than efficiency or financial performance.

Crossland & Hambrick (2011) have analyzed the differences in nation-level institutions in 15 OECD countries, showing that managerial discretion varies across countries and institutions, which may limit CEOs role to promote change. According to Crossland & Chen (2009), executive accountability varies across countries, implying in different relations between performance and CEO dismissal.

Another understudied question is the role of SOEs in different economies. Christensen (2011) points out that there are 48 listed SOEs in OECD countries, with market value over USD$ 500 billion. The OECD Guidelines on Corporate Governance of State-Owned Enterprises. last updated in 2015, helps understand the challenges of SOEs, which vary in different countries.

In emerging and transition economies, SOEs have greater presence and importance. Andres, Guasch & Azumendi (2011) look at governance characteristics in energy and water SOEs in Latin American, finding that good governance and regulation are key to mitigate minority expropriation by controlling shareholders.

Conflicts of interest in SOEs in emerging economies are a special case of the governance and agency conflicts that affect companies in general in non-OECD markets, as control value is often much higher than market value. Few dedicated studies cover succession in those different market environments.

Lazzarinni & Musacchio (2015) try to gauge the “CEO-effect” in Brazilian SOEs, looking at a dataset of SOEs from the 70´s to the 90´s. They arrive at the conclusion that a 2% increase in the return on assets can be attributed to a specific CEO, by following CEOs that have taken this position at more than one SOE. They point out that turnover in SOEs is much bigger than on private companies and that spurious effects may affect their analysis. It is hard to compare with SOEs nowadays, after the privatization wave in the 90´s.

Succession in SOEs have attracted a few studies: Chang & Wong (2009) covered executive turnover in China and its relationship with the multiple objectives of governance in SOEs, highlighting that there is scarce research on monitoring of

managers but there is direct relationship between managerial turnover, firm financial performance and those multiple objectives.

Yu & Lee (2016) have analyzed SOE´s performance in Korea in connection to the financial crisis, linking performance with the political connectedness of the CEO´s, showing that biographical information and political relations are important factors for CEOs in SOEs.

Helmich & Gilroy (2012) shed light on how succession happens in SOEs in China, in a gradualist economic transition environment context, where CEO succession is influenced by the availability of outsider candidates.

Silveira & Dias-Junior (2010) have analyzed the impact of bad governance practices in 24 cases of conflicts between shareholder groups reported in the specialized media in a concentrated ownership environment like its typical in Brazil, finding strong evidence of the presence of agency cost reflecting in higher risk and lower share value. Although only two of the 24 cases investigated are related to SOEs, where the government is the controlling shareholder, the conflicts reported highlight how interests diverge between controlling and minority shareholders either by economic or political reasons both in SOEs and in privately controlled companies.

Black, De Carvalho & Gorga (2012) compare governance practices in Brazil and other emerging markets, such as Russia, India & Korea. They point out that SOEs may need different governance requirements to achieve optimal governance.

Black, De Carvalho & Gorga (2010) conclude that board independence and financial disclosure are topics where Brazilian companies lag international peers in 2005, noting recent improvements, especially in new listings with higher standards of governance.

Leal, Carvalhal & Iervolino (2015) survey the evolution of corporate governance practices in Brazil in the last decade, with overall positive signs. Notwithstanding, shareholders´ agreements are still quite common, leveraging the controlling groups and lessening the effective power of outside directors and minority shareholders.

Fernandes & Novaes (2018) analyze the impacts of the government as a large shareholder by measuring the voting premia of dual-class shares trading in at B3 between 2008 and 2012, a period of time where government interventionism in the

economy was high. They conclude that this activism lowers the value of minority votes for business decisions.

Based on this review, we introduce two hypotheses to investigate the relation between CEO succession in SOEs and political events, through qualitative and quantitative aspects:

1) H0 – CEO Turnover in SOEs is greater than in private peers and influenced by political processes.
2) H0 - CEO turnover in SOEs can generate abnormal returns

2.3 – DATA & METHODOLOGY

After the privatization wave in Brazil that ended in 2002, three national SOE´s in Brazil remained listed and with relevant liquidity at B3. BB, Eletrobras and Petrobras are the only national SOEs stocks in of the IBOVESPA index, representing three different and important sectors of the Brazilian economy: oil & gas, electric energy, and financials. Eletrobras and Petrobras are dual class share companies, and we analyzed both classes, reporting only the most liquid stocks.

Although the number of SOEs studied is a limitation, those cases can provide good proxies for succession processes in other SOEs. To try to overcome these limitations, we investigate how succession processes affect differently SOEs, by comparing them with companies that are in the same sectors when possible. Although there are no twin companies, they compete in the same markets and have overall similar characteristics. We will also compare if elections affect those proxies the same way than SOEs.

The analysis of changes in management after elections and comparisons with private companies also helps to understand the uniqueness of the situations SOEs face. For accessing the changes on each SOE´s in every government transition, members of the board of directors or the executive board in the last year of a term are compared with names in the first year of the next term, according to official information filed at CVM, the Brazilian equivalent of the Securities and Exchange Commission in the US.

Since the stabilization of the Brazilian economy in 1994, there were six general elections for Presidency. Incumbents on first tenors can run for re-election and every elected president since was able to secure re-election for another term, from Fernando Henrique (FHC) to Dilma Roussef. Dilma was impeached in 2016 and succeed by Vice-President Temer, totaling 7 political processes of interest.

As per Table 2.1, tenure of CEO´s of SOEs in Brazil is dependent on political process and affected by general elections. For some of the SOEs studied, CEO´s tenure can be compared to their direct private competitors:

- BB´s main competitors faced CEO successions according to succession planning. Itau has changed CEO only once and Bradesco has changed CEOs twice in the period analyzed, while BB had 10 CEOs in the same period.

- Eletrobras, has good proxies in Engie Brasil and in CPFL Energia. Since then, Engie and CPFL Energia had 2 CEOs each, while Eletrobras had 10 CEOs. In fact, Engie was a successful spun-off of Eletrobras privatized in 1997 and the current CEO of Eletrobras spent 18 years as CEO of CPFL Energia.

- For Petrobras, the closest proxy is Ultrapar, also in petrochemicals and fuel distribution. Ultrapar had 3 CEOs since 1981, while Petrobras had ten CEOs since 1994, a much shorter period.

From these examples, we can infer that Brazilian SOEs CEO´s tenure is shorter than their national competitors and international and industry averages consulted. Table 2.1 summary information about many CEOs each President appointed to SOEs.

Table 2.1 – Presidents in Brazil and number of CEOs of SOEs

Date	Election Round	President	Term	Banco Brasil	Eletrobras	Petrobras
03-out-94	1	Fernando Henrique	1995-1998	1	3	1
04-out-98	1	Fernando Henrique	1998-2002	3	3[a]	3
27-out-02	2	Lula	2002-2006	3[a]	3	2[a]
29-out-06	2	Lula	2006-2010	2[a]	3[a]	1
31-out-10	2	Dilma	2010-2014	1	2[a]	1
26-out-14	2	Dilma	2014-2016 *	2	1[a]	1
12-mai-16	*Impeachment*	Temer	2016-	1	1	2
			Total CEOs	**11**	**12**	**10**

[a] CEOs kept from one term to the next. Total CEOs eliminates duplicates.

On average, CEOs of SOEs were changed every 2 years, about 20% of the average SP&500 CEO´s tenure in 2014 (9.9 years), according to the CEO Succession Practices 2015 edition.

Managerial discretion of CEOs in SOEs is lower than on private companies. There is limited power for the CEO to hire or dismiss his team, as the executive board is also appointed by the President of Brazil. The board has the role of naming and dismissing executives, but it is mostly appointed by the Federal Government, having low independence.

In every government election and in government transitions there were important impacts in SOEs, with several changes in top management and in strategic orientation.

We mapped all CEO succession processes on the targeted SOEs since the presidential election of 1994. We collected and analyzed all changes in top management through documents filed at CVM, with special attention to changes after elections.

Official information such as board composition, including short bios for the main executives, was retrieved from CVM´s and from each company´s website.

Executive biographies were used to classify them as insiders (with industry-knowledge) or outsiders (without industry-knowledge).

Table 2.2 lists the CEOs of BB, Petrobras and Eletrobras appointed by each Government, classifying them as insiders or outsiders according to public archival data available at CVM containing CEO´s short bio. 16 out of 32 changes of CEOs in SOEs listed happened between election/impeachment date and the initial 3 months of the new government taking office.

This high level of turnover makes interesting to investigate market reactions to elections and CEO succession on SOEs. By analyzing impacts of succession in federal government and in management of SOEs since 1994, we can provide insights in governance that have not been analyzed systematically before.

Quotes of the stocks listed in the B3 and with presence in the benchmark index IBOVEPA from 1994 until June 30, 2018 were obtained from database Economatica.

The next three subsections will provide descriptive information about the SOEs studied and the last subsection will detail the methodology used in this study.

2.3.1 - Banco do Brasil

BB is the leading state-owned bank in Brazil for over 200 years. BB is a commercial bank with over 5000 retail branches in Brazil and international operations in more than 40 countries.

BB is controlled by the National Treasury, with 54% of the voting shares and its market value was close to US$ 20 billion by June 2018. In 1996, BB received a capital injection close to US$ 6 billion from the National Treasury to strengthen its balance sheet and deal with huge losses from bad loans to the agribusiness sector, a key sector for Brazil. BB has the role of implementing public policies on behalf of the Government for the sector and access to cheaper ear-marked funding for doing that.

BB had 4 different CEOs under FHC (1 insider), 4 under Lula (1 outsider) and 2 insiders under Roussef, roughly one CEO every 18 months since 1994, as per Table 2.2 – Panel A. All CEOs were either career employees (insiders) or economists with a financial background (outsiders).

In 2006, BB joined B3´s “Novo Mercado” listing segment of best governance practices, after unifying share classes, being the only national SOE listed on it.

Table 2.2: CEOs of SOEs

CEO	Insider	Initial Date	End Date	Government
Panel A: Banco do Brasil				
Paulo Cesar Ximenes	*Yes*	*Feb, 16 -1995*	*Jan, 06 - 1999*	*Fernando Henrique*
Andrea Calabi	*No*	*Jan, 06 - 1999*	*Jul, 29 - 1999*	*Fernando Henrique*
Paolo Zaghen	No	Jul, 29 - 1999	Mar, 28 - 2001	Fernando Henrique
Eduardo Guimarães	No	Mar, 28 - 2001	Jan, 29 -2003	Fernando Henrique
Cassio Casseb	*No*	*Jan, 29 -2003*	*Nov, 17 - 2004*	*Lula*
Rossano Pinto	Yes	Nov, 17 - 2004	Dec, 11 - 2006	Lula
Antonio Lima Neto	*Yes*	*Dec, 11 - 2006*	*Apr, 08 - 2009*	*Lula*
Aldemir Bendine	Yes	Apr, 08 - 2009	Feb, 06 - 2015	Lula
Alexandre Abreu	*Yes*	*Feb, 06 - 2015*	*May, 31 -2016*	*Dilma*
Paulo Caffarelli	*Yes*	*May, 31 -2016*		*Temer*
Panel B: Eletrobras				
Mario Fernando Melo Santos	*Yes*	*Jan, 02 - 1995*	*May, 04 - 1995*	*Fernando Henrique*
Antônio Imbassahy	No	May, 04 - 1995	May,29 - 1996	Fernando Henrique
Firmino Ferreira Sampaio [b]	No	May,29 - 1996	Apr, 09 - 2001	Fernando Henrique
Cláudio Ávila da Silva	No	Apr, 09 - 2001	Apr, 01 -2002	Fernando Henrique
Altino Ventura Filho	Yes	Apr, 01 -2002	Jan, 14 -2003	Fernando Henrique
Luiz Pinguelli Rosa	*No*	*Jan, 14 -2003*	*May, 12 - 2004*	*Lula*
Silas Rondeau	No	May, 12 - 2004	Jul,11 - 2005	Lula
Aloísio Vasconcelos Novais	No	Jul,11 - 2005	Jan, 02 -2007	Lula
Valter Luiz Cardeal	Yes	Jan, 02 -2007	Mar, 10 -2008	Lula
José Antonio Muniz Lopes [b]	Yes	Mar, 10 -2008	Feb, 28 - 2011	Lula
José da Costa Carvalho [b]	*Yes*	*Feb, 28 - 2011*	*Jun, 01 - 2016*	Dilma
Wilson Ferreira Júnior	*No*	*Jun, 01 - 2016*		*Temer*
Panel C: Petrobras				
Joel Mendes Rennó [b]	*Yes*	*Jan, 01 - 1995*	*Mar, 08 - 1999*	*Fernando Henrique*
José Coutinho Barbosa	*Yes*	*Mar, 08 - 1999*	*Mar, 24 -1999*	*Fernando Henrique*
Henri Philippe Reichstul	No	Mar, 24 -1999	Jan, 02 - 2002	Fernando Henrique
Francisco Gros	No	Jan, 02 - 2002	Jan, 02 - 2003	Fernando Henrique
José Eduardo Dutra	*Yes*	*Jan, 02 - 2003*	*Jul,22 - 2005*	*Lula*
Sergio Gabrielli [b]	Yes	Jul,22 - 2005	Feb, 13 - 2012	Lula
Maria das Graças Foster	Yes	Feb, 13 - 2012	Feb, 06 - 2015	Dilma
Aldemir Bendine	*No*	*Feb, 06 - 2015*	*May, 30 - 2016*	Dilma
Pedro Parente	*No*	*May, 30 - 2016*	*Jun, 01 - 2018*	*Temer*
Ivan Monteiro	No	Jun, 01 - 2018		Temer

[b] CEOs with mandates renewed from one government to the next.

Changes of CEO following elections in italic/underlined.

2.3.2 – Eletrobras

Eletrobras is a holding company in the electric sector responsible for 37% of the energy generation and for 57% of the energy transmission in Brazil. Eletrobras has market value close to US$ 5 billion by June 2018, and is controlled by the National Treasury, with 54% of the voting shares (the most liquid ones).

Eletrobras controls large generation and transmission subsidiaries and some small utilities in poorer states in Brazil that are being prepared to privatization. Eletrobras has also many minority or co-controlled investments, in partnerships with private companies.

The energy sector is regulated and most of the sector´s companies are or have been SOEs. Most CEOs have an engineering background and a career in the sector, many with political connections.

In Table 2.2 – Panel B, we classify as Insiders only CEOs with previous experience in the Eletrobras conglomerate, while outsiders in general had experience at the state rather than federal level in the sector. Several of the CEOs had previous experiences either at subsidiaries of Eletrobras, or state-level SOEs.

Eletrobras had 5 different CEOs under President FHC, 5 under Lula and 1 under Dilma Roussef, who had years of previous experience in the sector as energy secretary of Rio Grande do Sul state and Energy Minister and Chairwoman of Eletrobras under Lula´s Presidency. Eletrobras had roughly one CEO every 18 months since 1994.

Due to governance problems, Eletrobras has settled a class action in the US as some of its investments have been investigated by “Operation Car Wash”. Investors were questioning accounting standards for several investments from 2009 to 2014. External auditors also have been reluctant to approve its financial statements.

2.3.3 – Petrobras

Petrobras is the giant national-oil company, with market value over US$ 65 billion by June 2018, being the 5th largest listed oil company in the world, and historically the most important company in Brazil. Petrobras was able to raise US$ 70 billion in 2010, the largest public offering in history so far, in a context of high oil

prices and bullish perspectives for the company and for Brazil. The National Treasury of Brazil controls Petrobras with 50.26% of the voting capital. Petrobras is a dual-class share company and preferred shares are the most liquid.

Being a market leader with huge technical expertise in identifying and extracting oil in ultra-deep fields, Petrobras was hurt by its huge indebtedness due to a heavy investment program, now known to be linked to the corruption scandal investigated by the “Car-Wash” investigation.

External auditors were reluctant to approve its financial statements since the scandal emerged, in the third quarter of 2014. Petrobras balance sheet has been impacted by the corruption scandal, with losses of nearly US$ 17 billion in write-downs and impairments being recognized. Petrobras is settling class actions with investors internationally in an amount close to US$ 3 billion. Several former executives of Petrobras are already in jail.

Petrobras grew a lot, investing in the discoveries of the pre-salt and on refineries. Huge losses in ill-designed projects with cost overruns, now known to be directly affected by the corruption scandal, and populism in fixing its prices have increased its indebtedness, the highest in the world.

Being at the center of the corruption scandal and facing high leverage and uncertainty, Petrobras stock prices were depressed until the new administration in 2016 started to regain market confidence.

Table 2.2 – Panel C shows that during President FHC´s two terms, Petrobras had 4 different CEOs, while during Lula´s two terms Petrobras had 2 CEOs and President Dilma (previously Energy Minister and Chairwoman of Petrobras in Lula´s government) appointed 3 different CEOs in 5 1/2 years. President Temer appointed two CEOs in 30 months, as Ivan Monteiro, then CFO, took over as successor to Pedro Parente, who resigned over claims of political interference in Petrobras pricing policy.

Recent evidence shows that the recovery process of Petrobras is still affected by political interference when independent pricing policies conflict with government´s political objectives.

2018´s succession process at Petrobras was the only one implemented under law nº 13.303/2016. Analyzing its outcome and discussions about Petrobras´s

policies since them, this law could not shield completely SOEs from political interference and political use by its controllers.

On average, Petrobras changed CEO every two years. Average tenure for CEOs at Petrobras since 1994 has been well below the average in the industry, which is 4.6 years according to a global survey by the Oil & Gas Financial Journal.

Petrobras CEO´s background is mixed, with some coming from the financial sector (outsiders) and some from within the company (insiders).

2.3.4 – EVENT STUDY METHODOLOGY

Through short-horizon event studies, the impact of elections and CEO succession processes on the selected SOEs is analyzed longitudinally since the election of 1994.

Event studies are a workhorse of empirical finance due to its simplicity, despite its known limitations, according to Kothari & Warner (2006). Event studies are here implemented as a one-factor model (using the Market Model), and we chose to use a simple OLS model, not-adjusted for heteroscedasticity as naturally there is more volatility in markets prior to election periods, hence more variance. Succession processes are also prone to more volatility, but those characteristics usually don´t contaminate short-horizon event studies, especially in event day and short windows around it.

Several succession studies used event studies to identify AR and changes in market perception. A standard framework for event studies is used, measuring ARs on event day and CARs over different windows around event day. IBOVESPA is considered as the Market Return and parameters specific to each stock were obtained through regressions on standard previous periods. AR is calculated by the difference between real stock returns and expected stock returns according to the Market Model over the windows of interest.

In all event studies, calculated using Event Study Metrics Software, an estimation window of 120 trading days finishing 15-days before the event (election date or succession date) was used. For estimating returns and calculating abnormal returns, we used the Market Model with parameters calculated through regressions using the IBOVESPA as the market return, according to the equation:

$$(1) \quad ExpRet_t = Alfa + Beta * IBOVESPA_t + Error_t$$

The parameters of the Market Model are estimated using an Ordinary-Least Squares (OLS) regression. From the equation (1) we estimate the difference between realized and expected returns and the generation of abnormal returns, on event day and on short windows around event day.

Cross-section event studies were also performed comparing how events affected several companies on a given date or affecting a set of companies over time. Kolari/ Pynnonen Cross-Correlation adjustments were used to avoid concerns of cross-sectional dependence by over rejection of the null hypotheses of no mean effect.

This framework was used for studying two types of events and their impacts on SOEs: presidential election dates and CEO succession dates.

Event studies related to each election were performed for each SOE on major political events.

After analyzing the impact of the political processes, we turn to individual CEO succession processes on SOEs, covering 32 successions on SOEs using the same event study methodology. CEOs are classified as insiders or outsiders according to their bios, following the literature.

