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FABIO YOSHIO SUGURI MOTOKI

ESSAYS ON INSIDERS & CORPORATE FINANCE: exploring the newly released Brazilian proxy statements

VITÓRIA
2013

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Tese apresentada ao Programa de Doutorado em Ciências Contábeis e Administração de Empresas, da Fundação Instituto Capixaba de Pesquisa em Contabilidade, Economia e Finanças (FUCAPE), como requisito parcial para obtenção do título de Doutor em Ciências Contábeis e Administração de Empresas.

Orientador: Prof. Dr. Fernando Caio Galdi
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VITÓRIA

2013

To my beloved family.

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“La filosofia è scritta in questo grandissimo libro che continuamente ci sta aperto innanzi a gli occhi (io dico l’universo), ma non si può intendere se prima non s’impara a intender la lingua, e conoscer i caratteri, ne’ quali è scritto. Egli è scritto in lingua matematica, e i caratteri son triangoli, cerchi, ed altre figure geometriche, senza i quali mezi è impossibile a intenderne umanamente parola; senza questi è un aggirarsi vanamente per un oscuro laberinto.”

(Galileo Galilei in Il Saggiatore)

RESUMO

O primeiro artigo explora uma singularidade brasileira, em que algumas empresas valendo-se de uma liminar se recusam a cumprir um novo regulamento para divulgar informações de remuneração de executivos, alegando problemas de segurança para seus executivos e suas famílias. Eu construo a amostra usando os formulários de referência de todas as empresas de capital aberto listadas na Bovespa. Para capturar os custos pessoais dos executivos, eu uso uma variável de criminalidade relacionada com a taxa de roubo onde empresas estão sediadas. Depois de controlar pelo bem-estar social, governança corporativa, a remuneração do CEO, características do CEO, estrutura de propriedade e características financeiras da firma, os resultados indicam que a taxa de roubo total é positivamente associada com o uso da liminar. Estes resultados representam a primeira investigação na qual os custos relacionados à segurança dos executivos se relacionam com decisões de divulgação de informação. Em seguida, avalio as consequências *ex-post* de não conformidade com as regras de divulgação de remuneração dos executivos no *bid-ask spread*, volume negociado e volatilidade dos preços das ações. Os resultados indicam que as empresas sob a liminar tem um aumento no seu *bid-ask spread* e uma diminuição no volume de negócios de suas ações. O segundo artigo analisa se a administração por membros da família cria ou destrói valor da empresa. Eu estimo o impacto da presença de familiares na alta administração sobre o valor da empresa, medido pelo Q de Tobin. Os resultados indicam que os membros da família que atuam como diretores diminui o valor da empresa. Este efeito é agravado por relações familiares são mais distantes, ou seja, relações de segundo grau versus primeiro grau ou por casamento versus consanguíneos. Eu contribuo para a literatura no contexto brasileiro, em que a influência da administração familiar no valor da empresa permanece inexplorado. Proponho também uma nova maneira de medir o nível de penetração de familiares na administração, que leva em conta a proximidade das relações, controlando pelos custos e benefícios de atos altruístas dentro da família. O terceiro artigo explora os efeitos da administração, propriedade e controle familiares sobre a política de dividendos. Eu faço isso por meio do cálculo da proporção de ações ordinárias e preferenciais detidas pelos membros da família, bem como usando um índice de presença de familiares na alta administração. Os resultados indicam que os membros da família como diretores tendem a aumentar o nível de juros sobre capital próprio, uma forma de pagamento de dividendos no Brasil, enquanto diminui os níveis de dividendos e recompras de ações. Membros da família no conselho de administração têm o efeito oposto, diminuindo o nível de juros sobre capital próprio e aumentar os dividendos e recompras. Quanto maior o controle da família, maior o nível de juros sobre capital próprio, dividendos e recompras. Uma maior apropriação de ações preferenciais pela família tem o mesmo efeito de membros da família como diretores. O padrão de *trade-off* entre os três modos de pagamento indica que os membros da família em diferentes cargos de gerência ou situações de propriedade têm diferentes incentivos, agravando os problemas de agência em alguns casos. Eu contribuo para a literatura de dividendos, incluindo a família como determinante da política de dividendos.