2.4 – RESULTS

The number of succession processes in SOEs in Table 2.1 is much higher than average, making worthwhile to investigate which specific characteristics differentiate them. Table 2.2 illustrates how often political events are related to CEO succession in SOEs. In Table 2.3, which presents the summary of changes in the top management team (TMT) of SOEs after election years, power shifts cause greater turnover in management than reelections or continuity governments.

Table 2.3 -Changes in Top Management Team filed at CVM after election years

Election– Election + 1 year	% change of TMT in Banco do Brasil	% change of TMT in Eletrobras	% change of TMT in Petrobras
1998-1999 (FHC1- FHC2)	57.14%	22.22%	7.14%
2002 -2003 (FHC-Lula)*	**86.67%**	**71.43%**	**80.00%**
2006-2007 (Lula1-Lula2)	37.50%	38.46%	11.76%
2010-2011 (Lula-Dilma)	18.75%	50.00%	47.05%
2014-2015(Dilma1-Dilma2)	29.41%	42.86%	88.23%
2015-2016 (Dilma-Temer)*	**88.23%**	**81.25%**	**31.25%**

*power shifts between political parties, highlighted in bold, showing greater turnover in the TMT than reelections or elections that represent continuity. In these cases, the cascading effects and changes in strategy tend to be much higher than in a continuity scenario.

Tables 2.2 and 2.3 bring evidence of the influence of political processes to CEO turnover and top management change in SOEs, as postulated in our first hypotheses.

Every transition in power has multiple and multilevel effects on companies, with changes in priorities and in top management cascading into middle management. The organizational structure is often impacted and symbolic aspects of the marketing and public image of the companies can change.

Elections and CEO successions by political reasons, by affecting management, may impact performance differently than competitors in the sectors they operate. Although succession planning is important, in Brazilian SOEs no succession planning is viable at the top level, because of the impacts of political processes on top management. Clear evidence of this is that CEO turnover in SOEs occurs much more often than privately owned peers.

To investigate our 2nd hypothesis, about generation of abnormal returns indirectly in political events and directly in CEO successions, we used two sets of event studies, in Tables 2.4 and 2.5.

Following the literature, we investigated if political events could generate abnormal returns and if they affect more often SOEs than their proxies. For each event, CAR was calculated in windows of 1, 5 and 10 days before and after the event.

Table 2.4 – Impacts on SOEs of political events

		Banco do Brasil		Eletrobras		Petrobras		Cross-Section SOEs	
	window size	CAR	t	CAR	t	CAR	t	CAR	t-cross
1994 election	0	2.16%	0.46	-3.81%	-0.83	-5.97%	-1.22	-2.50%	-1.05
	1	0.84%	0.1	-6.93%	-0.87	-9.88%	-1.16	-5.30%	-1.66
	5	-17.28%	-1.11	-17.80%	-1.16	-18.30%	-1.12	-17.79%	-59.86**
	10	-32.05%	-1.48	-25.52%	-1.21	-33.46%	-1.49	-30.35%	-12.41**
1998 election	0	-0.45%	-0.12	-0.81%	-0.26	-0.17%	-0.09	-0.48%	-2.58**
	1	0.18%	0.03	-4.42%	-0.83	-0.33%	-0.1	-1.52%	-1.05
	5	1.53%	0.13	-0.37%	-0.04	9.58%	1.46	3.58%	1.17
	10	-16.23%	-0.97	8.02%	0.57	23.83%	2.62**	5.21%	0.45
2002 election	0	-1.10%	-0.39	3.77%	1.69	0.70%	0.35	1.12%	0.79
	1	1.80%	0.36	11.22%	2.90 **	-2.13%	-0.61	3.63%	0.92
	5	-0.51%	-0.05	17.24%	2.32 *	1.24%	0.19	5.99%	1.06
	10	-0.81%	-0.06	2.29%	0.22	7.76%	0.85	3.08%	1.22
2006 election	0	0.61%	0.26	-2.42%	-1.2	-0.24%	-0.19	-0.68%	-0.75
	1	1.47%	0.36	-1.90%	-0.55	0.44%	0.2	0.00%	0
	5	2.97%	0.38	-6.30%	-0.94	4.22%	1.02	0.30%	0.09
	10	1.94%	0.18	-13.91%	-1.51	5.48%	0.95	-2.16%	-0.36
2010 election	0	0.47%	0.32	2.17%	1.91	1.49%	0.97	1.37%	2.78**
	1	-0.13%	-0.05	1.24%	0.63	1.85%	0.7	0.99%	1.68
	5	-3.13%	-0.65	-1.70%	-0.45	11.35%	2.23*	2.17%	0.47
	10	-2.13%	-0.32	-12.66%	-2.43*	4.56%	0.65	-3.41%	-0.68
2014 election	0	-1.45%	-0.78	-8.12%	-3.69**	-7.17%	-5.27**	-5.58%	-2.68**
	1	0.05%	0.02	-4.46%	-1.17	-9.10%	-3.85**	-4.50%	-1.70
	5	-11.62%	-1.88	-7.55%	-1.04	-17.98%	-3.98**	-12.38%	-4.08**
	10	-13.29%	-1.55	0.15%	0.01	-25.26%	-4.05**	-12.80%	-1.74
2016 Impeach-ment	0	-4.54%	-1.57	0.81%	0.32	-6.41%	-2.27*	-3.92%	-2.38*
	1	-5.98%	-1.19	3.97%	0.92	-2.46%	-0.5	-1.49%	-0.51
	5	-8.20%	-0.85	-9.56%	-1.16	0.17%	0.02	-5.86%	-1.92
	10	-13.32%	-1	15.18%	1.33	0.91%	0.07	0.92%	0.11
Cross Section political event	0	-0.61%	-0.54	-1.43%	-0.97	-2.54%	-1.78	-1.53%	-2.12*
	1	-0.25%	-0.12	-0.18%	-0.08	-3.09%	-1.77	-1.17%	-1.14
	5	-5.17%	1.83	-3.72%	-0.91	-1.39%	-0.3	-3.43%	-1.58
	10	-10.84%	-2.44 *	-3.78%	0.71	-2.31%	-0.31	-5.64%	-1.68

* p-value < 0.05; ** p-value < 0.01

Table 2.4 summarizes the impacts of relevant political events on SOEs (elections and Dilma´s impeachment through a voting process in Congress).

In all major political events, but 2002 and 2006 elections, in cross-sections studies there are ARs/CARs with statistical significance for the set of SOEs investigated, showing that elections can affect SOEs around event day.

Considering each political event´s impact on SOE´s:

- FHC´s reelection in 1998 yielded a positive CAR for Petrobras over a 10-day window (p-value < 0.01).
- Lula´s election in 2002 yielded positive CAR for Eletrobras over 1-day and 5-day windows (p-value < 0.01 and p-value<0.05, respectively).
- Dilma´s election in 2010 yielded a negative CAR for Eletrobras over a 5-day window and a positive CAR for Petrobras over a 10-day windows (p-value < 0.01).
- Dilma´s reelection in 2014 impacted SOEs a lot. Petrobras presented negative CARs over all tested windows (p- value < 0.01). Eletrobras had a negative AR on election date (p- value < 0.01)
- Petrobras had a negative AR on impeachment date (p-value <0.05).

Individual event studies on political events for BB were not significant. Nonetheless, the cross-section study of all political events for BB showed a negative CAR on a 10-days windows (p-value < 0.05).

Cross-section studies for all political events investigated for the set of SOEs investigated had a negative AR of -1,53% on election date (p- value < 0.05).

We also looked at some robustness tests that could enhance our knowledge about the impact of elections on SOEs, testing the same events with private proxies/matching firms when available as elections can impact private companies as well, but not at the same level.

For instance, CPFL and Engie have the same fundamental economic characteristics but were not impacted on 2010 and 2014 elections unlike Eletrobras. Ultrapar in 2014 presented a small positive CAR on a 1-day window but was not affected like Petrobras by the election outcome.

Succession processes on SOEs are often motivated by political processes. 50% of the CEO successions analyzed can be traced back to the last political

process, as highlighted in Table 2.2. As usually succession is expected after each election, markets may anticipate turnover on top management on election dates, usually a few months before a new government takes office. Moreover, as governments can not only appoint new management, but change boards and strategies, elections can be more relevant than successions themselves.

There were more significant results since 2010, providing evidence of the importance of political processes to market prices of SOEs. Hence, investors should be aware of them.

As Eletrobras and Petrobras are dual-class shares, we repeated tests using the least liquid stocks of those companies (ELET6 and PETR3) as robustness tests, with the same general results.

After looking at elections, we turn to each CEO succession in Table 2.5, organized in Panels for each SOE, looking for ARs and CARs for windows of 1, 5 and 10 days around succession dates.

Most of the significant results happened in the past few years, signaling that investors should pay more attention to these processes from now on. Investors react accordingly with their convictions on the prospects for the company under new leadership and this should also be considered by Governments appointing new CEOs to SOEs.

Table 2.5 - CEO Succession at SOEs

CEO Succession at SOE	*AR*	*t*	*CAR on window (-1,1)*	*t*	*CAR on window (-5, 5)*	*t*	*CAR on window (-10,10)*	*t*
Panel A: BB								
Ximenes	4.79%	1.57	-1.86%	-0.35	0.37%	-0.03	10.33%	0.74
Calabi	0%	0	-0.42%	-0.07	0.46%	0.43	-0.62%	-0.04
Zaghen	1.54%	0.61	2.51%	0.58	-2.99%	-0.36	-0.40%	-0.03
Eduardo Guimarães	2.22%	0.89	0.37%	0.93	4.44%	0.59	15.26%	1.33
Casseb	2.61%	1.07	-0.07%	-0.17	-1.49%	-0.17	13.47%	1.13
Rossano	-2.72%	-2,15*	0.25%	0.11	-1.25%	0.30	-2.00%	-0.34
Lima Neto	2.40%	1.41	1.68%	0.57	-2.39%	-0.42	8.36%	1.08
Bendine	-9.36%	-3.14**	-15.18	-2.94**	-4.01%	-0.4	2.47%	0.18
Alexandre Abreu	-2.48%	-1.19	0.38%	0.11	3.16%	0.46	-4.69%	-0.49
Caffarelli	2.14%	0.74	2.77%	0.55	-4.44%	0.65	-6.06%	-0.46
Cross BB	**-0.94%**	**-0.67**	**-0.96%**	**-0.63**	**-0.39%**	**-0.43**	**4.21%**	**1.14**
Panel B: Eletrobras								
Mario Fernando	1.65%	1.05	0.05%	0.01	4.29%	0.82	6.37%	0.89
Imbassahy	0.31%	0.13	0.63%	0.16	-0.27%	-0.03	0.84%	0.08
Firmino	-0.60%	-0.54	-3.88%	-2.03*	-6.64%	-1.82	-4.36%	-0.86
Claudio Avila	2.02%	0.94	-5.63%	-1.52	-14.36%	-2.03*	-14.28%	-1.46
Altino	0.05%	0.02	3,32%	0.72	4.98%	0.57	1.97%	0.16
Pinguelli	2.70%	1.06	-1,85%	-0.42	-5.92%	-0.7	-13.08%	-1.12
Silas Rondeau	0.39%	0.13	-2,46%	-0.47	-1.95%	-0.19	-3.63	-0.26
Aluisio Novais	0.39%	0.13	-2,46%	-0.47	-1.95%	-0.19	-3.63	-0.26
Valter Cardeal	-1.03%	-0.53	0,63%	0.85	-2.23%	-0.34	-3.68%	-0.41
Muniz Lopes	0.10%	0.04	5,04%	1.25	14.48%	1.87	8.79%	0.82
Costa Carvalho	1.59%	1.00	0,53%	0.19	4.81%	0.91	2.91%	0.4
Wilson Ferreira	5.43%	2.00*	5,33%	1.13	9.96%	1.11	11.93%	0.96
Cross Eletrobras	**1.33%**	**2.49***	**0,62%**	**0.58**	**0.60%**	**0.28**	**-1.82%**	**-0.62**
Panel C: Petrobras								
Joel Renno	-0.72%	-0.42	-0.09%	-0.03	-0.51%	-0.09	-1.04%	-0.13
Jose Barbosa	0.72%	0.56	7.21%	1.36	17.29%	1.7	17.78%	1.26
Reichtul	-3.22%	1.16	1.86%	0.39	11.24%	1.22	19.33%	1.53
Gros	-0.94%	-0.44	-0.21%	-0.06	1.44%	0.2	0.62%	0.06
Dutra	-1.34%	-0.75	-2.63%	-0.85	0.00%	-0.02	3.11%	0.38
Gabrielli	2.72%	2.22*	3.91%	1.85	-0.68%	-0.17	-1.81%	-0.32
Graça Foster	0.89%	0.92	-8.75%	-5.18**	-4.73%	-1.46	-6.84%	-1.53
Bendine	-5.02%	-2.17*	-6.89%	-1.72	5.65%	0.74	-5.69%	-0.54
Parente	2.15%	0.78	-3.39%	-0.7	-7.09%	-0.77	1.15%	0.09
Monteiro	-17.29%	-13.17**	-15.41%	-6.77**	-28.23%	-6.48**	-32.74%	-5.46**
Cross Petrobras	**-2.10%**	**-1.13**	**-2.44%**	**0.013**	**-0.57%**	**-0.15**	**-0.61%**	**-0.13**

*** p-value < 0.05; ** p-value < 0.01**

For BB, two out of ten processes had negative AR on succession dates (Rossano and Bendine). This last one also had negative CAR in a 1-day window (p-value < 0.01).

The succession processes at Eletrobras had two successions out of twelve with negative CARs (Firmino and Claudio Avila), on a 1-day and 5-day windows, respectively (p-value<0.05).

In the case of Petrobras, succession processes caused more impact, with four succession processes out of ten generating abnormal returns:

- A positive AR at succession date in 2005 (Gabrielli - p-value < 0.05).
- A negative CAR over 1-day window in 2012 (Graça Forster- p-value < 0.01).
- A negative AR at succession date in 2015 (Bendine- p-value < 0.05).
- A negative AR at succession date and negative CARs in all windows when Pedro Parente quit his position as CEO in 2018 and Mr. Monteiro was nominated (p-value < 0.01). This happened after a national strike of truck drivers almost halted the Brazilian economy. The strike was attributed to Petrobras pricing policy and the underperformance was attributed to the strike and to pressures to change the pricing policy of Petrobras, which happened. After Mr. Monteiro took office returns were positive, although not significant in windows after the succession, with the stock trading broadly in line with the index after Mr. Parente´s resignation.

Cross-section tests with the 32 successions on SOEs studied showed that there are no general significant impacts on stock prices. Nonetheless, the 12 succession processes at Eletrobras generated a small positive AR (p-level<0.05)

As Eletrobras and Petrobras are dual-class shares, we repeated tests using the least liquid stocks of those companies (ELET6 and PETR3), with the same general results.

2.5 – CONCLUSIONS

SOEs are different than private companies in many ways, including their succession processes as political events can cause changes in management, affecting market perceptions.

Changes in government usually are followed by changes on SOEs. Changes are greater when power shifts happen. Even when the incumbent wins, changes in top management as results of political negotiations happen, making the analysis of those events relevant.

Through a set of event-studies we were able to show that there is some but not general impact of political events on SOEs. Recently, this became more frequent and relevant to investors.

Succession processes in SOEs are more common than in private companies, as they are linked to the political and electoral processes. SOE´s CEOs have shorter tenors than private peers and need to be reconfirmed after general elections.

With limited room for appointing the team, limited managerial discretion and fewer incentives, it is not easy to make direct links between the CEO-effect and performance in SOEs. Nonetheless, impacts of political events and succession processes must be considered by investors.

The performance of federal SOEs at B3 over the past two decades has been irregular, linked to the Brazilian economy and to the strategies defined by the Government.

Politically motivated decisions and changes in management to accommodate political allies have not helped their performance, which may explain why Congress approved Law 13.303/2016, which tries to improve governance, disclosure and decision making in SOEs, coping with the political scandals broadly discussed in Brazil. Nonetheless, political interference is still possible and can harm performance of SOEs.

This paper contributes to the literature on CEO succession by addressing the unique role that political events play in CEO succession at SOEs. By analyzing the market impacts of elections and CEO succession and documenting the patterns of changes in top management in SOEs after elections it also contributes to the corporate governance literature on SOEs.

This study has several limitations. Event studies are useful, but their limitations are well known. Often, it is hard to untangle effects when other situations happening simultaneously with the event affect the company or the market.

We analyzed individually three SOEs in seven voting processes, but it is hard to generalize results. In several cases, when it is clear who will be the winner, election dates may not be the best choices for event studies or information linked to election may already be factored in prices at election date. Elections more disputed, with winners defined by a narrow margin, such as Dilma´s reelection in 2014, provoke more uncertainty and generate more frequently abnormal returns.

When analyzing individual succession processes, there are often differences between when succession rumors start and when succession takes place. Political negotiations to nominate a new CEO may last for a while. We have only considered succession dates as it is hard to date rumors. Use of windows of different lengths mitigates this concern, but political decisions can take longer than expected. Other factors may affect stock performance surrounding CEO succession dates and event studies may not capture them. Crisis is a common factor for succession, but a CEO may be replaced even when doing a good job if he misses political support.

Even with those limitations, this investigation shed light on understudied phenomena that happen frequently in Brazil: CEO succession on SOEs and elections impact on SOEs, which can be often related.

Advances in the governance of SOEs are happening in Brazil after the corruption scandals and may mitigate relevant issues that historically affected SOEs. Nonetheless, investors should continue to be aware of possible political interference with impacts on SOEs.

Currently in Brazil there are important discussions about the role of SOEs in the Brazilian economy. This paper can also be relevant for discussions about privatization of listed SOEs and the role of regulators in avoiding abuses by controlling shareholders.

Suggestions for future research include analyzing the impact of CEO succession on financial results of SOEs, study succession at state-level SOEs and the impacts of Law 13.303/2016 on succession processes in SOEs. Further research can also compare the impacts of elections and succession process on other countries with relevant listed SOEs.

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3- DO PERFORMANCE, OWNERSHIP, AND GOVERNANCE INFLUENCE CEO TURNOVER? EVIDENCE FROM BRAZIL

Abstract

This paper analyzes the relation between firm performance and CEO turnover, moderated by corporate governance and control structure. While CEO turnover is usually associated with negative firm performance, it can also be affected by corporate governance quality and control characteristics. We use a unique dataset of CEO turnover of Brazilian firms from 2010 to 2017, including many that voluntarily adopt good governance practices through listing on “Novo Mercado” segment. We find a negative relation between CEO turnover and firm performance, which indicates that low performance increases the likelihood of CEO turnover. We also document that firms with good governance practices tend to change CEOs more frequently than traditional firms, probability due to increased monitoring of their main executives. Family companies are affected by governance practices, with family companies listed on Novo Mercado being more sensitive to performance and changing CEOs more often than family companies not listed on Novo Mercado,

Keywords: CEO turnover; firm performance; corporate governance; ownership

3.1- INTRODUCTION

CEO turnover has been a relevant issue for the investor and academic communities for decades, as it represents change in status quo with potential effects in firm performance and strategic decisions. It is also widely covered by the specialized media and sell-side analysts.

An evidence that it continues to be a relevant matter is the recent production of important research on CEO turnover with focus on developed countries (Balsam, Kwack & Lee, 2017, Adams, Keloharju & Knupfer, 2018; Jarva, Kallunki & Livne, 2019). In the most important developed markets, governance enforcement is strong and dispersed ownership prevails. Unfortunately, not much is known about CEO turnover in emerging markets, where data is scarce and governance conditions may be quite different.

This paper analyzes and provides original insight into the relation between CEO turnover, corporate governance quality and ownership structure. One distinguishing feature of this article is the use of a unique dataset on CEO turnover and voluntary adoption of good governance practices. Brazil offers an interesting case study because many Brazilian firms voluntarily enlisted on “Novo Mercado” (NM), a special segment created by B3, the Brazilian stock exchange, to improve corporate governance in Brazil (Black, De Carvalho & Sampaio, 2014).