Palavras-chave: remuneração, firmas familiares, formulário de referência, divulgação, dividendos

ABSTRACT

The first paper investigates a scenario unique to Brazilian markets, in which some firms explicitly refuse to comply with a new regulation to disclose executive compensation information alleging potential safety concerns for their executives and their families. I build the sample using the newly required Brazilian proxy statements (formulários de referência) for every publicly traded firm in Bovespa. To capture executive's personal costs, I use a criminality-related variable, the robbery rate in the state where the firms' headquarters are located. After controlling for social welfare (Gini index), governance environment, CEO compensation, CEO characteristics, ownership structure, and financial characteristics, I find that total robbery rate is positively associated with the use of injunction. These findings represent the first investigation where executive security-related costs relate to disclosure decisions. Next, I assess the ex-post consequences of non-compliance with executives' compensation disclosure rules on bid-ask spread, trading volume and volatility of stock prices. Results indicate that injunction firms experience an increase in their bid-ask spread and a decrease on their trading volume. The second paper explores whether management by family members creates or destroys firm value. I do this by estimating the impact of family pervasiveness in top management (family members as executive officers or board members) on firm value as measured by Tobin's Q. Results indicate that family members acting as executive officers decreases firm value. More, this effect is exacerbated when the family relationships are farther away, i.e., second-degree vs. first-degree or in-law vs. same-kin relationships. I contribute to the literature in the Brazilian context, in which the influence of family management on firm value remains largely unexplored. I also propose a new way of measuring family management pervasiveness which takes into account the closeness of relationships, thus controlling for the costs and benefits of altruistic acts within the family. The third paper explores the effects of family management, ownership, and control on the corporate payout policy of Brazilian listed firms. I do this by calculating the proportion of common and preferred shares held by family members, as well as family pervasiveness on top management (family members as executive officers or board members). Results indicate that family members as executive officers tend to increase the level of interest on equity, a way of paying dividends in Brazil, while decreasing the levels of dividends and stock repurchases. Family members in the board of directors have the opposite effect, decreasing the level of interest on equity and increasing both dividends and repurchases. The greater the family control, the higher the level of interest on equity, dividends and repurchases. Greater ownership of preferred shares by family seems to have the same effect of family as executive officers. The interesting trade-off pattern between the three modes of payment indicates that family members in different management positions or ownership situations have different incentives, exacerbating agency problems in some cases. I contribute to the dividend literature by including family as a determinant of dividend policy, a relatively unexplored attribute.

Keywords: executive compensation, family firms, proxy statements, disclosure, firm value, payout policy

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1 NON-COMPLIANCE IN EXECUTIVE COMPENSATION DISCLOSURE: THE BRAZILIAN EXPERIENCE

Figure 1: On executive compensation.

Source: Dilbert Daily Strip 2013-07-03.

1.1 INTRODUCTION

The literature on the cost and benefits of disclosure has been a topic of significant research (VERRECCHIA, 2001). Among the costs of disclosure, two central explanations have been proprietary costs (VERRECCHIA, 1983) and litigation risk (HEALY; PALEPU, 2001). We investigate a new cost of disclosure. Specifically, we investigate a unique setting in Brazil, where some firms explicitly refuse to comply with a new regulation to disclose executive compensation details alleging increased personal security costs for executives and their families. As we describe in detail below, the new rule, Ordinance 480, requires publicly traded firms to disclosure quantitative and qualitative information about their executive compensation practices in the proxy statement. Despite the mandated disclosure, many firms refused to comply with the new rule. The claim is that the release of compensation information would expose executives to crimes such as kidnappings. According to this argument, the disclosure of compensation increases personal costs for executives significantly, as the following quote from the Brazilian Institute of Financial Executives illustrates:

> "It is clearly evident the security concerns that such [regulation] causes, not only for the executives but also for their families. After all, with the high criminality rates in the large cities – exactly where most of the executives live – it is worrisome, to say the least, that complying with the ordinance makes the

> compensation received by people easily identifiable by the positions they hold." (05ª Vara Federal do Rio de Janeiro, 2010, p.21)[1].