Our results indicate that companies that voluntarily adopt good governance practices through listing on NM change CEO more frequently than traditional firms, especially in family-controlled companies. We also show that low firm performance increases CEO turnover.

The relationship between CEO turnover and firm performance is one of the most investigated themes in academic research. In general, CEO change is related to poor performance (Kaplan & Minton, 2012; Jenter & Kanaan, 2015; Jarva, Kallunki & Livne, 2019).

Berns & Klarner (2017) have mapped the current knowledge about CEO succession and outlined a research agenda with gaps that researchers could explore. By looking from different angles, the authors describe CEO succession as complex processes that companies often must face.

One of the research gaps documented is how these processes unfold in emerging markets, with notable differences from developed economies in ownership concentration, corporate governance, and cultural aspects. Understanding CEO turnover in different geographies, with various governance environments, is relevant to expanding knowledge in a local and global scale.

Only a few studies addressed CEO turnover in Brazil, and none found strong performance influence in CEO turnover. Furthermore, no research has investigated how listing on NM segment affects CEO turnover. Unlike other studies, this paper analyzes a broad time-series and cross-section of Brazilian listed firms and explores the impact of NM listing on CEO turnover.

Prior to the creation of NM, Brazilian companies willing to access the international equity markets used to cross-list American Depositary Receipts (ADRs) in the U.S. in order to enhance their governance and attract investors (Coffee Jr., 1999; Black, De Carvalho & Sampaio, 2014). The Sarbanes-Oxley legislation in 2002 increased the perceived cost of cross-listing (Bianconi, Chen & Yoshino, 2013; Dah, Frye & Hurst, 2014).

Lel & Miller (2008) analyze top management turnover of cross-listed companies and find that companies listed in countries with strong governance and enforcement have higher turnover ratios than other firms in their home countries or their own turnover ratios before cross-listing. This result suggests that there is greater accountability in better governance environments.

Bell, Filatotchev & Aguillera (2014) analyzed the role of corporate governance configurations to attract international investors to foreign IPOs in different jurisdictions.

In Brazil, the creation of the differentiated listed segments showed the importance of corporate governance configurations and helped to communicate companies´ governance choices to investors and to mitigate risks related to disclosure and expropriation of minority rights. Black, De Carvalho & Gorga (2012) highlighted the role of ownership structure, disclosure, and minority rights in Brazil and in other emerging markets as key elements to determine market value.

NM segment has the highest level of governance in Brazil, minimizing corporate governance conflicts between minority shareholders with either controlling shareholders or management. NM companies often earn premium valuations compared to traditional companies. This has made the NM listing the preferred configuration for Brazilian companies willing to list shares, as it is the most appealing for investors. More than 100 companies where listed on this segment since 2001 through public offers, predominantly bought by foreign institutional investors.

This setting provides an interesting landscape for research, as companies who adopt higher levels of governance may have different practices regarding CEO and executive turnover in Brazilian listed companies have different characteristics than large corporations in common law countries, (Black, De Carvalho & Gorga, 2010). Companies in Brazil typically have lower board independence, higher ownership concentration and their control is typically on the hands of families and large groups. These differences in governance and ownership structure can make CEOs goals and mandates quite different from those in developed countries.

Brazil´s unique setting has an important appeal, as NM listing has provided a domestic alternative to cross-listing for attracting international investors, reinforcing the “bonding hypothesis” (Coffee Jr., 1999) in a Brazilian context (Black, De Carvalho & Sampaio, 2014).

CEO turnovers are usually turning points for companies and the relation of performance and CEO turnover is a hot theme in academia. Researchers have investigated in different settings how differences in control and governance can moderate CEO turnover performance sensitiveness. Although there are important difficulties for establishing general conclusions of the role of corporate governance but through econometric tests, we show that in the Brazilian case, especially for family companies, corporate governance matters.

The rest of this paper is organized as follows. Section 2 provides a literature review of the most important articles related to CEO turnover. Section 3 describes the data and methodology; Section 4 present results and robustness tests and Section 5 presents the mains conclusions and suggestions for future research.

3.2 - LITERATURE REVIEW

A key role of corporate governance is to monitor and judge CEOs´ actions and regulate their powers. Firm performance is often associated with CEOs´ skills. Poor firm performance favors CEO turnover but is not the only factor nor by itself can determine the timing of a turnover.

CEO turnover is often associated with firm performance, but other factors moderate this relationship, as in Denis, Denis & Sarin (1997) where ownership structure affects the likelihood of a change in top management in the US.

Jenter & Kanaan (2015) show that relative performance can be a major factor explaining CEO turnover. Jenter & Lewellen (2017) discuss the underestimation of forced turnovers and propose a new classification that can better explore the relationship between performance and turnover, naming it performance-induced turnover. In fact, corporate communication seldom explicit “top executives are fired”, and often use a conservative language to “thank the executives leaving to pursue their own endeavors”.

CEO importance for firm performance is paramount. Bennedsen, Pérez-González & Wolfenzon (2020) highlight this by showing that even CEO temporary absences due to hospitalization affect firm performance and increase the likelihood of a CEO turnover.

Performance problems may be the result of bad CEO decisions. Chulkov & Barron (2018) relate CEO turnover to the de-escalation of commitment, where new management will be less attached to previous decisions that proved wrong.

Barron, Chulkov & Waddell (2011) argue that CEO turnover and succession processes often send a message to investors about possible changes in strategic priorities, often increasing the level of discontinued operations.

Several motivations can contribute to a CEO turnover decision. The board may be unsatisfied with CEO´s performance in a broad sense or the CEO may have a better offer in the market or decide to leave the company for personal reasons. In real life, the actual relation is subject to factors not only related to firm performance or to how the CEO is evaluated by the board but also to corporate governance and ownership structure.

Farah et al. (2019) showed in a systematic review how different types of organizations, from public listed to privately owned (mostly family) companies, but also including political organizations, that must also deal with the same phenomenon (leadership turnover) where performance is a key factor and political organization context is another that moderates the impacts of performance. Rowe et al. (2005) evaluate the relation between performance and change in leadership in sports management, another field where many analogies can be made.

Context is a key variable in studying CEO turnover internationally, as general patterns are affected by cultural and political local traits, especially in non-US markets. Volpin (2002) provides evidence of the relation of poor governance and executive turnover in Italy and shows that the sensitivity of performance and the probability of turnover are affected by corporate governance, ownership, and control structure.

González et al. (2014) investigate how corporate governance affects CEO turnover in the Colombian landscape, finding evidence that family firms have reduced CEO turnover and that the presence of family members in management reduces the CEO performance sensitivity.

Even in the US, several works show that ownership and governance have an influence on CEO performance sensitivity. Balsam, Kwack & Lee (2017) highlight that the number of CEO family connections affect turnover, which gives evidence that family-controlled companies may have different CEO turnover patterns.

Gao, Harford & Li (2017) show that public companies in the US have higher CEO turnover-performance sensitivity than private firms due to the role of investors in monitoring companies´ performance. Big ownership concentration may harm investors interest in monitoring companies, as liquidity and analyst coverage are greater for shares widely held.

This is one of the assumptions of Gorton, Huang & Kang (2017), who relate CEO turnover with stock market efficiency and show that stocks with higher liquidity and covered by more analysts produce more information. As boards rely also on the informativeness of stock price to promote CEO turnover, stock price´s informativeness is negatively related to board´s monitoring effort. They also found that Sarbanes-Oxley changes in governance diminished stock price informativeness.

Goyal & Low (2018) relate CEO turnover to investor myopia, showing that ownership matters as companies where investors with short term horizons prevail have increased turnover but are less sensitivity to performance.

Defond & Hung (2004) discuss the importance of investor protection and law enforcement worldwide as key factors in improving governance and understanding CEO turnover-performance sensitivity. They show that investor protection rights interact with firm performance to define the CEO turnover-performance sensitivity in different realities.

Miyajima, Ogawa & Saito (2017) investigate the relation of top management turnover and governance in Japan, where traditionally ties to the main banks affected turnover-performance sensitivity. Recent changes in governance practices, with greater role for outsider directors have increased forced turnovers. Ownership growth by foreign institutional investors also increased the perception of importance of executive monitoring.

A few papers in Brazil (mostly in Portuguese) investigate CEO turnover, but we lack more recent and comprehensive work that incorporates the governance and ownership dimensions, with the changes brought by the emergence of NM.

Mellone Jr. & Saito (2004) analyze the monitoring role of boards to promote executive turnover in Brazil and find no relation between stock performance and CEO turnover, but some negative impact in relation to executive turnover.

Mendes-da-Silva & Moraes (2004, 2006) find weak evidence of the relationship of turnover and performance in Brazil. Mendes-da-Silva & Grzybovski (2006) show that the relation between CEO turnover and financial performance is less important in family firms than in non-family companies.

Vieira & Martins (2018) investigated CEO turnover limited to companies that are part of IBOVESPA and IBRx100 indexes, looking at the relation of absolute and relative (to the indexes) stock returns and CEO turnover, finding a negative relation between firm performance and CEO turnover. They also found evidence that ownership concentration limits market discipline and lessens CEO turnover sensitiveness.

Black, De Carvalho & Sampaio (2014) and Leal, Carvalhal & Iervolino (2015) have documented the important evolution of corporate governance in Brazil related to the introduction of special governance segments at the B3, with the NM segment corresponding to the highest standard.

3.3 – DATA AND METHODOLOGY

This study analyzes the CEO turnovers of 298 Brazilian listed companies from 2010 to 2017. Our sample represents more than 90% of all listed companies in Brazil and has 2103 firm-years observations. Market data and accounting data come from Economatica, a database with information of Brazilian companies listed at B3.

We collect the information on CEO turnover, governance practices and ownership structure through queries to mandatory data filed by companies at CVM (Brazilian Securities Exchange Commission) through R package GetDFPData by Perlin, Kirch & Vancin (2019). Companies must file yearly financial statements at CVM, disclosing the CEO and the IR Directors, who sign the financial statements. In fact, in 18.95% of the observations the CEO is also the IR Director.

We identify 348 CEO turnovers in our sample. Most companies (217 out of 298 companies) have at least one CEO turnover during the sample period. There are 6 companies with more than 3 CEOs in this period. 4 of them faced deep financial trouble, having filed for asset restructuring, one had to make impairments due to fraud and the last one is a SOE (State-owned enterprise).

An important factor in analyzing companies´ corporate governance is the existence of a controlling group. In Brazil, most companies have controlling shareholders and there are not many opportunities for market disputes of corporate control, which limit incentives for minority shareholders to discipline managers. Controlling shareholder´s objectives may differ from profit maximization to all shareholders, making governance problems vary according to different types of control, related to the origin of the largest shareholder (families, foreigners, State, Brazilian private groups, institutional investors or dispersed capital), which is another aspect to consider on CEO turnover-performance sensitivity. Also, minority shareholders rights depend on specific segment governance rules and minority

investors may have limited say on approval of strategies or corporate actions. This can make CEO turnover-performance sensitivity depend on company´s control and corporate governance.

NM segment rules can have an important impact on CEO turnover by improving minority shareholders rights and influencing how boards monitor executives, ultimately differentiating how companies are managed and valued.

Mellone Jr. & Saito (2004) investigated the role of independent board members and of CEO/Chairman duality in CEO turnover, but NM listing already guaranties larger number of independent board members and forbids CEO duality (since 2014). Moura & Norden(2019) have shown that switching to NM segment has lasting positive effects for investors over the long run.

By enlisting in the NM segment, controlling shareholders are giving up part of their private benefits of control and lowering perceived risks by investors and consequently, firm´s cost of capital.

Our interest is to look at the impact of NM listing in different types of control/ownership on CEO turnover sensitiveness and explore reasons why controlling objectives vary and differ to minority shareholders. We will define in Table 3.1 the relevant variables used in this study to pursue this.

Table 3.1 - Variable Definition

Variable	Definition
$TurnCEO_{ij}$	Dummy variable that takes the value of 1 if CEO turnover occurs for company i in year j (0 otherwise)
$Turn\_IR_{ij}$	Dummy variable that takes the value of 1 if IR Director turnover occurs for company i in year j (0 otherwise)
$Return_{ij}$	Stock return of company i in year j
$Quintile_{ij}$	Quintile i (1 - Low to 5 - High) of stock performance in year j
ROA_{ij}	Return on assets (net income divided by total assets of company i in year j)
ROE_{ij}	Return on equity (net income divided by shareholder's equity of company i in year j)
$Size_{ij}$	Log of total assets of company i at the end of year j
Lev_{ij}	Leverage (liabilities divided by total assets company i in year j)
NM_{ij}	Dummy variable that takes the value of 1 if company i is listed on "Novo Mercado" (New Market) in year j (0 otherwise)
$Control_{ij}$	Dummy variable that takes the value of 1 if company i has a controlling shareholder with more than 50% of the voting capital in year j, 0 otherwise
SOE_{ij}	Dummy variable that takes the value of 1 if the controlling shareholder of company i in year j is the State (0 otherwise)
FAM_{ij}	Dummy variable that takes the value of 1 if the controlling shareholder of company i in year j is a family (0 otherwise)
FOR_{ij}	Dummy variable that takes the value of 1 if the controlling shareholder of company i in year j is foreigner (0 otherwise)
PRI_{ij}	Dummy variable that takes the value of 1 if the controlling shareholder of company i in year j is a non-family private group (0 otherwise)
PE_{ij}	Dummy variable that takes the value of 1 if the controlling shareholder of company i in year j is a private equity or venture capital group (0 otherwise)

Table 3.2 provides descriptive statistics of selected variables.

Table 3.2 - Summary Statistics

	Mean	Std.Dev	Min	Median	Max
TurnCEO	0.17	0.37	0.00	0.00	1.00
Turn_IR	0.22	0.41	0.00	0.00	1.00
NM	0.45	0.50	0.00	0.00	1.00
Control	0.87	0.33	0.00	1.00	1.00
ROA	3.83	3.31	-0.20	3.50	8.36
ROE	10.85	8.75	-0.50	10.50	22.50
Return	7.31	24.14	-23.46	5.97	40.30
Size	15.17	0.96	13.90	15.14	16.43
Lev	0.96	0.73	0.20	0.69	2.11
FAM	0.43	0.50	0.00	0.00	1.00
FOR	0.12	0.33	0.00	0.00	1.00
PE	0.03	0.18	0.00	0.00	1.00
PRI	0.18	0.39	0.00	0.00	1.00
SOE	0.10	0.30	0.00	0.00	1.00

Non-binary variables such as firm performance, size and leverage are winsorized in this study to eliminate a few extreme observations, outliers that fall out of the 95% confidence interval.

On average, about 17% of our sample have yearly a CEO turnover, but companies can have higher probability of a CEO turnover depending on governance and ownership, as highlighted in Table 3.3.

Most companies (87% of the sample) have controlling shareholders. Of the companies without controlling shareholders, over 90% are listed at NM segment while less than 40% of the controlled companies are NM companies.

Family controlled companies form the most relevant group in the sample (43%), followed by non-family Brazilian private groups (18%). Only a few companies are controlled by government (10%), by private equity investors (3%) or foreign shareholders (12%).

Table 3.3 shows financial and control data for companies listed and not listed on NM, as well as a breakdown by control/type of control of CEO turnover of NM companies and non-NM companies.

Table 3.3 – Company Data and CEO Turnover for NM and non-NM companies

Variables	Companies listed on NM	Companies not listed on NM	P-value of differences	Signif
Panel A –Financial data (mean)				
Return	6.44	6.04	0.79	
ROA	3.54	2.86	0.00	***
ROE	10.41	9.56	0.03	**
Size	14.80	14.59	0.00	***
Lev	0.88	0.99	0.00	***
Panel B - Control data (mean)				
Control	0.75	0.98	0.00	***
FAM	0.36	0.49	0.00	***
FOR	0.09	0.16	0.00	***
SOE	0.04	0.15	0.00	***
PRI	0.19	0.18	0.33	
PE	0.07	0.01	0.00	***
Panel C – CEO Turnover data (mean)				
All companies	0.18	0.16	0.20	
Control=1	0.18	0.16	0.14	
Control=0	0.17	0.26	0.33	
FAM=1	0.19	0.10	0.00	***
FAM=0	0.17	0.21	0.10	*
FOR=1	0.14	0.19	0.24	
FOR=0	0.18	0.15	0.07	*
SOE=1	0.24	0.29	0.60	
SOE=0	0.18	0.14	0.01	***
PRI=1	0.17	0.17	0.89	
PRI=0	0.18	0.16	0.17	
PE=1	0.19	0.00	0.00	***
PE=0	0.18	0.16	0.26	

Obs: means are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

In Table 3.3 that there several differences between NM and non-NM companies with statistical significance, but not many related to CEO turnover. In Panel A, NM companies are on average bigger, more profitable, and less leveraged than companies with lower standards of governance. We also tested median differences of financial variables between NM and non-NM companies (non-reported), confirming the mean differences reported.

In Table 3.3 – Panel B, NM companies have less often controlling shareholders (and less ownership concentration as the NM segment has share dispersion requirements, differently to most non-NM companies and can only have common shares, which is not the case for non-NM companies). Family and foreign controlled companies and SOEs are less often listed on NM, differently than PE controlled companies, usually listed on NM segment.

In Table 3.3 – Panel C, although there is not in the overall sample statistically significant differences in turnover for NM and non-NM companies, there are some relevant differences in specific groups.

SOE is the group that presents highest levels of CEO turnover, regardless of companies being listed in NM or not, which may be related to governments using nominations to executive positions in SOEs to get political support and to changes in government.

In family-controlled companies, the biggest group in our sample, NM companies have much bigger CEO turnover than in non-NM companies, with statistically significant at the 1% level. This is consistent with several findings in literature (Volpin, 2002; González et al., 2014; Visintin, Pittino & Minichilli, 2017). PE companies also have higher turnover when belonging to NM segment.

Curiously, not being part of certain groups can also highlight differences between NM and non-NM companies. Non family-controlled NM companies have lower CEO turnover than in non-family-controlled non-NM companies, significant at the 10% level. On the other hand, for non-SOEs in the sample, being listed on NM segment is associated with average greater turnover than non-NM listing, as expected.

This reversal in CEO turnover patterns between NM and non-NM companies depending on variables related to control/ownership, highlights the possible role that the combination of governance and control/ownership information have on CEO turnover-performance sensitiveness.

We use three variables to measure firm performance: ROA, ROE, and stock return, as in Miyajima, Ogawa & Saito (2017). It is important to investigate different metrics of performance as boards and investors can always compare accounting and market performance through different lenses. Fee et al. (2017) prefer absolute

performance measures over relative ones and there is important discussion about the conditions when stock returns are adequate to measure firm performance.

We use listing on NM as a proxy for governance practices. For ownership, we use information about the existence or absence of a controlling shareholder and its type/origin (Family, State, Foreign, Private Equity, or non-family Private Group), following Volpin (2002). Although endogeneity concerns may harm bold generalizations, our main hypothesis is that by listing in NM segment companies lessen investor´s perceived risks, getting cheaper access to capital and higher valuations.

Our research hypotheses come from the literature review presented in the previous section:

H_1: There is a negative relationship between CEO turnover and firm performance

H_2: There is a positive relationship between CEO turnover and good governance practices in NM

H_3: There is a negative relationship between CEO turnover and control.

We also divided H_3 to test the role of different types of company control, as different kinds of organization may have different parameters to evaluate performance impact on CEO turnover:

H_{3a}: There is a negative relationship between CEO turnover and family control

H_{3b}: There is a negative relationship between CEO turnover and foreign control

H_{3c}: There is a negative relationship between CEO turnover and SOE control

H_{3d}: There is a negative relationship between CEO turnover and Private Brazilian group control

H_{3e}: There is a negative relationship between CEO turnover and private equity control

Although the negative relationship between firm performance and CEO turnover has been well documented internationally, in Brazil there is scarce evidence documenting it, and none incorporating NM listing and control dimensions.

We use linear and logistic regressions to investigate the relation between CEO turnover, firm performance, corporate governance, and ownership in Brazil. Our goal is to not only provide evidence of how these variables relate to each other but also investigate if previous firm performance causes CEO turnover and if previous CEO turnover affects firm performance.

We test these hypotheses in different models through variations of regressions, using several of the following variables (in some models, lagged variables):

$$Performance_{i,j} = \alpha + \beta_1 TurnCEO_{i,j} + \beta_2 Size_{i,j} + \beta_3 Lev_{i,j} + \beta_4 NM_{i,j} + \beta_5 Control_{i,j} + \beta_6 FAM_{i,j} + \beta_7 FOR_{i,j} + \beta_8 SOE_{i,j} + \beta_9 PRI_{i,j} + \beta_{10} PE_{i,j}$$

$$TurnCEO_{i,} = \alpha + \beta 1 Performance_{i,j} + \beta_2 Size_{i,j} + \beta_3 Lev_{i,j} + \beta_4 NM_{i,j} + \beta_5 Control_{i,j} + \beta_6 FAM_{i,j} + \beta_7 FOR_{i,j} + \beta_8 SOE_{i,j} + \beta_9 PRI_{i,j} + \beta_{10} PE_{i,j}$$

3.4 – RESULTS AND ROBUSTNESS TESTS

This section will present results and robustness tests. We will investigate the hypothesis outlined in the previous section and present robustness tests that address specific econometric questions plus alternative tests that were made to increase confidence in our conclusions. In general, all regression models related to CEO and executive turnover, we check for multicollinearity, heteroskedasticity and auto-correlation. The p-values are calculated using robust standard errors.

3.4.1 – RESULTS

To initially check the relation between CEO turnover and firm performance, we investigate if lower performance is related to higher CEO turnover by ordering by quintiles of firm performance using different performance metrics in Table 3.4. To confirm H1, we expect that CEO turnover is greater in low performing quintiles than in high performing quintiles.

Table 3.4 – Differences of CEO Turnover Ratios between Low and High-Performance Quintiles

Panel A- Overall Sample						
Firms	Performance metric	Nr obs	(1) Low quintile	(2) High quintile	P-value of diferences (1)–(2)	Signif
All	ROA	2103	0.23	0.16	0.01	***
	ROE	2103	0.23	0.15	0.00	***
	stock return	2103	0.21	0.12	0.01	***
Panel B - by type of control						
No control	ROA	265	0.16	0.17	0.66	
	ROE	265	0.15	0.16	0.66	
FAM	ROA	912	0.18	0.12	0.02	**
	ROE	912	0.20	0.14	0.03	**
FOR	ROA	269	0.16	0.18	0.60	
	ROE	269	0.19	0.16	0.36	
SOE	ROA	206	0.18	0.16	0.52	
	ROE	206	0.19	0.17	0.60	
PRI	ROA	382	0.15	0.20	0.09	*
	ROE	382	0.17	0.16	0.80	
PE	ROA	69	0.16	0.15	0.67	
	ROE	69	0.16	0.17	0.87	
Panel C - by NM						
NM	ROA	964	0.21	0.14	0.02	**
	ROE	964	0.20	0.14	0.04	**
Non-NM	ROA	1139	0.15	0.19	0.13	
	ROE	1139	0.16	0.20	0.21	

Obs: means are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

In Table 3.4, Panel A, , high performing companies have lower CEO turnover than low performing companies, as expected according to H_1, significant at the 1% level. In general, there are decreasing trends of CEO turnover when we move from low performing to high performing quintiles

In Table 3.4, Panel B, we notice that FAM companies stand out as having major effect of performance on average turnover, with higher turnover in low performing quintiles, significant at the 5% level, which is consistent with H_1 and not with H_{3a}.

In Table 3.4, Panel C, we notice that NM companies have higher turnover ratios in low performing quintiles, significant at the 5% level, which is consistent with H_1 and with H_2.

The interrelation between performance and CEO turnover may raise questions concerning causality, as in a chicken-egg problem, as narratives of poor performance leading to CEO turnover may be as valid as narratives of CEO turnover harming performance due to missing managerial skill and specific knowledge of the departing CEO. Those questions will be addressed in the next section, covering robustness aspects of the results.

Notwithstanding those concerns, we want to check if lagged performance or lagged turnover can be relevant in this relationship between performance and CEO turnover and explore this in Tables 3.5 to 3.9, which explore how different types of corporate governance, control and ownership can have impacts on performance sensitiveness to CEO turnover. Literature has also looked at lagged performance relation to CEO turnover, but the identification of the CEO through noticing who signed the financial demonstrations is already carrying time differences, which may explain why performance closer to CEO turnover is more relevant.

Table 3.5 shows the results of linear regressions with firm performance metrics as dependent variables. Odd numbered models use control as independent variable and even numbered models use dummies for different types of control as independent variables.

TurnCEO is always negative and statistically significant at 1% in models I, II, V and VI. Firm size is always positive and significant in models I-IV at the 1%, 5% and 10% levels. Control and types/origin of control variables are in general not significant, with only FOR variable having statistical significance at the 1% level in model IV and PRI variable having statistical significance at the 5% level in model II. NM is significant in models III and IV at the 5% and 10% levels.

In general, we have evidence that firm performance is related negatively to CEO turnover, as expected in H_1, and, positively related to firm size. Control as a variable by itself is not relevant for firm performance, but NM variable can have a positive impact of firm performance, using ROE as performance metric.

Table 3.5 - Linear Regressions of Firm Performance on CEO Turnover

	ROA		ROE		Stock Return	
Variable	**I**	**II**	**III**	**IV**	**V**	**VI**
TurnCEO	-6.73 (0.01)***	-6.61 (0.01)***	-4.06 (0.26)	-3.87 (0.28)	-11.03 (0.00)***	-11.06 (0.00)***
Size	3.79 (0.00)***	3.86 (0.00)***	2.04 (0.03)**	1.83 (0.06)*	0.55 (0.62)	0.50 (0.66)
Lev	0.03 (0.27)	0.03 (0.26)	0.19 (0.24)	0.20 (0.23)	0.05 (0.60)	0.05 (0.61)
NM	2.27 (0.19)	1.87 (0.34)	4.01 (0.07)*	4.62 (0.04)**	1.53 (0.65)	1.98 (0.56)
Control	0.81 (0.57)		1.74 (0.63)		4.56 (0.22)	
FAM		0.38 (0.81)		0.42 (0.91)		4.76 (0.27)
FOR		0.73 (0.81)		9.43 (0.01)***		4.38 (0.31)
SOE		-2.47 (0.39)		-0.71 (0.88)		6.62 (0.27)
PRI		2.85 (0.05)**		3.64 (0.40)		5.22 (0.23)
PE		-0.47 (0.82)		-6.95 (0.34)		-1.47 (0.86)
Adj-R2	0.08 (0.00)***	0.08 (0.00)***	0.01 (0.00)***	0.01 (0.00)***	0.00 (0.05)**	0.00 (0.22)

Obs: coefficients (and p-values in parentheses) reported. ***, ** and * to indicate statistical significance at 1%, 5% and 10%, respectively.

In Table 3.6, we investigate if firm performance is related to CEO turnover in previous years and other independent variables. Odd numbered models use 1-period lagged turnover as independent variable and even numbered models use 2-period lagged as independent variable.

Lagged CEO turnover in year *t-1* and in year *t-2* are non-significant, with previous CEO turnover events don´t causing lasting effects on firm performance. Firm size is positive and significant at the 1% and 10 % levels in models I-IV and NM is positive and significant at the 5% level in model IV. Lev and control variables were non-significant in all models.

Table 3.6 – Linear Regressions of Firm Performance on Lagged CEO Turnover

	ROA		ROE		Stock Return	
Variable	**I**	**II**	**III**	**IV**	**V**	**VI**
TurnCEO (-1)	-2.99		-2.84		-4.90	
	(0.21)		(0.27)		(0.18)	
TurnCEO (-2)		-2.18		-4.64		-1.61
		(0.42)		(0.14)		(0.67)
Size	3.75	4.10	1.87	1.93	0.12	-0.51
	(0.00) ***	(0.00) ***	(0.07) *	(0.10) *	(0.92)	(0.71)
Lev	0.03	0.02	0.20	0.15	0.04	0.03
	(0.28)	(0.38)	(0.23)	(0.33)	(0.70)	(0.83)
Control	0.11	0.17	1.23	2.99	3.02	6.97
	(0.95)	(0.92)	(0.76)	(0.50)	(0.46)	(0.11)
NM	1.63	1.21	3.68	4.86	0.25	0.71
	(0.43)	(0.61)	(0.13)	(0.05) **	(0.95)	(0.86)
Adj-R2	0.07	0.07	0.01	0.01	-0.002	-0.002
	(0.00)***	(0.00)***	(0.01)***	(0.01)**	(0.82)	(0.74)

Obs: coefficients (and p-values in parentheses) are reported. ***, ** and * to indicate statistical significance at 1%, 5% and 10%, respectively.

With the results from Tables 3.5 and 3.6 we notice that there is some influence of recent CEO turnover (but not past on firm performance, but with limited role on explaining variations in firm performance. After investigating if firm performance influences CEO turnover, we investigate if firm performance is linked to CEO turnover in tables 3.7-3.9.

Table 3.7 reports logistic regressions with CEO turnover as dependent variable and different metrics of firm performance, size, leverage, NM, and control variables as independent variables. Odd numbered models use a dummy for control while even numbered models use dummies for different types of control companies as independent variables.

All performance measures used in models are negative and in models I, II, V and VI are significant at the 1% level, showing that performance is a relevant predictor of CEO turnover, which is consistent with H_1. This finding indicates that low performance increases the likelihood of CEO turnover.

Size is significant at the 1% and 10% level in models I, III and IV and indicate that large companies have higher CEO turnover than small firms.

Table 3.7– Logistic Regressions of CEO Turnover's Probability on Firm Performance

	Probability of CEO Turnover					
Variable	**I**	**II**	**III**	**IV**	**V**	**VI**
ROA	-0.01 (0.00) ***	-0.01 (0.00) ***				
ROE			-0.00 (0.29)	-0.00 (0.29)		
Return					-0.00 (0.00) ***	-0.00 (0.00) ***
Size	0.06 (0.02) **	0.04 (0.15)	0.08 (0.01) ***	0.06 (0.07) *	0.01 (0.86)	0.01 (0.89)
Lev	0.01 (0.22)	0.00 (0.23)	0.00 (0.33)	0.00 (0.36)	0.00 (0.62)	0.00 (0.63)
NM	0.18 (0.13)	0.25 (0.04) **	0.20 (0.10) *	0.26 (0.04) **	0.21 (0.18)	0.22 (0.15)
Control	0.18 (0.32)		0.13 (0.46)		0.06 (0.74)	
FAM		0.13 (0.50)		0.06 (0.77)		0.22 (0.27)
FOR		0.08 (0.73)		0.01 (0.98)		-0.09 (0.75)
PE		-0.13 (0.73)		-0.05 (0.90)		-0.010 (0.81)
SOE		0.69 (0.01) ***		0.67 (0.01) ***		0.36 (0.28)
PRI		0.26 (0.20)		0.23 (0.29)		-0.23 (0.32)
McFadden Pseudo R2	**0.01**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**

Obs: coefficients (and p-values in parentheses) are reported. ***, ** and * to indicate statistical significance at 1%, 5% and 10%, respectively.

NM is positive and significant at the 5% and 10% level in models II-IV providing some evidence that companies listed in the highest level of governance are more prone to promote CEO turnover, which is consistent with H_2. NM by itself appears to have some contribution to CEO turnover.

Control as a variable is not significant in any model. The only type of control with statistical significance is SOE, positive and significant at 1% level in models II and IV, which is an indication that SOEs, the group with higher CEO turnover rate in Table 3.3 both for NM and non-NM companies, have a different type of governance and have greater probability of CEO turnover, confirming H_{3c}. CEO turnover in SOEs in Brazil can often be related to political events, such as elections or political agreements in Congress, as shown in our previous essay (chapter 2 of this thesis). In general, we can reject H_3, but effects of control may have importance when interacting with our governance proxy, NM listing, as explored in Table 3.8.

Table 3.8 reports logistic regressions with CEO turnover as dependent variable in models where control/type of control interact with NM to investigate the importance of the interrelation of these variables plus firm performance, size, leverage variables as independent variables. Odd numbered models use a dummy for control while even numbered models use dummies for different types of control companies as independent variables.

In Table 3.8, performance measures are negative and significant at the 1% level in models I, II, V and VI. This finding indicates that low performance increases the likelihood of CEO turnover, being a relevant predictor of CEO turnover, which is consistent with H_1. Size is significant at the 1% and 5% levels in models I, III and IV, indicating that large companies have higher CEO turnover than small firms.

FAM is negative and statistically significant at the 5% and 10% levels, and PE is negative and statistically significant at the 1% level in models II and IV, while PRI is negative and statistically significant in model VI at the 5% level, showing that certain types of control may affect CEO turnover. The coefficients are negative and consistent with H_{3a}, $H_{3d,}$ and H_{3e}, as expected.

FAM and PRI companies are the two biggest groups in our sample, corresponding to 61% of the total, which gives weight to the arguments that certain types of control and governance can have an impact on CEO turnover rates.

Although nor NM neither control is significant, the interaction of NM with control is positive and significant at the 10% level in Models I and III. Looking at the interactions between NM and different types of control, we notice that family and PE companies in NM have a positive statistically significant coefficient at the 1% level in

Models II and IV and companies controlled by Brazilian private groups listed in NM segment have a positive statistically significant coefficient at the 5% level in model VI.

These results provide support to H_3, showing that control is negatively related to CEO turnover. As the interaction of NM with control /types of control is positive and statistically significant in several cases, this also supports H_2, showing that good corporate governance is positively associated with increases in CEO turnover. Corporate governance can have an impact in how control is exerted and can provide better alignment of interest with minority shareholders, allowing better monitoring of CEOs which may imply in more CEO turnover events when there are performance problems.

This is consistent with findings from González et al. (2014) in Colombia and Visintin, Pittino & Minichilli (2017) in Italy exploring the role of corporate governance in family companies.

In Table 3.9, we test if the probability of CEO turnover is related to firm performance in previous years and other control variables. Lagged performance in general was not significant being significant at the 10% level only in models II and III. These results show that lagged firm performance can have some impact, but current firm performance, closer to CEO turnover events, is more relevant.

Size is positive and significant at the 5% and 10% level in Models I and III, leverage is positive and significant at the 5% level in model III, and control is negative and significant at the 5% level in models V. The interaction of control and NM is positive and significant at the 5 % level in model V, while NM by is not significant.

Table 3.8 – Logistic Regressions of CEO Turnover's Probability on Firm Performance with interactions of NM and control/types of control

Variable	Probability of CEO Turnover					
	I	II	III	IV	V	VI
ROA	-0.01 (0.00) ***	-0.01 (0.00) ***				
ROE			-0.00 (0.29)	-0.00 (0.36)		
Stock Return					-0.00 (0.00) ***	-0.00 (0.00) ***
Size	0.06 (0.03) **	0.03 (0.24)	0.08 (0.01) ***	0.05 (0.12)	0.01 (0.86)	0.01 (0.88)
Lev	0.01 (0.24)	0.00 (0.21)	0.00 (0.29)	0.00 (0.26)	0.00 (0.47)	0.00 (0.48)
NM	-0.56 (0.22)	-0.56 (0.23)	-0.58 (0.21)	-0.57 (0.22)	-0.37 (0.42)	-0.37 (0.42)
Control	-0.50 (0.25)		-.58 (0.19)		-0.49 (0.28)	
NM:Control	0.78 (0.10) *		0.83 (0.09) *		0.64 (0.19)	
FAM		-0.82 (0.07) *		-0.96 (0.03) **		-0.38 (0.42)
FOR		-0.45 (0.35)		-0.55 (0.25)		-0.33 (0.54)
PE		-13.56 (0.00) ***		-13.50 (0.00) ***		-0.03 (0.95)
SOE		0.05 (0.91)		0.04 (0.94)		-0.08 (0.89)
PRI		-0.26 (0.58)		-0.29 (0.53)		-1.10 (0.04) **
NM:FAM		1.29 (0.01) ***		1.38 (0.01) ***		0.71 (0.17)
NM:FOR		0.20 (0.74)		0.26 (0.66)		-0.01 (0.99)
NM:PE		13.66 (0.00) ***		13.70 (0.00) ***		0.40 (0.58)
NM:SOE		0.37 (0.56)		0.31 (0.63)		
NM:PRI		0.39 (0.47)		0.39 (0.47)		10.80 (0.07) *
McFadden Pseudo R2	0.01	0.03	0.01	0.03	0.02	0.03

Obs: coefficients (and p-values in parentheses) are reported. ***, ** and * to indicate statistical significance at 1%, 5% and 10%, respectively.

Table 3.9 – Logistic Regressions of CEO Turnover's Probability on Lagged Firm Performance

Variable	Probability of CEO Turnover					
	I	II	III	IV	V	VI
ROA (-1)	-0.00 (0.16)					
ROA (-2)		0.00 (0.07) *				
ROE (-1)			-0.00 (0.07) *			
ROE (-2)				0.00 (0.94)		
Return (-1)					-0.00 (0.51)	
Return (-2)						0.00 (1.00)
Size	0.05 (0.10) *	0.01 (0.75)	0.08 (0.02) **	0.03 (0.46)	-0.01 (0.82)	-0.01 (0.85)
Lev	0.00 (0.28)	0.00 (0.32)	0.02 (0.02) **	0.00 (0.44)	0.00 (0.34)	0.00 (0.49)
NM	-0.48 (0.33)	-0.43 (0.47)	-0.49 (0.33)	-0.36 (0.59)	-0.84 (0.16)	0.94 (0.38)
Control	-0.39 (0.40)	-0.12 (0.83)	-0.50 (0.29)	-0.05 (0.93)	-1.12 (0.05) **	0.96 (0.36)
NM*Control	0.65 (0.21)	0.56 (0.36)	0.75 (0.15)	0.48 (0.49)	1.22 (0.05) **	-0.57 (0.60)
McFadden Pseudo R2	0.01	0.00	0.01	0.00	0.02	0.02

Obs: coefficients (and p-values in parentheses) are reported. ***, ** and * to indicate statistical significance at 1%, 5% and 10%, respectively. Odd numbered models use 1-period lagged performance as independent variable and even numbered models use 2-period lagged performance as independent variable.

Overall results in tables 3.7-3.9 show that firm performance has a clear negative relation to CEO turnover, that is moderated by differences in governance and ownership variables. Recent firm performance is more relevant than lagged performance, which indicates that boards can react quickly when performance deteriorates.

3.4.2 – ROBUSTNESS TESTS

This subsection provides information about additional robustness tests that enhanced confidence on our findings, clarifying additional methodological aspects.

Our main goal in this research is not to predict CEO turnover but to generate stylized facts that can enhance our knowledge about governance and control influence on CEO turnover and help investors and firms handle those events from a market perspective.

Notwithstanding those more limited objectives, we pursued additional robustness tests to ensure that our findings can be confirmed and that most problems commonly found in empirical finance research were addressed.

In all regression models, we check for multicollinearity (variance inflation factors are well below 5), heteroskedasticity (through Box-Cox transformations and tests) and autocorrelation (through Breusch-Godfrey Tests).

We ran the same regressions presented at Table 3.7 and Table 3.8 but looking at the replacement of the IR Director instead of the CEO (the same person accumulates both positions in 18% of the observations). For the IR Director, firm performance is a significant variable, with poor performance enhancing the odds of replacement in Table 3.7 and Table 3.8. Nonetheless there are important differences, with important variables that were relevant for CEO turnover, like the interaction of NM and control / types of control, not being significant in general. Lagged performance is also not relevant for IR director.