The ongoing heated debate about executive compensation disclosure regulation further motivates our study. The rapid evolution of executive compensation practices and the option-backdating scandals in the mid-2000s prompted an increase in the demand of executive compensation disclosure practices (BEBCHUK; FRIED, 2005; COX, 2006). In 2006, the Securities and Exchange Commission (SEC) changed the disclosure rules of executive compensation provoking major changes such as the inclusion of the Compensation Discussion Analysis (CD&A) section in the proxy statement (SEC, 2006; ROBINSON; XUE; YU, 2011). Recently, as a response to the recent financial crisis, the United States (U.S.) Congress passed the Dodd-Frank Act, which includes provisions regarding executive compensation, such as "say on pay" and the disclosure of pay-for-performance schemes (SEC, 2012). A prominent rationale behind additional executive compensation disclosure is that new disclosures help investors better understand and monitor firms' compensation practices (COX, 2006; ROBINSON; XUE; YU, 2011), which in turn reduces agency costs. The consensus among regulators seems to be that the disclosure of executive compensation plays an important role in corporate governance[2].

The Brazilian disclosure reform began in 2008 with a public consultation (akin to the comment period) on the new requirements, and ended with CVM Ordinance 480 coming into effect in December 2009[3]. Much like the recent changes in the U.S., Ordinance 480 requires publicly traded firms to disclosure quantitative and qualitative information about their executive compensation practices in the proxy statement. The major requirement is to disclose, on an annual basis, the total, maximum, minimum and average compensation paid to the executive officers, the members of board

[1] Kidnappings and similar crimes have become commonplace in major cities in Brazil, like São Paulo. The Brazilian media reports numerous instances of kidnappings targeting celebrities, executives and their families. In the last ten years, the media reports that family members of famed soccer players were abducted. For example, in 2012 and 2006, respectively, the sisters of "Hulk" and Ricardo Oliveira (two young Brazilian soccer stars) were abducted. The following executives were also reported abducted: Abilio Diniz, former owner and CEO of major retailer Pão de Açúcar/CBD; advertisers Luiz Salles and Roberto Medina and banker Antônio Beltran Martinez (BBC, 2007; CARDOSO, 1999). Consider the following quote from a kidnapper on how he selects his targets: "You can tell they have money by the way they dress, the car they drive" (BBC, 2006).

[2] Reforms similar to those made in the U.S. around the world are: UK's Directors Remuneration Report Regulations in 2002, China's Chapter III Periodical Reports of the Regulations on Information Disclosure of Listed Companies in 2007, Taiwan's Criteria Governing Information to be published in the Annual Reports of Public Companies in 2007, Honk Kong's Accounting and Auditing Provisions in 2007, among others.

[3] CVM (Comissão de Valores Mobiliários) is the Brazilian Securities and Exchange Commission. A CVM Ordinance (Instrução CVM) is the equivalent of an SEC Rule.

of directors and the members of the audit committee[4]. It further calls for the disclosure of compensation components (e.g. cash and equity compensation) by group (e.g., officers and directors). The Brazilian regulation somewhat mimics the requirements for the CD&A and Summary Compensation Table required in the U.S. In 2010, approximately 15% of the firms (representing 30% of total market value traded at the Sao Paulo Stock Exchange - Bovespa) denied complying with new regulation (IBGC, 2011), despite it being applicable to all public traded firms in Brazil.

Firms that managed to circumvent the requirements of Ordinance 480 did so through a court injunction. Injunction firms alleged that disclosing executive compensation information would reveal the identity of top executives. Criminals would then use this information to plan abductions and other crimes against executives, their families and their property. Under this argument, the change in regulation increases executives' personal costs considerably. Because the executives' human capital is a key resource for the firm's prospects and going concern, a firm's decision to file for an injunction can be interpreted as a rational value-maximizing response to protect a rare and valuable resource. An alternative argument is that non-compliance with the new regulations represents agency costs and that injunction firms divert attention by evoking emotional security concerns in their legal arguments. By preventing investors from obtaining more information about a firm's compensation practices, executives can enjoy greater private benefits and lower levels of monitoring. This line of argument is consistent with extant research finding a positive relationship between weak compliance with executive compensation disclosure in the U.S. and proxies of agency costs (ROBINSON; XUE; YU, 2011).