To mitigate endogeneity concerns and strengthen the argument that NM listing makes a difference on CEO turnover for Family controlled companies, we ran 2-step regressions to implement Heckman corrections and look at omitted variables, shown in table 3.10, with the first regression looking just at the relation of IR director turnover and firm performance (selection formula) and the second one looking at CEO turnover outcomes related to size, leverage and NM listing interacting with control/types of control.

Table 3.10 –Heckman correction as robustness test on Table 3.8 results for CEO turnover

	Variables	(I) ROA	(II) ROA	(III) ROE	(IV) ROE	(V) Stock return	(VI) Stock return
Selection equation on Turn_IR	**Firm performance (I-VI)**	-0.003 (0.01)***	-0.003 (0.01)***	-0.001 (0.05)**	-0.001 (0.05)**	-0.003 (0.00)***	-0.003 (0.00)***
Outcome equation on TurnCEO	**size**	-0.019 (0.11)	-0.026 (0.03)**	-0.012 (0.36)	-0.019 (0.14)	-0.007 (0.59)	-0.014 (0.28)
	lev	0.002 (0.31)	0.002 (0.25)	0.002 (0.25)	0.002 (0.23)	0.002 (0.30)	0.002 (0.23)
	NM	-0.326 (0.10)*	-0.341 (0.07)*	-0.318 (0.10)*	-0.332 (0.08)*	-0.241 (0.23)	-0.237 (0.22)
	control	-0.331 (0.08)*		-0.317 (0.09)*		-0.330 (0.09)*	
	NM:control	0.379 (0.06)*		0.357 (0.08)*		0.360 (0.09)*	
	FAM		-0.427 (0.02)**		-0.425 (0.02)**		-0.438 (0.03)**
	SOE		-0.180 (0.34)		-0.184 (0.33)		-0.046 (0.86)
	PRI		-0.121 (0.54)		-0.095 (0.63)		-0.142 (0.52)
	FOR		-0.489 (0.01)***		-0.457 (0.02)**		-0.279 (0.18)
	NM:FAM		0.549 (0.01)***		0.529 (0.01)***		0.543 (0.01)***
	NM:SOE		0.593 (0.03)**		0.585 (0.03)**		0.337 (0.30)
	NM:PRI		0.064 (0.77)		0.028 (0.90)		0.024 (0.92)
	NM:FOR		0.448 (0.06)*		0.424 (0.08)*		0.315 (0.24)
Key statistics	**invMillsRatio**	-0.431 (0.17)	-0.432 (0.17)	-1.607 (0.12)	-1.304 (0.14)	-0.558 (0.08)*	-0.729 (0.03)**
	sigma	0.617	0.605	1.494	1.238	0.687	0.793
	Adjusted R2	0.015	0.065	0.028	0.074	0.020	0.045

Obs: coefficients (and p-values in parentheses) are reported. ***, ** and * to indicate statistical significance at 1%, 5% and 10%, respectively.

In Table 3,10, firm performance (ROA, ROE, and stock return) was negative and significant in 5 of the 6 models used. Control was significant in 2 out of 3 models

and NM listing in 2 out of 6, with interactions of NM and control/types of control also being significant.

Family dummy (FAM) was significant in all specifications. The inverse Mills ratio was only significant using stock return as the performance metric, which shows that when using ROA and ROE, selection bias is not a significant issue. Those results reinforce our findings that having a controlling shareholder and adhering to higher governance quality can have an influence in CEO turnover

Another test using Heckman corrections was made restricting our database to Family companies, which has the largest number of observations in our sample, confirming that stock return and NM variables are significant at 5% level. The inverse Mills ratio was not significant in any model.

Additionally, if we restrict our database just to NM companies, FAM remains statistically significant in regression VI in Table 3.8 while if we restrict the database to non-NM companies and run the regressions in Table 3.8, SOEs becomes statistically significant in models II, IV and VI and FOR is statistically significant in model VI.

To obtain further confirmation we tested if relative performance would confirm our findings when used in lieu of absolute performance metrics in our models. Overall results don´t change, showing that the performance metrics chosen are relevant and that both absolute and relative performance metrics can be useful in modeling CEO turnover. Overall results show that NM listing increases CEO turnover sensitiveness in companies with controlling shareholders, especially in FAM companies.

Finally, regarding causality, we ran Granger causality tests with 1-period lag between performance metrics and CEO turnover. We found that poor performance (ROA) leads to CEO turnover with statistical significance at the 5% level, and not the other way around, with the other tests being non-significant.

3.5 – CONCLUSIONS

In general, the most important factor for CEO turnover is firm performance. However, companies´ effectiveness to monitor executives and timeliness to promote change when necessary may depend on corporate governance and ownership structure, as executives are named or fired by the board, elected as agents of shareholders, another typical principal-agent problem.

Although it is very hard to define exactly why and when a decision to change a CEO has to be made, we know that boards look at different measures of performance, both past and current, as part of their mandate, given by shareholders, to elect a new CEO when necessary.

Current firm performance is more important than lagged performance, showing that boards can react quickly when performance deteriorates. Boards will react to different performance measures. Our results are consistent with Miyajima, Ogawa & Saito (2017) results in Japan, showing how accounting performance metrics and stock returns are important predictors of turnover and provide different information to board members.

We argue that the board willingness to promote change will depend also on ownership/control structure that ultimately appoints the board. The rules of the game that the board must follow are also quite important. For instance, in Brazil boards that must comply with NM requirements are more prone to change CEOs when performance deteriorates, as minority shareholders have more say in board nominations and may influence more controlling shareholders. Hence, complying with NM requirements has impacts that interact with different types of control affecting CEO-performance sensitiveness.

It is more likely that minority shareholders can push for a CEO turnover in a corporation than in family-controlled company or a SOE. On the other hand, companies with controlling shareholders can monitor management better, and create more effective pay-performance schemes with better alignment of interests between management and shareholders. There is no universal governance solution that guaranties ideal monitoring of executives, but improving corporate governance is positive for investors.

The combination of governance and control characteristics help explain the CEO-performance sensitiveness among companies by defining what is expected from the board (rules of the games) by whom (controlling shareholders).

Most research on CEO turnover focus on developed countries. We contribute to the existing literature by evaluating the relation between CEO turnover and corporate governance in a country with weak legal environment. This paper analyzes the CEO turnover of Brazilian firms, highlighting the role that voluntarily adopting

good governance practices through listing on “Novo Mercado” segment has on CEO turnover sensitivity. We also document how differences in control/ownership impact CEO turnover sensitivity and how this interacts with NM listing.

This is the first work, to the best of our knowledge, to incorporate a governance dimension related to NM listing in analyzing CEO turnover in Brazil and to establish evidence of a negative relation between firm performance and CEO turnover in a broad sample of Brazilian companies, using different performance metrics and model specifications, showing that low-performing firms are more likely to change CEOs, especially when corporate governance favors the CEO turnover sensitiveness.

Another relevant finding is the material change that NM has in family-controlled companies CEO turnover. Mendes-da-Silva & Grzybovski (2006) found that for family companies CEO turnover was less sensitive to financial performance, when in fact here CEO turnover for family-controlled NM companies is above average and related to negative financial performance, providing evidence that good governance practices have a positive and significant effect on CEO turnover and can alter patterns related to the control/ownership structure.

There is important heterogeneity on how companies approach governance, and how control is exerted by different controlling shareholders. While family companies have a natural bond between controlling shareholders and foreign companies have often to follow headquarters or global RH practices to selecting executives, PE companies have a big interest in exit strategies and SOEs management are influenced by political processes. Another aspect to be considered is that often the existence of a shareholders´ agreement will grant a specific shareholder the right to appoint someone to a management position of CEO or CFO.

Future studies could explore the role of shareholders´ agreements as they might shape how controlling shareholders appoint executives. The incorporation of additional governance variables and the use of quarterly data could also be useful to understanding the role of corporate governance and of changes in firm performance in CEO turnover.

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4- GOVERNANCE, PERFORMANCE, AND INDUSTRY INFLUENCE ON CEO AND TOP MANAGEMENT TURNOVER IN BRAZIL

Abstract

This paper analyzes the relation between firm performance and CEO and executive turnover, moderated by corporate governance, control and industry variables. We use a unique dataset of CEO and executive turnover of Brazilian firms from 2010 to 2017, including companies that voluntarily adopt good governance practices through listing on “Novo Mercado” segment. We document a significant growth in turnover activity throughout the sample period and find negative relation between firm performance and CEO and executive turnover, which indicates that low performance increases the likelihood of CEO and executive turnover. We also document that firms with good governance practices have greater CEO and executive performance sensitivity, changing executives more often when firm performance deteriorates. Control and Industry characteristics may influence corporate governance characteristics and industry performance is more important to executive turnover than to CEO turnover.

Keywords: executive turnover; CEO turnover; firm performance; corporate governance

4.1 – INTRODUCTION

Agency theory contributes to corporate governance by acknowledging that management (agents) are selected by shareholders (principals) to act on their behalf but agents may have conflicts of interest with shareholders objectives. One of the usual solutions to this problem is to promote alignment of interests between shareholders and management through compensation and variable remuneration. This could promote value maximization and mitigate agency risks. Balsam, Fernando & Tripathy (2011) provide evidence that compensation is linked to the strategy pursued, as defined by the board.

Nonetheless, when there are governance problems by conflicts among shareholders or when there is poor oversight of management, incentives can be misused or promote maximization of private wealth of the controlling group or of management (Bae et al., 2012 ; Bebchuk & Fried , 2013).

One of the key functions of the board is to monitor top executives and make sure that value maximization is sought after, promoting changes in management teams whenever poor performance is not justified. Board composition and independent board members are especially important to filter and mitigate conflicts of interest and promote better corporate governance (Lu & Boateng, 2017).

The base case of agent theory is about dispersed ownership, but in several countries, like Brazil, companies usually have controlling shareholders and conflicts of interest may be more often related to conflicts between controlling and minority shareholders. CEO and executive turnover performance sensitiveness may be affected by controlling aspects, as the objective function for value maximization may differ depending on controlling shareholders characteristics, with different objectives for SOEs, foreign and family-controlled companies, for instance.

CEO and executive turnover are critical processes that companies face from time to time and where their corporate governance is tested. Often, a new CEO is selected from the Top Management Team (TMT) or a TMT member leaves the company because of performance issues or internal conflicts. So, by analyzing not only CEO turnover sensitiveness, but also general changes in the TMT through differences in executive turnover sensitivity, we can enhance governance knowledge about boards capacity to fulfill their duties.

CEO and executive turnover may also be impacted by industry characteristics. Differences in performance in the same industry might be caused by strategic choices but tend to be smaller than differences in other industries. Industry can also shape governance characteristics like TMT and board size, that might be important to explain CEO and executive turnover.

The relationship between negative performance and TMT turnover is well established but not universal as pointed by Messersmith et al. (2014). Also, termination may be provoked by the company or by the executive. The board may be unsatisfied, or the executive may have a better offer in the market or planning a different life stylus. Additionally, age and tenure are in general unrelated to performance but considered relevant aspects in turnover, being used in classifications of turnovers as forced or voluntary. In fact, the actual relation of performance and turnover is subject to several other factors, some case specific, others related to the governance and ownership structure.

Researchers have looked at the quality of the fit of the a given CEO(executive) and its company, trying to understand why a specific CEO/executive is chosen by a board and when a mismatch is perceived and a turnover is recommended. The mismatch may be caused by new events or new information about the executive ability to cope with the job. Anderson et al. (2018) show how the mismatch arises from a change in the firm's external circumstances while Hermalin & Weisbach (2012) provide a model of CEO dismissals that presumes that shareholders learn information about the CEO's ability over time, which they relate to improved disclosure.

When CEO/executive turnover takes place, corporate communication is usually laconic. Specialized media and sell-side analysts try to explain the reasons why each turnover happens and what are new management´s objectives but in general the real discussion in board rooms is unknown.

Romance of leadership theory (Meindl, Ehrlich & Dukerich, 1985) has questioned the real contribution of CEOs to firm performance, but nowadays there is overwhelming evidence that leadership is important to performance in many fields.

Every company will eventually face a change in leadership, making those processes important events. The same is true for other executives in the C-Suite and in top management in general. Researchers have been trying to understand succession and turnover events for decades, and its growing importance has not only caught the attention of investors but has been also discussed by society at large, with perceptions of excessive pay being an issue. This raises the question of the real contribution of top executives to firm performance. In the case of CEO contribution this is known as the “CEO effect” (Quigley & Hambrick, 2013; Serra, Três & Ferreira, 2016).

Some of the questions are related not only to why turnover happens but also who the new successor is, and what are his new plans and strategic directions for the company. The origin of the successor is one of the aspects considered, with internal succession seen as less disruptive than external succession. Upper echelons theory (Hambrick; Mason,1984; Hambrick, 2007) links organizational performance with managerial background characteristics.

While the exact causes of mismatches between executives and companies are hard to grasp, it is common sense that performance is a strong candidate. A derived question is which performance metric is considered most relevant in literature and which ones are considered important and used by board members in each company. Although general corporate performance metrics are important to top management members, individual members may be evaluated by specific metrics related to their specific responsibilities.

Another important aspect is the frequency and intensity of CEO/TMT turnover. Executive turnover is expected to happen at some point in any company and in fact changes in the top management team are relatively frequent. Some level of turnover may happen almost every year, but there is also the perception that executive life cycle is shortening. CEO turnovers are still somewhat rare although the growth in turnover rates has been coined by Charan (2005) as a CEO succession crisis.

Senior management often can move to other high-profile positions. Boivie et al. (2012) presented a theory about factors that make directors depart from companies by their own choice.

Warren Buffet[2] has offered advice on how management should be judged, by looking at their results in comparison to peers and how they treat shareholders, giving relative performance and corporate governance an important weight in management evaluation. His letters[3] to Berkshire Hathaway's shareholders show his stance on pay-performance and board role to monitor management provide good practical advice on governance practices that enhance shareholder value (Cunningham, 2000).

This highlights the importance of corporate governance and of the expected contribution of management to firm performance, which are relevant topics to any investor. It also highlights the role of functional boards in promoting good governance and enhancing CEO/executive turnover sensitiveness.

In this context, analyzing industry performance and the interrelation of governance, performance, industry, and control is important to understand CEO and executive turnover processes, which are often intertwined.

Although the complexity of these processes and the scarcity of complete information naturally imply in blurred perceptions of reality, investigations about some known stylized facts and important factors that impact turnover such as firm performance, corporate governance and industry aspects may provide guidance to decision makers in boards and in the asset management industry.

In Brazil, an additional aspect to be considered is the emergence and growth of differentiated governance segments since 2001, with the introduction of "Novo Mercado" (NM). The NM has the highest level of governance in Brazil, minimizing governance conflicts with controlling shareholders and management, often implying on premium valuations. NM listing is the preferred configuration for Brazilian companies willing to list shares. More than 100 companies listed on NM segment through public offers, predominantly bought by foreign institutional investors.

Brazil´s unique setting is an unexplored one with an important appeal, as so far we hear only fuzzy narratives of CEO and executive turnover, with no in-depth investigation on the role of corporate governance, firm performance and industry

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[2] An interview with Warren Buffet´s comments on management is available at https://www.cnbc.com/2018/05/08/warren-buffett-heres-how-to-judge-management.html

[3] https://www.berkshirehathaway.com/letters/letters.html

variables in CEOs and executive turnover been presented so far, to the best of our knowledge.

We investigated CEO and executive turnover relation to firm performance in Brazil and found that there is a negative relation that is moderated by governance, ownership, and industry variables.

The rest of this paper is organized as follows. Section 2 provides a literature review of the most important articles related to CEO and executive turnover. Section 3 describes the data and methodology; Section 4 present results and robustness tests and Section 5 presents mains conclusions and suggestions for future research.

4.2 – LITERATURE REVIEW

Berns & Klarner (2017) have mapped the current knowledge about CEO succession and outlined a research agenda with gaps that researchers could explore. By looking from different angles, the authors describe CEO succession as complex processes that companies often must face.

Farah et al. (2019) showed in a systematic review how different types of organizations, from public listed to privately owned companies, but also to governments and political organizations. All organizations must deal with the same phenomenon (leadership turnover) where performance is a key factor and political organization context is another one that moderates the impacts of performance.

CEO turnover is a widely researched topic that continues to have importance as new settings and variables are incorporated in different studies. For instance, the divergence between earnings performance measures and analyst expectations is related to CEO turnover in Jarva, Kalunki & Livne (2019) while Balsam, Kwack & Lee (2017) highlight that the number of CEO family connections affect executive turnover, which gives evidence that family-controlled companies may have different executive turnover patterns.

TMT turnover is also an important topic, but there are fewer studies dedicated to the relation of performance and executive turnover in general, as the importance and contribution of each member of the TMT to overall performance may vary but is believed to be always smaller than that of the CEO. Fee & HADLOCK (2004) find that executive turnover is related to performance as CEO turnover and is elevated by CEO turnover events, due to the team nature of dismissals. Messersmith et al. (2011)

relate executive turnover probability with pay dispersion on the TMT. Andrus et al. (2019) investigate why executives decide they should depart a top position in a company.

Karaevli (2007) investigates the performance consequences of the new CEO “outsiderness”, which is related to how the new CEO fit in the TMT and if this is linked to additional executive turnover. Tian, Haleblian & Rajagopalan (2010) discuss the relation of the CEO and the board using the internal social capital they accumulate by working together. Previous experiences in the same sector or previous experiences working together with other key members when the successor is an insider may mitigate performance consequences of a CEO turnover.

Barron, Chulkov & Waddell (2011) analyzed the relation of CEO and TMT turnover to the origin of the successor and to discontinued operations. Both the origin of the successor and the mandate to promote change and improve performance are key themes for researchers.

Messersmith et al. (2014) show that the rate of departure of TMT members can have negative performance consequences but moderate rates of TMT turnover can have positive effects on innovation and change, highlighting the complex and non-linear relations between TMT turnover and performance.

Boyne et al. (2011) examined TMT turnover in local governments in England, and also find evidence a non-linear pattern where top management team turnover is adaptive at low levels of baseline performance but disruptive at high levels, with little impact at middle levels of baseline performance.

Although different research streams focus on various aspects of CEO and executive turnover, they are interconnected, and those differences should also be explored to reconcile common findings. Several turnover studies focus on specific industries looking also at ownership dimensions (He & Sommer, 2011; Cheng, Cummins & Lin, 2015; Shen & Wang ,2019)

One important source of executive turnover is M&A activity, which can also affect the number of companies listed. Bilgili et al. (2016) use meta-analysis and structural equations and find that executive turnover is key in post-acquisition performance.

There are often discussions on which performance metric is ideal to establish what would be the role of performance to CEO and executive turnover, which may be specific by decisions by boards for each company and each executive. There are also some controversies regarding the use of relative and absolute performance.

Jenter & Kanaan (2015) show that relative performance can be a major factor explaining CEO turnover, but Fee et al. (2017) pose arguments that absolute performance should be preferred due to robustness in models of CEO turnover.

Miyajima, Ogawa & Saito (2017) find that in Japan, where important transformations happened in the governance landscape, top executive is influenced by relative performance. Also, over time, CEO turnover sensitivity has shifted from ROA to ROE and stock return, which represent better the interest of shareholders.

Volpin (2002) provides evidence of the relation of poor governance and executive turnover in Italy, where sensitivity of performance and the probability of turnover are affected by corporate governance, ownership, and control structure. Morresi (2005) also investigates turnover in Italian companies and finds that privately owned companies face fewer turnover events than public listed companies and among them, SOEs have greater likelihood of turnover. Another finding is that accounting metrics matter more than market returns for turnovers.

González et al. (2014) investigate how corporate governance affects CEO turnover in the Colombian landscape, finding evidence that family firms have reduced CEO turnover and that the presence of family members in management reduces the CEO performance sensitivity.

Defond & Hung (2004) discuss the importance of corporate governance to understanding CEO turnover-performance sensitivity worldwide. They show that investor protection rights interact with firm performance to define the CEO turnover-performance sensitivity in different realities.