We exploit the tension that exists between the potential benefits of executive compensation disclosure regulation and a more subtle, intangible reason for non-disclosure: the personal costs that executives face related to the disclosure of their compensation. In an attempt to disentangle these two effects, in addition to including proxies for agency costs in our determinants of injunction model, we examine potential consequences of non-compliance. We focus on three measures of information asymmetry identified in prior research (LEUZ; VERRECCHIA, 2000): the firm's stock bid-ask spread, trading volume and volatility. An association between injunction and measures of information asymmetry would shed light on investor's assessment of the decision not to disclose executive compensation.

[4] CVM Ordinance 480 defines compensation as the sum of fixed cash compensation, direct or indirect benefits, cash variable compensation, post-employment benefits and stock-based payments (CVM, 2009)

We build our sample using the newly required Brazilian proxy statements (formulários de referência) for every publicly traded firm in Bovespa (Brazil's major stock exchange). We hand-collect all proxy statements available for fiscal years 2009 and 2010, which contain compensation and profile data for the executive officers and board members. Our sample consists of 314 firm-year observations (186 distinct firms), of which 56 firm-year observations (34 distinct firms) use the preliminary court injunction not to disclose executive compensation details[5]. The final sample represents approximately 54% and 60% of Bovespa's market capitalization of non-financial firms in 2009 and 2010, respectively. Our main regression specification is a prediction model that attempts to explain why some firms choose not to comply with the new regulation. Our variable of interest is the total robbery rate (our proxy for security-related costs)[6], which we measure at the state level (in Brazil, state governments, instead of municipal governments as in the U.S., are responsible for public security). We control for potential determinants of disclosure such as macroeconomic and social welfare variables, firm characteristics, proprietary costs, and governance attributes.

We find that total robbery rate is positively associated with the use of the injunction to avoid disclosing executive compensation information, after controlling for an alternate measure of executive's personal costs (i.e., CEO compensation level), and potential political costs of compensation disclosure[7]. These findings represent the first investigation where executives' security-related costs relate to disclosure decisions. Our second specification assesses the ex post consequences of non-compliance on bid-ask spread, trading volume and volatility of stock prices. Our results indicate that injunction firms experience an increase in their bid-ask spread and a decrease on their trading volume. These results suggest that investors are leery of the injunction and may consider it as evidence of agency costs. These results are consistent and complement Verrecchia & Weber (2006), who find that firms that withhold information from investors face increases in bid-ask spreads and decreases in volume. Our results also corroborate Shin (2003), in the sense that market participants interpret the non-disclosure as bad news, leading to an increase in uncertainty.

To the best of our knowledge, our study is the first to consider a setting in which some firms explicitly deny complying with disclosure rules alleging lack of security to the executives. Brazil is

[5] The Brazilian Institute of Corporate Governance (IBGC) reports that 41 firms that took advantage of the injunction. We are able to corroborate all 41 as injunction firms through our hand collection process, but lose seven of these firms due to data limitations.

[6] We choose robbery over other types of crime based on the claim that executives are concerned about potential crimes against themselves, their families (e.g., kidnapping) or their property. Alternative measures, such as kidnaping rates, are underreported significantly due to the victim's fear of retaliation.

[7] We discuss how we "back into" CEO compensation for injunction firms in appendix A.1

an interesting and important country to study because of both, its size and its traditionally high private benefits of control and relatively weak corporate governance (BLACK; CARVALHO; GORGA, 2010). This tension is exacerbated because of the purported high personal costs faced by executives. The trade-off between the executives' personal costs and the stockholders' benefits resulting from firms' compliance with the regulation does not seem to have an obvious equilibrium, ex ante. Our research takes an initial step toward shedding light into this issue and might be relevant in the regulatory debate, as it informs the potential differential costs and benefits of executive's compensation disclosure. These results also shed light on the potential vehicles firms may use to avoid compliance with proposed regulation, and on the costs of non-compliance to shareholders.