Jenter & Lewellen (2017) discuss the underestimation of forced turnovers and propose a new classification that can better explore the relationship between firm performance and CEO turnover, naming it performance-induced turnover. There is further evidence that forced turnover is underestimated (Fee et al, 2017; Kaplan & Minton, 2012). In fact, corporate communication seldom makes explicit that “top

executives are fired", and often use tone down language to "thank the executives leaving to pursue their own endeavors".

A few papers in Brazil (mostly in Portuguese) investigate CEO and executive turnover, but we lack more recent and comprehensive work that incorporates the governance, ownership, and industry dimensions.

Mellone Jr. & Saito (2004) analyze the monitoring role of boards to promote executive turnover in Brazil and find no relation between stock performance and CEO turnover but a negative relation between performance and executive turnover. They investigate the role of independent board members and of CEO/Chairman duality in CEO turnover, but NM listing already guaranties larger number of independent board members and forbids CEO duality (since 2014).

Mendes-da-Silva & Moraes (2004, 2006) find weak evidence of the relationship of TMT turnover and performance in Brazil. Mendes-da-Silva & Grzybovski (2006) show that the relation between CEO turnover and financial performance is less important in family firms than in non-family companies.

Vieira & Martins (2018) investigated CEO turnover in companies that are part of IBOVESPA and IBRx100 indexes, looking at the relation of absolute and relative (to the indexes) stock returns and CEO turnover, investigating also ownership concentration, independence of the board and CEO/Chairman duality influence. Their results highlight the influence of firm performance on CEO turnover and of CEO duality and ownership concentration but not of independence of the board.

Black, De Carvalho & Sampaio (2014) and Leal, Carvalhal & Iervolino (2015) have documented important evolution of corporate governance in Brazil related to the introduction of special governance segments at the B3, with the NM segment standing out as the highest standard and preferred choice for issuers and investors. This remarkable evolution set the way for new investigations regarding CEO and executive turnover and executive performance sensitiveness.

4.3 – Data and Methodology

This study analyzes CEO and executive turnovers of 267 Brazilian listed companies we obtained complete data, from 2010 to 2017. Our sample represents more than 80% of all listed companies in Brazil and has 1919 firm-years observations. Market data and accounting data come from Economatica, a database that contains information of Brazilian companies. We collect the information on CEO and executive turnover, governance practices and ownership structure as well as executive and company data through queries to mandatory data filed by companies at Brazilian Securities Exchange Commission (CVM) through R package GetDFPData by Perlin, Kirch & Vancin (2019).

To understand the role of corporate governance in monitoring and replacing executives, we can compare corporate performances directly, specially to peers in the same industry and examine the sensitivity of the relation of top management turnover and firm performance.

An important factor in analyzing companies´ governance is the existence of a controlling group, as minority investors may have limited say on approval of strategies or corporate actions. In Brazil, most companies have controlling shareholders and there are not many opportunities for market disputes of corporate control, which limit incentives for minority shareholders to discipline managers. Also, minority shareholders rights may depend on specific segment governance rules. This can make CEO and executive turnover-performance sensitivity depend on company´s controlling shareholders and corporate governance.

NM segment rules, by having the highest governance standards in Brazil, can have an important impact on CEO and executive turnover by improving minority shareholders rights and requiring greater independence in board composition. Board composition affects how boards perform their monitoring role and ultimately can differentiate how companies are managed and valued.

NM segment also mitigates common governance problems, including deviations between economic and political interest, as NM allows only voting shares, with equal voting rights . Nonetheless, controlling shareholder´s objectives may differ from profit maximization to all shareholders, making governance problems vary according to different types of control, related to the origin of the largest shareholder

(families, foreigners, State, private groups of investors or dispersed capital), which is another aspect to consider on CEO turnover-performance sensitivity.

CEO turnover is usually related to further changes in management, involving the TMT. CEO turnover is also often associated to changes in strategy and even accounting practices. By looking at TMT turnover we can increase our knowledge of CEO turnover impacts in companies, which may vary depending on corporate governance practices and control aspects.

Although CEO/Chairman duality is forbidden in NM, duality in general can have an impact on board decisions, as executives with a seat in the board can influence discussions and shape corporate narratives.

When analyzing top executive turnover in Brazil, it is important to notice that it is often difficult to identify which executive oversees a given specific activity. The only executives that are singled out are the CEO and the IR Director, who must sign the financial statements filed at CVM. In fact, in 18.95% of the observations the CEO is also the IR Director, but it is not clear how often the CFO is also the IR Director or if the CEO accumulates the CFO position. Nonetheless, any change in the TMT must be communicated and will appear in the documents filed at CVM, which allows measurement of executive turnover.

DiMaggio & Powell (1983) have shown that organizations tend to structure themselves following social norms and looking at peers, in what they call institutional isomorphism, which diminishes heterogeneity. Since then, although evidence suggest that their argument remains correct, other driving forces have contributed to bring additional heterogeneity to how organizations are structured, according to Hambrick et al. (2004). There are other reasons beyond isomorphism that can make companies in the same industry share characteristics, as they may dispute the same markets, and may have common legal requirements and regulations to follow. Differentiated governance segments may function as an additional influence in shaping organizational structure and behavior.

So, there are historical reasons to incorporate an industry dimension to our analysis, with the caveat that general classifications may encompass companies with different strategies and that focus in different segments and markets.

Notwithstanding these differences, sell-side analysts are typically industry focused, and so are their recommendations, made on a relative basis. Boards will also always compare how each company is doing compared to their relevant competitors and relate this to respective management decisions. By incorporating this sectorial dimension, we can better compare the influence of governance and control dimensions looking also at relative performance, as the market does.

We can also investigate if there are sectorial patterns due to regulation and institutional isomorphism which help explain differences in the performance-turnover sensitivity, besides causing differences in the corporate governance configuration, including the size of the top management team and other relevant governance variables.

With this added sectorial dimension, we aim to untangle the relationship of performance and CEO / executive turnover, moderated by differences in corporate governance variables, control and industry characteristics.

We present the relevant variables used in Table 4.1 and summary statistics and company breakdown in Table 4.2.

Table 4.1 - Variable Definition

Variable	Definition
$TurnCEO_{ij}$	Dummy variable that takes the value of 1 if CEO turnover occurs for company i in year j (0 otherwise)
$Turn\_IR_{ij}$	Dummy variable that takes the value of 1 if IR director turnover occurs for company i in year j (0 otherwise)
$TurnExec_{ij}$	Number of executive turnovers (except CEO turnover) divided by $nTMT_{ij}$
TurnanyTMTij	Dummy variable that takes the value of 1 if any TMT turnover occurs for company i in year j (0 otherwise)
$nTMT_{ij}$	Number of members of the TMT of company i in year j
$nBoard_{ij}$	Number of members of the board of company i in year j
$frac\_indep_{ij}$	Percentage of independent members in the board of company I in year j
$frac\_execB_{ij}$	Percentage of internal members in the board of company I in year j
$Stock\ Return_{ij}$	Stock return of company i in year j
ROA_{ij}	Return on assets (net income divided by total assets of company i in year j)
ROE_{ij}	Return on equity (net income divided by shareholder's equity of company i in year j)
$Size_{ij}$	Log of total assets of company i at the end of year j
Lev_{ij}	Leverage (liabilities divided by total assets company i in year j)
NM_{ij}	Dummy variable that takes the value of 1 if company i is listed on "Novo Mercado" segment in year j (0 otherwise)
SOE_{ij}	Dummy variable that takes the value of 1 if the controlling shareholder of company i in year j is the State (0 otherwise)
FAM_{ij}	Dummy variable that takes the value of 1 if the controlling shareholder of company i in year j is a family (0 otherwise)
FOR_{ij}	Dummy variable that takes the value of 1 if the controlling shareholder of company i in year j is foreigner (0 otherwise)
PRI_{ij}	Dummy that takes the value of 1 if the controlling shareholder of company i in year j is a Brazilian private group (0 otherwise)
PE_{ij}	Dummy that takes the value of 1 if the controlling shareholder of company i in year j is a private equity fund (0 otherwise)
$RETind_{ij}$	Average Stock Return of companies of sector i in year j
$ROAind_{ij}$	Average ROA of companies of sector i in year j
$ROEind_{ij}$	Average ROE of companies of sector i in year j
$RETadj_{ij}$	Stock Return of company i in year j adjusted by industry average by subtracting $RETind_{ij}$ from $Stock\ Return_{ij}$
$ROAadj_{ij}$	ROA of company i in year j adjusted by industry average ROA by subtracting $ROAind_{ij}$ from ROA_{ij}
$ROEadj_{ij}$	ROE of company i in year j adjusted by industry average ROE by subtracting $ROEind_{ij}$ from ROE_{ij}
$main.sector_{ij}$	IND, CCGS, NCCGS, FIN, BI, OTHER, OG, HC, TEL, IT, UTIL

Table 4.2 - Summary statistics and company breakdown

Panel A – Summary statistics

	Mean	Std.Dev	Min	Median	Max
TurnCEO	0.17	0.38	0.00	0.00	1.00
Turn_IR	0.20	0.40	0.00	0.00	1.00
Control	0.87	0.33	0.00	1.00	1.00
TurnExec	0.39	0.35	0.00	0.33	1.00
nTMT	5.94	7.14	1.00	5.00	94.00
nBoard	8.54	4.62	1.00	7.00	32.00
TurnanyTMT	0.68	0.47	0.00	1.00	1.00
Frac_indep	0.28	0.33	0.00	0.17	1.00
Frac_execB	0.32	0.23	0.00	0.29	1.00
ROA	3.50	7.22	-18.62	3.30	19.25
ROE	8.46	20.56	-58.73	10.40	50.96
Stock return	9.93	41.99	-69.71	5.54	120.28
ROAind	1.55	4.34	-13.64	2.65	7.93
ROEind	8.05	12.21	-20.26	9.04	38.86
RETind	0.11	0.29	-0.38	0.09	0.84
ROAadj	1.85	4.20	-3.60	1.64	7.91
ROEadj	1.86	10.80	-12.93	2.50	16.24
RETadj	0.99	0.19	-0.75	0.97	1.24
size	15.24	1.68	12.12	15.09	20.09
lev	1.88	3.11	0.01	0.70	13.85

Panel B - Company Breakdown

main.sector	**n**	**control**	**n**
Industry (**IND**)	37	No control	33
Cyclical Consumer Goods & Services (**CCGS**)	61	FAM	118
Non-Cyclical Consumer Goods & Services (**NCCGS**)	16	FOR	33
Financials (**FIN)**	50	PE	9
Basic Inputs (**BI**)	26	PRI	48
Other (**OTHER**)_	5	SOE	26
Oil & Gas (**O&G**)	8	**Governance**	**n**
Healthcare (**HC**)	14	Non-NM	145
IT (**IT**)	4	NM	122
Telecom (**TEL**)	4		
Utilities (**UTIL**)	42		

We have identified 326 CEO turnovers in our sample. Most companies (188 out of 267 companies) have at least one CEO turnover during the sample period.

To calculate executive turnover, we compare yearly disclosed TMTs and boards in documents filed at CVM. We collected data about 3345 executives (which form companies´ top management teams) and 3968 board members.

We note that 1491 (37,6%) of the board members are classified by companies as independent members while 523 (13,2%) are internal members of the board, being simultaneously part of the TMT.

Executive turnover is much more common than CEO turnover and can be highly influenced by it. On average, companies change 39% of the TMT yearly, twice as often as CEO turnover. In fact, at least one executive turnover happens in 68% of the company-year observations, as expressed in variable TurnanyTMT, with a turnover being the most frequent outcome (median = 1).

Table 4.3 – Mean and standard deviation of CEO and executive turnover, TMT and Board size by control and sector

		TurnCEO		TurnExec		nTMT		nBoard	
Firms	**Nr**	**Mean**	**St.Dev**	**Mean**	**St.Dev**	**Mean**	**St.Dev**	**Mean**	**St.Dev**
All	1919	0.17	0.38	0.39	0.35	5.95	7.13	8.54	4.62
No control	234	0.18	0.39	0.42	0.35	5.95	2.88	9.91	5.58
FAM	851	0.14	0.35	0.33	0.34	4.98	4.74	7.16	3.86
FOR	228	0.18	0.38	0.48	0.34	6.49	5.26	10.46	5.08
PE	59	0.17	0.38	0.39	0.33	4.25	1.38	8.05	2.67
PRI	366	0.17	0.38	0.38	0.33	7.31	12.80	9.00	4.53
SOE	181	0.26	0.44	0.55	0.39	7.67	6.65	10.08	4.60
OTHER	35	0.29	0.46	0.46	0.43	2.74	0.92	4.03	1.54
Industry	277	0.11	0.31	0.37	0.34	4.38	2.53	8.31	4.92
CCGS	449	0.14	0.35	0.34	0.34	5.03	2.73	7.05	2.70
NCCGS	99	0.22	0.42	0.43	0.40	5.08	2.76	8.14	4.43
FIN	387	0.16	0.36	0.35	0.33	9.43	14.45	7.85	3.06
BI	190	0.16	0.37	0.41	0.34	4.87	2.27	9.38	6.22
O&G	40	0.38	0.49	0.53	0.36	4.93	2.25	7.90	2.80
HEALTH	77	0.22	0.42	0.44	0.34	5.66	2.77	9.14	4.71
IT	29	0.03	0.19	0.29	0.30	7.83	5.16	6.41	1.45
TEL	27	0.37	0.49	0.58	0.31	5.15	2.18	14.04	7.58
UTIL	309	0.22	0.41	0.48	0.35	5.76	2.43	11.57	5.28

In Table 4.3, we notice that FAM companies have the lowest levels of CEO and executive turnover and that on the other extreme SOEs have the highest levels of CEO and executive turnover. We can also observe that most sectors have lower than average TMT size and lower than average standard deviation in TMT size, with Financials being a big exception. This may imply that each sector has specific needs and characteristics and that companies may be influenced by isomorphism to define the size of their TMT.

We can see in Table 4.4 that there is statistically significance difference for CEO and executive turnover between NM and non-NM companies for the whole sample at the 5% level, although no general difference in TMT sizes.

Table 4.4 – Average differences of CEO and Executive Turnover and of TMT size by NM listing

	TurnCEO			TurnExec			nTMT		
Firms	**NM**	**Non-NM**	**p-value of difference**	**NM**	**Non-NM**	**p-value of difference**	**NM**	**Non-NM**	**p-value of difference**
All	0.19	0.15	0.05**	0.41	0.38	0.04**	5.76	6.12	0.24
Panel A – Control									
No control	0.17	0.29	0.23	0.43	0.34	0.22	6.13	4.42	0.00***
FAM	0.21	0.10	0.00***	0.40	0.29	0.00***	5.09	4.91	0.54
FOR	0.14	0.20	0.23	0.41	0.51	0.03**	4.88	7.25	0.00***
PE	0.20	0.00	0.00***	0.38	0.46	0.54	4.45	3.00	0.00***
PRI	0.18	0.16	0.46	0.41	0.36	0.14	5.86	8.61	0.03**
SOE	0.22	0.27	0.55	0.43	0.58	0.05**	13.91	6.34	0.00***
Panel B – Main Sector									
IND	0.14	0.08	0.10*	0.14	0.08	0.10*	5.53	3.08	0.00***
CCGS	0.16	0.10	0.04**	0.16	0.10	0.04**	5.48	4.18	0.00***
NCCGS	0.23	0.22	0.92	0.23	0.22	0.92	5.68	4.39	0.02**
FIN	0.20	0.13	0.09*	0.20	0.13	0.09*	6.44	10.93	0.00***
BI	0.24	0.13	0.13	0.24	0.13	0.13	6.35	4.40	0.00***
OTHER	0.62	0.19	0.05**	0.62	0.19	0.05**	1.62	3.07	0.00***
O&G	0.38	0.36	0.93	0.38	0.36	0.93	4.45	6.18	0.07*
HEALT	0.21	0.25	0.73	0.21	0.25	0.73	5.46	6.25	0.33
UTIL	0.24	0.21	0.69	0.24	0.21	0.69	6.01	5.68	0.23

Obs: means are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

In Table 4.4, Panel A, FAM companies have a big difference in CEO and executive turnover between NM and non-NM companies, with NM companies having higher turnover, statistically significant at the 1% level. On the other hand, FOR companies and SOEs have lower executive turnover for NM companies, at the 5% level. TMT size is larger on NM companies in companies without controlling shareholders, PEs and SOEs, but smaller in FOR and PRI companies.

In Table 4.4, Panel B, we present sector differences in NM and Non-NM companies. CEO and executive turnover are higher for NM companies in several sectors with statistical significance. Regarding TMT size, NM companies have bigger TMTs in industry and consumer goods in general, and smaller in financials, O&G and other sectors.

Table 4.5 – Average differences of Board characteristics by NM listing

	nBoard			Frac_indep			Frac_execB		
Firms	**NM**	**Non-NM**	**p-value of difference**	**NM**	**Non-NM**	**p-value of difference**	**NM**	**Non-NM**	**p-value of difference**
All	8.77	8.35	0.05**	0.37	0.21	0.00***	0.28	0.39	0.00***
Panel A - Control									
No control	9.77	11.17	0.49	0.66	0.43	0.01***	0.28	0.39	0.00***
FAM	7.63	6.86	0.00***	0.23	0.19	0.06*	0.25	0.31	0.33
FOR	10.47	10.45	0.98	0.19	0.19	0.97	0.31	0.40	0.00***
PE	8.14	7.50	0.33	0.74	0.00	0.00***	0.24	0.43	0.00***
PRI	9.39	8.66	0.12	0.29	0.24	0.11	0.27	0.00	0.00***
SOE	7.88	10.55	0.00***	0.21	0.26	0.03**	0.23	0.31	0.00***
Panel B - Main Sector									
IND	10.04	6.37	0.00***	0.35	0.32	0.56	0.13	0.39	0.00***
CCGS	7.24	6.67	0.06*	0.38	0.16	0.00***	0.28	0.33	0.01***
NCCGS	9.98	6.02	0.00***	0.36	0.13	0.00***	0.31	0.37	0.19
FIN	8.07	7.74	0.31	0.41	0.21	0.00***	0.27	0.37	0.00***
BI	11.28	8.77	0.01***	0.27	0.15	0.04**	0.21	0.27	0.14
OTHER	4.75	3.81	0.24	0.00	0.09	0.11	1.19	0.84	0.05**
O&G	7.72	8.36	0.60	0.60	0.44	0.20	0.44	0.37	0.28
HEALTH	10.95	4.00	0.00***	0.26	0.20	0.49	0.25	0.56	0.00***
UTIL	11.03	11.75	0.28	0.30	0.24	0.07*	0.35	0.45	0.00***

Obs: means are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

In Table 4.5, NM companies have bigger boards at the 5% level and higher number of independent board members, at the 1% level. On the other side, non-NM companies have in general more internal executives on the board at the 1% level.

In Table 4.5, Panel A, companies without control have larger number of independent board members in NM companies, at the 5% level. FAM companies have bigger boards for NM companies and have more independent board members at the 1% and 10% level, respectively. On the other hand, FOR companies have more executives on the board for non-NM companies at the 1% level. An odd finding is that for SOEs, NM companies have on average smaller boards and less independent board members than in Non-NM companies at the 1% level.

In Table 4.5 , Panel B, when considering sectorial breakdown, there is high statistical significance that NM companies have bigger board sizes for several sectors, which can be attributed in part to NM requirements of more independent board members than legally required. In general, NM companies also have less executives on the board than non-NM companies.

In table 4.6, we present the average yearly evolution of some corporate governance characteristics and executive and CEO turnover. There is a growing trend of executive turnover in the period, as observed in variables TurnExec, TurnanyTMT, and CEO Turnover. Another important factor is that the average TMT and Board size are diminishing, which magnifies the importance of changes in the TMT. We can see that TMT and Board size are decreasing while executive turnover grows monotonically through variables. Statistical differences between the first and last years presented are reported.

Table 4.6 – Yearly evolution of governance characteristics and turnover rates

year	nr Firms	TurnCEO	TurnExec	Turnany TMT	nTMT	nBoard	Frac_ nIndep	Frac_ ExecB
2011	214	0.19	0.15	0.51	6.35	9.25	0.27	0.34
2012	220	0.20	0.26	0.67	6.23	8.97	0.28	0.34
2013	228	0.20	0.39	0.76	6.01	8.72	0.27	0.34
2014	222	0.18	0.44	0.81	5.91	8.74	0.30	0.33
2015	234	0.22	0.51	0.83	5.76	8.33	0.30	0.33
2016	247	0.23	0.55	0.86	5.74	8.05	0.30	0.34
2017	254	0.26	0.65	0.87	5.57	7.81	0.29	0.36
Difference means (2011-2017) p-value		0.06*	0.00***	0.00***	0.25	0.00***	0.22	0.50
Difference medians (2011-2017) p-value		1.00	0.00***	1.00	0.03**	0.00***	0.24	0.82

Obs: means are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

After highlighting these phenomena, we look at the relationship of governance variables with CEO and executive turnover to investigate how the characteristic of a company influences its governance. We use models I-V to test our 1st hypothesis:

H_1: Governance, ownership and industry characteristics of companies are relevant to CEO and executive turnover

(I) $nTMT_{i,j} = \alpha+\beta_1 Size_{i,j} + \beta_2 nBoard_{i,j} + \beta_3 frac\_nIndep_{i,j} + \beta_4 frac\_execB_{i,j} + \beta_5 FAM_{i,j} + \beta_6 FOR_{i,j} + \beta_7 PE_{i,j} + \beta_8 PRI_{i,j} + \beta_9 SOE_{i,j} + \beta_{10} NM_{i,j} + \beta_{11} main.sector_{ij}$

(II) $nBoard_{i,j} = \alpha+\beta_1 Size_{i,j} + \beta_2 nTMT_{i,j} + \beta_3 frac\_nIndep_{i,j} + \beta_4 frac\_execB_{i,j} + \beta_5 FAM_{i,j} + \beta_6 FOR_{i,j} + \beta_7 PE_{i,j} + \beta_8 PRI_{i,j} + \beta_9 SOE_{i,j} + \beta_{10} NM_{i,j} + \beta_{11} main.sector_{ij}$

(III) $nIndep_{i,j} = \alpha+ \beta_1 Size_{i,j} + \beta_2 nTMT_{i,j} + \beta_3 nBoard_{i,j} + \beta_4 frac\_execB_{i,j} + \beta_5 FAM_{i,j} + \beta_6 FOR_{i,j} + \beta_7 PE_{i,j} + \beta_8 PRI_{i,j} + \beta_9 SOE_{i,j} + \beta_{10} NM_{i,j} + \beta_{11} main.sector_{ij}$

(IV) $ExecBoard_{i,j} = \alpha+\beta_1 Size_{i,j} + \beta_2 nTMT_{i,j} + \beta_3 nBoard_{i,j} + \beta_4 frac\_nIndep_{i,j} + \beta_5 FAM_{i,j} + \beta_6 FOR_{i,j} + \beta_7 PE_{i,j} + \beta_8 PRI_{i,j} + \beta_9 SOE_{i,j} + \beta_{10} NM_{i,j} + \beta_{11} main.sector_{ij}$

(V) $TurnExec_{i,j} = \alpha+ \beta_1 Size_{i,j} + \beta_2 nTMT_{i,j} + \beta_3 nBoard_{i,j} + \beta_3 frac\_nIndep_{i,j} + \beta_4 frac\_execB_{i,j} + \beta_6 FAM_{i,j} + \beta_7 FOR_{i,j} + \beta_8 PE_{i,j} + \beta_9 PR_{i,j}I + \beta_{10} SOE_{i,j} + \beta_{11} NM_{i,j} + \beta_{12} main.sector_{ij}$

(VI) $TurnCEO_{i,j} = \alpha + \beta_1 Size_{i,j} + \beta_2 nTMT_{i,j} + \beta_3 nBoard_{i,j} + \beta_3 frac\_nIndep_{i,j} + \beta_4 frac\_execB_{i,j} + \beta_6 FAM_{i,j} + \beta_7 FOR_{i,j} + \beta_8 PE_{i,j} + \beta_9 PRI_{i,j} + \beta_{10} SOE_{i,j} + \beta_{11} NM_{i,j} + \beta_{12} main.sector_{ij}$

Models I- IV are estimated via linear regressions while model V studies executive turnover via a logistic regression with quasibinomial distribution (outcomes in the interval between 0 and 1) and model VI studies CEO turnover via a traditional logistic regression.

Considering that family companies are the most important group in our sample and where previous results show that its where NM listing are more relevant, we will focus our analysis in this group and will comment in the robustness section outcomes on regressions using dummies for the other groups instead of the FAM dummy. To further investigate CEO and executive turnover relation to firm performance, moderated by industry, ownership, and governance variables, we will test the following hypothesis:

H_2: There is a negative relationship between firm performance and CEO and executive turnover in family-controlled companies.

H_3: There is a positive relationship between CEO and Executive turnover and corporate governance in family-controlled companies

H_2 and H_3 are investigated through the following models:

(I) $TurnExec_{i,j} = \alpha + \beta_1 Performance_{i,j} + \beta_2 NM_{i,j} + \beta_3 FAM + \beta_4 Performance_{i,j} + \beta_5 Size_{i,j} + \beta_6 nTMT_{i,j} + \beta_7 nBoard_{i,j} + \beta_8 frac\_nIndep + \beta_9 frac\_execB + \beta_9 Perf.ind_{i,j} + \beta_{10} Performance_{i,j} NM_{i,j} + Performance_{i,j} FAM_{,j} + \beta_{12} NM_{i,j} FAM_{,j} + \beta_{13} Perf.ind_i NM_{i,j}$

(II) $TurnCEO_{i,} = \alpha + \beta_1 Performance_{i,j} + \beta_2 NM_{i,j} + \beta_3 FAM + \beta_4 Performance_{i,j} + \beta_5 Size_{i,j} + \beta_6 nTMT_{i,j} + \beta_7 nBoard_{i,j} + \beta_8 frac\_nIndep + \beta_9 frac\_execB + \beta_9 Perf.ind_{i,j} + \beta_{10} Performance_{i,j} NM_{i,j} + Performance_{i,j} FAM_{,j} + \beta_{12} NM_{i,j} FAM_{,j} + \beta_{13} Perf.ind_i NM_{i,j}$

Performance is measured either as ROA, ROE, or stock return, both in absolute terms and relative to industry. Executive turnover is studied in model I via a logistic regression with quasibinomial distribution, as it is limited to the interval [0, 1] and model II studies CEO turnover via a traditional logistic regression.

4.4 – RESULTS AND ROBUSTNESS TESTS

This section will present results and robustness tests. We will investigate the hypothesis outlined in the previous section and present robustness tests that address specific econometric questions plus alternative tests that were made to increase confidence in our conclusions. In general, all regression models related to CEO and executive turnover, we check for multicollinearity, heteroskedasticity and auto-correlation. P-values are calculated using robust standard errors.

4.4.1 – RESULTS

To test H_1, we estimate models using different governance and turnover metrics as independent variables in Table 4.7. Our goal is to test relations between corporate governance variables and executive and CEO variables, before looking at firm performance contribution to turnover.

We notice in Table 4.7 that firm size is positive and significant in models I-V, at the 1% and 10% levels, influencing corporate governance characteristics and executive turnover levels, but not CEO turnover. Larger companies usually have bigger TMTs and boards, fewer independent board members, more internal board members, and higher executive turnover.

Most variables are impacted by the combination of governance, type of control, and industry. NM is negative and an important factor in defining the number of TMT members in model I and the board composition in terms of independent (more) and internal members (fewer) in models III and IV, but not board size in model II. More importantly it is significantly and positively related to executive and CEO turnover at the 10% and 1% levels in models V-VI, respectively. In general, NM companies have smaller TMTs, more independent board members and higher CEO and executive turnover.

Isomorphism may play an important role in the definition of the of the TMT size in each sector, as well as the configuration of companies´ governance, moderated by type of control and industry.

Table 4.7 – Regressions with governance/turnover data as dependent variables

	nTMT	nBoard	Frac_indep	Frac_ExecB	TurnExec	TurnCEO
size	1.75 (0.00)***	0.64 (0.00)***	-0.10 (0.01)***	0.04 (0.09)*	0.04 (0.00)***	-0.01 (0.88)
NM	-1.21 (0.00)***	-0.08 (0.68)	0.42 (0.00)***	-0.29 (0.00)***	0.03 (0.07)*	0.44 (0.00)***
nTMT		0.03 (0.03)**	-0.01 (0.09)*	0.06 (0.00)***	-0.01 (0.00)***	0.00 (0.68)
nBoard	0.08 (0.00)***		0.22 (0.00)***	0.05 (0.00)***	-0.01 (0.00)***	0.07 (0.00)***
frac_indep	-0.31 (0.35)	-0.55 (0.06)*		-0.13 (0.21)	0.01 (0.00)***	-0.04 (0.88)
frac_execB	3.26 (0.00)***	-5.44 (0.00)***	-0.52 (0.01)***		0.02 (0.00)***	1.02 (0.00)***
Consumer Cyclical	0.01 (0.98)	-1.12 (0.00)***	0.06 (0.78)	0.65 (0.00)***	-0.07 (0.01)***	0.29 (0.22)
Consumer Non-Cyclical	-1.68 (0.00)***	-0.25 (0.55)	0.60 (0.06)*	0.81 (0.00)***	0.00 (0.96)	0.82 (0.01)***
Financials	1.73 (0.00)***	-1.02 (0.00)***	0.22 (0.33)	0.65 (0.00)***	-0.10 (0.00)***	0.43 (0.09)*
Basic Materials	-2.67 (0.00)***	0.26 (0.53)	-0.28 (0.32)	0.07 (0.55)	0.01 (0.88)	0.46 (0.13)
O&G	-4.36 (0.00)***	-0.96 (0.05)**	2.06 (0.00)***	1.70 (0.00)***	-0.04 (0.54)	1.34 (0.00)***
Health	-0.01 (0.99)	0.56 (0.25)	-1.15 (0.01)***	1.21 (0.00)***	0.03 (0.49)	0.63 (0.08)*
IT	3.86 (0.00)***	-1.83 (0.00)***	0.30 (0.51)	1.61 (0.00)***	-0.15 (0.01)***	-1.47 (0.16)
Telecom	-6.42 (0.00)***	3.99 (0.00)***	-1.50 (0.04)**	2.22 (0.00)***	0.02 (0.71)	1.16 (0.02)**
Utilities	-2.74 (0.00)***	3.52 (0.00)***	0.61 (0.02)*	2.34 (0.00)***	-0.04 (0.23)	0.42 (0.15)
FAM	-0.26 (0.45)	-2.07 (0.00)***	-3.39 (0.00)***	0.47 (0.00)***	-0.06 (0.06)*	-0.12 (0.63)
FOR	0.56 (0.30)	-1.78 (0.00)***	-3.67 (0.00)***	0.74 (0.00)***	0.07 (0.08)*	-0.13 (0.66)
PE	-0.11 (0.85)	-1.72 (0.00)***	-0.08 (0.90)	0.03 (0.86)	-0.02 (0.66)	0.07 (0.86)
PRI	1.26 (0.01)***	-1.52 (0.00)***	-2.87 (0.00)***	-0.19 (0.09)*	0.01 (0.70)	0.02 (0.93)
SOE	-0.06 (0.94)	-2.01 (0.00)***	-2.80 (0.00)***	0.65 (0.00)***	0.15 (0.00)***	0.41 (0.19)
R^2 /Pseudo R^2 McFadden	0.30	0.37	0.25	0.28	0.09	0.05

Obs: means (and p-values in parentheses) are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

In Table 4.7, most sectors have significant coefficients for TMT size (8 out of 9 sectors) and board size (7 out of 9). Moreover, 5 out 9 sectors have significant effects on the number of independent members and all but one sector in the number of executives of the TMT with a seat on the board. Regarding control, only PRI companies have a significant coefficient for TMT size. All types of control but PE significantly impact the number of independent board members and the number of internal board members.

In Table 4.7, model V, executive turnover depends on variables firm size, nTMT, nBoard, nIndep and ExecBoard, all significant at the 1% level, while SOE companies are significant at the 1% level and NM, FAM and FOR companies are significant at the 10% level. Sector-wise, being in specific industries as Cyclicals, Financials and IT is relevant for executive turnover, which is not the case in most industries.

In Table 4.7, model VI, we can see that for CEO turnover, several governance variables are significant: NM listing, board size and executives on the board are significant at the 1%, but firm size, TMT size and number of independent board members are not. Also, none of the types of control by itself is significant. Some specific industries as Non-Cyclicals, O&G and Telecom have significance for CEO turnover, but industry is in general not significant for CEO turnover.

We test H_2 in Tables 4.8 and 4.9 in models using as dependent variables CEO turnover and executive turnover, respectively. We use the same set of independent variables to investigate both kinds of turnover. We present models with different firm performance metrics, corporate governance variables and Industry average performance as a sector proxy as independent variables. As performance measures we use ROA, ROAadj, ROE, ROEadj and stock return (adjusted stock return analysis was dropped due to multicollinearity problems).

In Table 4.8, Firm performance is negative and significant in all models for CEO turnover, but industry performance is only on model II. Firm size is negative and significant at the 10% level in models I-IV, as expected. TMT size is not significant at all while Board size is positive and significant at the 1% levels in all models. Besides board size, board composition is relevant not only through board independence but importantly through the fraction of board seats occupied by TMT members, always

positive and significant, showing that duality of roles (executives being simultaneously board members) affects CEO turnover. FAM variable is positive and significant in models I-IV, and NM is only significant in models I-II, with a negative coefficient, contrary to expectations. NM importance appears through the interaction of variables FAM and NM variables in models I-IV is significant at the 1% level, and NM with firm performance in models I-II, at the 10% and 5% levels. Firm performance interaction with FAM is also significant in models III-IV, at the 5% level.

Table 4.8 – Logistic Regression of CEO turnover on Performance, Corporate Governance, Control, Board, and Industry Performance variables

	I ROA	II ROAadj	III ROE	IV ROEadj	V Stock return
Firm Performance (I-V)	-0.01 (0.01) ***	-0.01 (0.01) ***	-0.00 (0.08) *	-0.00 (0.09) *	-0.01 (0.07) *
NM	-0.30 (0.06) *	-0.31 (0.06) *	-0.16 (0.39)	-0.16 (0.40)	0.11 (0.62)
FAM	-0.56 (0.00) ***	-0.57 (0.00) ***	-0.60 (0.00) ***	-0.55 (0.00) ***	0.15 (0.59)
size	0.07 (0.07) *	0.07 (0.07) *	0.08 (0.05) **	0.08 (0.05) **	0.02 (0.70)
nTMT	-0.02 (0.14)	-0.02 (0.14)	-0.01 (0.17)	-0.01 (0.16)	-0.01 (0.29)
nBoard	0.04 (0.00) ***	0.04 (0.00) ***	0.05 (0.00) ***	0.05 (0.00) ***	0.07 (0.00) ***
frac_indep	0.32 (0.08) *	0.32 (0.09) *	0.44 (0.03) **	0.45 (0.02) ***	0.36 (0.11)
frac_execB	0.90 (0.00) ***	0.88 (0.00) ***	1.21 (0.00) ***	1.20 (0.00) ***	1.78 (0.00) ***
Industry Performance†	0.00 (0.97)	-0.01 (0.08) *	0.00 (0.59)	0.00 (0.48)	0.84 (0.16)
Firm Performance:NM	0.01 (0.09) *	0.01 (0.05) **	0.00 (0.83)	0.00 (0.85)	0.00 (0.93)
Firm Performance:FAM	0.00 (0.55)	-0.01 (0.32)	0.01 (0.04) **	0.01 (0.05) **	0.00 (0.59)
NM:FAM	1.11 (0.00) ***	1.13 (0.00) ***	1.07 (0.00) ***	1.07 (0.00) ***	0.30 (0.36)
NM: Industry Performance†	0.00 (0.70)	0.00 (0.63)	-0.01 (0.41)	-0.01 (0.37)	-0.18 (0.79)
Pseudo R^2 McFadden	0.04	0.04	0.04	0.04	0.05

Obs: means (and p-values in parentheses) are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively. † Industry performance variable is chosen according to firm performance variable used in each model: ROAind (I-II), ROEind (III-IV), RETind(V)

On Table 4.9, we use the same set of independent variables used in Table 4.8 to model executive turnover.

Table 4.9 – Logistic Regression of Executive turnover on Performance, Corporate Governance, Control, Board, and Industry

	I ROA	II ROAadj	III ROE	IV ROEadj	V Stock return
Firm Performance (I-V)	-0.01 (0.14)	-0.01 (0.11)	-0.00 (0.30)	-0.00 (0.34)	0.00 (0.24)
NM	-0.17 (0.08) *	-0.18 (0.06) *	0.01 (0.95)	0.00 (0.97)	0.11 (0.39)
FAM	-0.67 (0.00) ***	-0.66 (0.00) ***	-0.68 (0.00) ***	-0.68 (0.00) ***	0.04 (0.83)
size	0.20 (0.00) ***	0.21 (0.00) ***	0.23 (0.00) ***	0.23 (0.00) ***	0.11 (0.00) ***
nTMT	-0.03 (0.00) ***	-0.03 (0.00) ***	-0.03 (0.00) ***	-0.03 (0.00) ***	-0.03 (0.00) ***
nBoard	-0.01 (0.13)	-0.02 (0.09) *	-0.01 (0.18)	-0.01 (0.18)	0.00 (0.85)
frac_indep	0.30 (0.01) ***	0.31 (0.00) ***	0.23 (0.04) **	0.23 (0.04) **	0.25 (0.04) **
frac_execB	0.69 (0.00) ***	0.67 (0.00) ***	0.80 (0.00) ***	0.80 (0.00) ***	0.95 (0.00) ***
Industry Performance†	-0.01 (0.01) ***	-0.01 (0.05) **	-0.02 (0.00) ***	-0.02 (0.00) ***	0.01 (0.98)
Firm Performance:NM	-0.01 (0.06) *	-0.01 (0.12)	-0.01 (0.04) **	-0.01 (0.04) **	-0.01 (0.01) ***
Firm Performance:FAM	0.02 (0.01) ***	0.01 (0.01) ***	0.00 (0.79)	0.00 (0.96)	0.00 (0.35)
NM:FAM	0.56 (0.00) ***	0.58 (0.00) ***	0.54 (0.00) ***	0.55 (0.00) ***	-0.28 (0.15)
NM: Industry Performance†	-0.02 (0.14)	-0.03 (0.04) **	-0.01 (0.27)	-0.01 (0.04) **	0.47 (0.36)
Pseudo R^2 McFadden	0.10	0.10	0.14	0.14	0.05

Obs: means (and p-values in parentheses) are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively. † Industry performance variable is chosen according to firm performance variable used in each model: ROAind (I-II), ROEind (III-IV), RETind(V)

In table 4.9, in executive turnover models, firm performance loses significance while industry performance gains significance, being negative and significant is in models I-IV, at the 1% and 5% levels. Firm size is positive and significant at the 1% level in all models. TMT size is negative and significant in all models at the 1% level, while Board size is only significant at the 10% level in model II. Although board size

is not of great relevance, board composition matters, as Frac_indep and Frac_execB are always positive and significant in all models, at the 5% and 1% levels, respectively. NM is negative and significant in models I-II, contrary to expectations.

The interaction of NM and FAM is positive and significant in models I-IV at the 1% level, while firm performance and NM interaction is negative and significant in models I and III-V. The interaction of firm performance and FAM is positive and significant in models I-II at the 1% level and the of industry performance and NM is negative significant at the 5% level in models II and IV.

So, results from Tables 4.8 and 4.9 show that firm performance is relevant for CEO turnover but not directly to executive turnover while for executive turnover is the other way around. NM is negative and significant in models using absolute and relative ROA for CEO and executive turnover. FAM companies have fewer CEO and executive turnovers than average and FAM variable is a significant variable in most models for CEO and executive turnover. The interaction of NM and FAM variables is positive and statically significant both for CEO and executive turnover.

The interaction of NM and Firm Performance variables is significant for CEO and executive turnover, but it is negative for executive turnover while positive for CEO turnover (ROA) while the interaction of Firm Performance is significant for CEO turnover using ROA and for executive turnover using ROE.

Board size and board composition influence CEO Turnover while for executive turnover, its TMT size and board composition that are relevant, but not board size. An important finding is that duality executive/board member is relevant for CEO and executive turnover in all specifications, even after NM listing and governance recommendations have diminished the occurrence of CEO/Chairman duality.

Overall, the results from Tables 4.8 and 4.9 show that variables related to firm performance, corporate governance, and industry performance can be relevant for understanding CEO and executive turnover processes.

4.4.2 – ROBUSTNESS TESTS

This subsection aims to provide additional robustness tests that can enhance confidence on our findings and clarify additional methodological aspects.

Our main goal in this research is not to predict CEO and executive turnover but to generate stylized facts that can enhance our knowledge about governance and control influence on CEO and executive turnover and help investors and firms handle those events from a market perspective.

Notwithstanding those more limited objectives, we pursued additional robustness tests to ensure that our findings can be confirmed and that most problems commonly found in empirical finance research were addressed.

Regarding causality, we ran Granger causality tests with 1-period lag between performance metrics and CEO and executive turnover. We found that poor performance (ROA and ROAadj) leads to CEO turnover with statistical significance at the 5% level. For executive turnover, we found that greater executive turnover leads to poor stock return and not the other way around, at the 1% level. This is also true when using TurnanyTMT as an alternative measure of executive turnover. This may be related to investors perceiving changes in management as related to ongoing performance problems.

In all regression models, we check for multicollinearity (variance inflation factors are well below 5), heteroskedasticity (through Box-Cox transformations and tests) and autocorrelation (through Breusch-Godfrey Tests).

It is important to notice that CEO turnover is a singular case of executive turnover, as the CEO is the most important executive. To check if any executive turnover matters for companies, we run unreported regressions with TurnanyTMT (a dummy equal to 1 whenever there is any change in the TMT) as the dependent variable. Board size and independence don´t have any significance in these regressions, while firm performance(ROA, ROAadj, and stock return interaction with NM), firm size, TMT size, fraction of executives in the board, NM and FAM keep their relevance for any change in the TMT.

We also ran the same regressions looking at the replacement of the IR Director instead of the CEO (the same person accumulates both positions in 18% of the observations). Firm performance (ROA, ROAadj) are significant variables, with poor performance enhancing the odds of replacement of the executive. FAM is also a

significant variable but nonetheless there are important differences as the interaction of FAM and NM is significant only using ROA and ROAadj as performance metrics. Another difference is that board size and the fraction of executives in the board are significant but not board independence or TMT size. Those differences highlight the specific aspects and importance of CEO turnover.

To further mitigate endogeneity concerns and strengthen the claim that NM listing can make a difference on CEO and executive turnover, we ran 2-step regressions to implement Heckman corrections and check for omitted variables, on tables 4.10 and 4.11, respectively.

In Table 4.10, we replicate the analysis presented in Table 4.8, with the first regression looking just at the relation of any turnover at the TMT and firm performance, NM, FAM, TMT and board size (selection formula) and the second regression looking at CEO turnover outcomes related to firm size, TMT and board size (and composition) and interactions of firm performance , NM listing and FAM variable.. Performance metrics and interactions with NM listing and being a family-controlled company were significant in most specifications, as was the interaction of NM and FAM variables. Board size and the number of executives on the board were also significant variables in all relevant models. The inverse Mills ratio was only significant using stock return as the performance metric.

In Table 4.11, we replicate the analysis presented in Table 4.9, with the first regression looking just at the relation of any turnover at the TMT and firm performance, NM, FAM, TMT and board size (selection formula) and the second regression looking at executive turnover outcomes related to firm size, TMT and board size (and composition) and interactions of firm performance , NM listing and FAM variable. Firm size and interactions of NM listing and being a family-controlled company were significant in all specifications. The inverse Mills ratio was only significant using stock return as the performance metric.

Table 4.10 – Heckman correction as robustness test on Table 4.8 results on CEO turnover

		(I) ROA	(II) ROAadj	(III) ROE	(IV) ROEadj	(V) Return
Selection Equation on turnanyTMT	Firm performance(I-V)	-0.001 (0.24)	0.001 (0.59)	-0.002 (0.00)***	0.000 (0.76)	-0.002 (0.02)**
	NM	0.270 (0.00)***	0.263 (0.00)***	0.319 (0.00)***	0.311 (0.00)***	0.247 (0.00)***
	FAM	-0.342 (0.00)***	-0.339 (0.00)***	-0.333 (0.00)***	-0.329 (0.00)***	-0.172 (0.04)**
	nTMT	0.018 (0.00)***	0.017 (0.00)***	0.019 (0.00)***	0.018 (0.00)***	0.009 (0.09)*
	nBoard	0.003 (0.67)	0.002 (0.78)	0.004 (0.58)	0.003 (0.68)	-0.013 (0.18)
Outcome Equation on CEO turnover	Firm performance(I-V)	-0.001 (0.13)	-0.002 (0.03)**	-0.001 (0.10)*	-0.001 (0.06)*	-0.003 (0.00)***
	NM	-0.078 (0.56)	-0.079 (0.56)	-0.033 (0.77)	-0.081 (0.57)	0.242 (0.04)**
	FAM	-0.181 (0.34)	-0.171 (0.38)	-0.211 (0.12)	-0.142 (0.41)	-0.281 (0.02)**
	size	0.006 (0.44)	0.005 (0.54)	0.008 (0.35)	0.007 (0.39)	0.011 (0.08)*
	nTMT	-0.001 (0.84)	-0.001 (0.83)	0.000 (0.99)	-0.002 (0.72)	0.007 (0.33)
	nBoard	0.006 (0.08)*	0.006 (0.06)*	0.008 (0.03)**	0.007 (0.04)**	-0.005 (0.71)
	frac_indep	0.073 (0.05)**	0.068 (0.07)*	0.060 (0.12)	0.062 (0.11)	0.064 (0.21)
	frac_execB	0.173 (0.00)***	0.175 (0.00)***	0.187 (0.00)***	0.185 (0.00)***	0.282 (0.00)***
	Industry performance†	0.000 (0.73)	-0.002 (0.09)*	-0.001 (0.56)	-0.001 (0.44)	0.132
	Firm performance:NM	0.004 (0.00)***	0.003 (0.00)***	0.001 (0.37)	0.000 (0.40)	0.000
	Firm performance:FAM	-0.003 (0.00)***	-0.002 (0.02)**	0.001 (0.04)**	0.001 (0.02)**	0.000 (0.71)
	NM:FAM	0.263 (0.00)***	0.258 (0.00)***	0.253 (0.00)***	0.242 (0.00)***	0.194
	NM:Ind. performance†	-0.001 (0.65)	0.002 (0.29)	-0.001 (0.65)	-0.001 (0.78)	-0.011
Key statistics	invMillsRatio	0.186 (0.85)	0.154 (0.88)	0.326 (0.64)	-0.002 (1.00)	2.510 (0.00)***
	sigma	0.441	0.435	0.478	0.419	1.753
	Adjusted R2	0.04	0.04	0.04	0.04	0.04

Obs: means (and p-values in parentheses) are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively. † Industry performance variable is chosen according to firm performance variable used in each model: ROAind (I-II), ROEind (III-IV), RETind(V),

Table 4.11 – Heckman correction as robustness test on Table 4.9 results on executive turnover

		(I) ROA	(II) ROAadj	(III) ROE	(IV) ROEadj	(V) Return
Selection Equation on turnanyTMT	**Firm performance (I-V)**	-0.001 (0.21)	0.001 (0.62)	-0.002 (0.00)***	0.000 (0.73)	-0.002 (0.02)**
	NM	0.272 (0.00)***	0.264 (0.00)***	0.321 (0.00)***	0.313 (0.00)***	0.242 (0.00)***
	FAM	-0.345 (0.00)***	-0.342 (0.00)***	-0.337 (0.00)***	-0.332 (0.00)***	-0.176 (0.04)**
	nTMT	0.018 (0.00)***	0.018 (0.00)***	0.020 (0.00)***	0.019 (0.00)***	0.009 (0.09)*
	nBoard	0.003 (0.68)	0.002 (0.80)	0.004 (0.58)	0.003 (0.69)	-0.013 (0.17)
Outcome Equation on Executive Turnover	**Firm performance(I-V)**	-0.002 (0.18)	0.000 (0.78)	-0.001 (0.07)*	-0.001 (0.21)	-0.001
	NM	0.058 (0.74)	0.060 (0.74)	-0.002 (0.98)	0.092 (0.61)	0.170
	FAM	-0.335 (0.18)	-0.347 (0.20)	-0.211 (0.03)**	-0.325 (0.14)	-0.222 (0.00)***
	size	0.012 (0.01)***	0.013 (0.00)***	0.020 (0.00)***	0.020 (0.00)***	0.007 (0.00)***
	nTMT	0.002 (0.79)	0.003 (0.79)	-0.002 (0.56)	0.002 (0.83)	0.003 (0.49)
	nBoard	-0.002 (0.76)	-0.002 (0.63)	-0.003 (0.30)	-0.002 (0.66)	-0.014 (0.12)
	frac_indep	0.057 (0.05)**	0.061 (0.04)**	0.038 (0.15)	0.040 (0.18)	0.056 (0.14)
	frac_execB	0.078 (0.00)***	0.077 (0.00)***	0.074 (0.01)***	0.075 (0.00)***	0.104 (0.04)**
	Industry performance†	-0.001	0.000 (0.84)	0.000 (0.69)	-0.001	-0.012
	Firm performance:NM	-0.002 (0.00)***	-0.002	-0.001 (0.02)**	-0.001 (0.01)***	-0.001
	Firm performance:FAM	0.003 (0.00)***	0.003 (0.00)***	0.000 (0.53)	0.000 (0.52)	0.000
	NM:FAM	0.120 (0.00)***	0.123 (0.00)***	0.122 (0.00)***	0.136 (0.00)***	0.025
	NM:Ind, performance†	-0.002 (0.12)	-0.003 (0.00)***	-0.001 (0.24)	-0.002 (0.03)**	0.105
Key statistics	**invMillsRatio**	1.180 (0.35)	1.245 (0.37)	0.477 (0.32)	1.109 (0.34)	2.187
	sigma	0.889	0.934	0.432	0.833	1.511
	Adjusted R2	0.07	0.07	0.07	0.07	0.05

Obs: means (and p-values in parentheses) are reported. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively. † Industry performance variable is chosen according to firm performance variable used in each model: ROAind (I-II), ROEind (III-IV), RETind(V).

Another test was made restricting our database to family-controlled companies, which has the largest number of observations in our sample. In regressions like those in tables 4.8 and 4.9, our results confirm that NM variable is significant at 5% level in models using performance accounting metrics. Board size and frac_execB are significant in all models, showing that corporate governance and the number of executives on the board affect turnover sensitives to performance.

We repeated the regressions for the whole sample using other control dummies for other types of control in lieu of FAM dummy, to identify effects of companies being controlled by the state, foreign shareholders, private-equity investors, and private Brazilian groups. Some conclusions don´t change, as the role of firm performance and governance variables such as board size and composition to CEO turnover, TMT size and industry performance for executive turnover, but interactions of NM listing with firm performance and control dummies are especially relevant for family companies.

CEO turnovers are events usually related to firm performance, while executive turnovers are more influenced by industry performance. We found evidence of this for the whole sample but also in sub-groups of companies without controlling shareholders, and composed of firms controlled by families, foreigners, and private-equity funds.

Overall results from the robustness tests performed have shown that governance and control aspects have an influence in CEO and executive turnover sensitiveness, specially for family-controlled companies.

4.5 – CONCLUSIONS

This study sheds light on two important phenomena, executive and CEO turnover. Turnover at the TMT attracts a lot of attention by the media, the investor community and academia worldwide, with great focus on understanding the influence of firm performance on turnover.

Previous studies in Brazil have not found general influence of firm performance on executive and CEO turnover, nor have addressed questions related to governance, industry, or control.

With access to a database that span 8 years of company data filed at CVM of most companies traded at B3, and with the emergence of the NM segment as a premium segment for investors, we analyze the relation of CEO and executive turnover with new governance and performance variables, with more data than was previously available.

We document a significant growth in CEO and executive turnover throughout the entire period, which makes our findings more important as those events become more frequent. We also notice that the average TMT and board size have diminished, which concentrates power in the hands of a few individuals.

We evaluate which variables were relevant on governance configurations to CEO and executive turnover, finding out that NM, TMT size, board size and composition help explain differences in turnover at the TMT.

An additional finding is that companies in the same industry have less heterogeneity in defining TMT size than average companies outside the industry. Regarding board size and composition, NM makes bigger difference than economic sector in reducing heterogeneity in corporate governance.

Literature has important discussion about firm performance metrics. We chose 3 important metrics (ROA, ROE, and stock return), in both absolute and relative terms. We find both absolute and relative returns useful to understand the CEO turnover in Brazil, as Miyajima, Ogawa & Saito (2017) did in Japan. We also use industry average performance as a proxy for economic sectors, finding them helpful for explaining executive turnover.

Firm performance is important to CEO turnover, with industry performance and corporate governance also playing a role in executive turnover. We highlight the role of governance and industry alongside firm performance to model executive and CEO turnover, with NM standing out as an important corporate governance variable influencing turnover in family-controlled companies. Some additional differences between CEO and executive turnover are that CEO turnover, board size and composition are relevant, while for executive turnover only board composition is

significant. This adds to previous findings in the Brazilian literature on CEO and executive turnover.

Family-controlled companies have unique patterns of executive turnover, which show the importance of looking at the control dimension when analyzing executive turnover (Foreign companies and SOEs also have unique patterns).

NM listing is a major influence for family companies, minimizing governance problems and enhancing CEO and executive turnover performance sensitiveness. This is an important finding as good governance can change turnover sensitiveness in family-controlled companies, with a material change to the previous findings of Mendes-da-Silva & Grzybovski (2006) for family companies.

Our work also differs from previous works in Brazil as we were able to incorporate NM listing as a corporate governance dimension and establish there is a negative relation between firm performance and CEO and executive turnover for NM companies. This is due to our new setting which testifies the evolution of corporate governance in Brazil and the growth of the NM segment, making executives more accountable and boards and shareholders willing to promote change when necessary.

As suggestions for future research, researchers could look at quarterly data that could bring to boards information closer to the moment they decide that change in management is necessary, bringing additional knowledge to CEO and executive turnover. Different performance metrics could also be helpful, including sales growth, EBITDA, and divisional metrics, that could be important to evaluate the TMT.

Additionally, deeper investigations into specific characteristics of each type of control and the existence and impact of shareholders´ agreements on board and executive appointment may provide further insights and increase our understanding of how control is exerted and influences CEO and executive turnover.

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5 - FINAL CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This thesis has analyzed different aspects of CEO and executive turnover in Brazil, including the importance of different aspects of corporate governance to turnover-performance sensitiveness. Our findings shed light on important aspects for managing and investing in listed companies in Brazil.

The first essay brought interesting insights about how political events impact SOEs, making their CEO and executive succession processes unique and their top executive turnover rates greater than private peers.

SOEs are a sometimes-forgotten topic in academia although their presence is widespread. In fact, mainstream economists rightly defend Central Bank and regulatory agency independence, but there is not the same interest in SOEs.

The role of corporate governance cannot be underestimated, and many corporate problems can be related to governance issues. Governance and cultural aspects can potentially help explain governance and performance problems in SOEs, also helping to explain why there were some institutions more affected by problems than others.

SOEs have specific corporate governance problems that often are caused by the governments that control them and that may use SOEs to gather political support. Investors should be aware that political events, unrelated to business activities but related to governance, can cause abnormal returns, bringing additional risks to investors.

There was some improvement with the new law for SOEs (Law nº 13.393/2016), but even so there were still problems of undue government interference since the enaction of the law. Public policy discussion about their governance can enhance accountability and help discussing privatization when it makes sense.

The second and third essays complement each other by looking at CEO and executive turnover in listed companies in general, highlighting the moderating role of corporate governance and of NM listing in turnover performance sensitiveness, across different types of control.

The second essay discuss specifically the importance of corporate governance to CEO performance sensitiveness, being the first study to show in a broad sample that firm performance is negatively related to CEO turnover in Brazil and that corporate governance moderate this relation, with being listed on NM segment and having specific types of control (family and foreign controlled companies, and SOEs) corresponding to different CEO performance sensitiveness.

It also finds that NM segment made a huge difference on family-controlled companies, reversing what Mendes-da-Silva & Grzybovski (2006) found. Family-controlled companies had CEO turnover less sensitive to financial performance but now this is reversed for family-controlled NM companies, as they have above average CEO turnover and greater CEO turnover sensitiveness. With CEO turnover being related to negative financial performance by governance changes, there is evidence that good governance practices have a positive and significant effect on CEO turnover, changing patterns related to the control/ownership structure.

The third essay complements the second one in several ways: it incorporates executive turnover beyond CEO turnover, document growth in turnover rates, adds an industry dimension, includes other corporate governance variables including TMT and board sizes and board composition and addresses both relative and absolute performance in analyzing CEO performance sensitiveness and focus on family controlled companies, the most relevant group in our sample.

Executive turnover is related to CEO turnover and, as firm performance, is affected by those events. There are some differences also, as industry performance is more important for executive turnover than for CEO turnover.

Firm performance in models exploring CEO and executive turnover and incorporating other variables related to industry performance and corporate governance bring additional light and understanding to turnover processes.

By looking at additional corporate governance variables, like board size and composition, it highlights the role of NM listing and changes in corporate governance, like identifying that the number of executives with a seat on the board matters for executive and CEO turnover, that presented significant growth throughout the period.

This thesis brings important findings related to corporate governance, ownership, and industry influence in CEO and executive turnover. Previous research

by Mellone Jr. & Saito(2004) has not found general relation between firm performance and CEO and executive turnover, but here with more data and exploring models in a new setting it was possible to confirm this negative relation.

Family companies and SOEs have quite different patterns of CEO and executive turnover sensitiveness. Furthermore, corporate governance differences can moderate turnover performance sensitiveness.

As suggestions for future research, the use of variations of performance and turnover metrics may complement the findings here. Other performance metrics may be relevant and were previously used in literature like ROI, EBITDA, Tobin´s Q and sales growth. Different measures of executive turnover can also be of interest, including looking at quarterly results, closer to turnover events, as well as changes in board composition and in the shareholder base. Event studies over many CEO turnovers could also explore market reactions to those events.

Literature usually classifies turnovers in forced or voluntary, which could be useful to the analysis of CEO and executive turnover and of performance sensitiveness. On the same line, classifying successors as insiders or outsiders could also help to differentiate the consequences of a turnover process. Another interesting investigation could dig in personal characteristics of the executives involved in the turnover processes as international experience has pointed out that personal traits can have an impact on firm performance.

As corporate performance is measured through accounting/financial metrics and market returns, similar investigations could address the role of CFOs in establishing financial policies and in capital allocation. The relation of those decisions to performance and to executive turnover are interesting research themes.

Qualitative research would be helpful to reveal subjective parameters used in different boards to hire and fire executives. Boards decisions in each case may also reveal information about the role of the origin of the successor (insider/outsider) and when the turnover was voluntary or forced, gathering data still not available and hard to quantify.

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