In the next section, we provide details about compensation disclosure requirements and security level in Brazil, discuss extant research in the area and develop our hypotheses. Section 1.3 provides detail about the data. Section 1.4 describes the estimation methods and results. Section 1.5 concludes the paper.

1.2 BACKGROUND AND HYPOTHESES DEVELOPMENT

1.2.1 Executive compensation disclosure requirements in Brazil

Brazil has a long record of weak legal environment, enforcement and firm governance (LA-PORTA et al., 2000; DYCK; ZINGALES, 2004; DURNEV; KIM, 2005). Extant research indicates that disclosure practices in Brazil have been stagnated for years, with no signs of improvement (PONTE et al., 2007). Prior to 2009, executive compensation disclosure in Brazil was limited, even among large multinational firms (BEUREN; SILVA, 2012). In an attempt to address these issues, CVM released a proposal of new disclosure rules for public consultation (akin to a comment period) in December 2008[8]. After incorporating the feedback from the public consultation, the CVM issued Ordinance 480 in December of 2009.

The new disclosure rules are similar in spirit to those set by the SEC regarding the CD&A sections of the proxy statement (the Brazilian counterpart is the "formulário de referência", or reference form). Although CVM Ordinance 480 is considered the most complex and comprehensive set

[8] The CVM bases its model on the International Organization of Securities Commission (IOSCO) shelf registration system, a concept established in developed countries like the US, Japan, France, and the UK (Chaves, 2010). In this system a single document, the shelf document, contains all relevant information about the firm and is filed periodically with the regulator (CHAVES, 2010).

of disclosure rules ever implemented in Brazil (CHAVES, 2010), the Brazilian compensation disclosure rules ended up being less stringent than the SEC's requirements outlined in release number 33-8732A (VICTOR et al., 2010)[9]. During the consultation period, the original proposal found heavy resistance from prominent and important players, such as Abrasca (Brazilian Association of Listed Companies). The pressure led CVM to adopt a compromise between "the desirable and the possible" (CHAVES, 2010). Specifically, the final regulation only demands firms to disclose the maximum, minimum and average compensation received within each group (executive officers, members of the board of directors and the members of the audit committee). It also requires the disclosure of total group compensation, number of group members, the group compensation components (cash and equity-based compensation), and qualitative information regarding the design of compensation plans. Even with the new regulation, the degree of disclosure regarding compensation remains low in Brazil when compared to the US (VICTOR et al., 2010).

Despite the comparatively limited requirements, in March of 2009, the Instituto Brasileiro de Executivos de Financas (Brazilian Institute of Finance Executives of Rio de Janeiro - IBEF) claimed the disclosure requirement on executive compensation unconstitutional, and obtained a preliminary court injunction allowing firms not to disclose executive compensation information. Surprisingly, the IBEF neither emitted an opinion during the consultation period, nor revealed any kind of position regarding the regulation until the filing (CHAVES, 2010). While the CVM has been trying to enforce the rule since 2010, the Brazilian Supreme Court has accepted the claims of non-compliant firms to sustain the injunction until it rules on the case. A timeline of the major events appears in figure 2. As of August 2010, according to the Brazilian Institute of Corporate Governance (IBGC, 2011), 41 firms had taken advantage of the preliminary court injunction to avoid disclosing quantitative executive compensation information. These firms, which represent approximately 30% of total market value traded at the Sao Paulo Stock Exchange (Bovespa), represents our group of interest. Recent research finds that Brazilian firms remain relatively opaque thanks to the protection of the court injunction (SCHIEHLL; TERRA; VICTOR, 2013).

Prior research examining the implications of disclosure-related changes has not been able

[9] This release mandates the disclosure of the Summary Compensation Table, which contains both current and deferred compensation (e.g., stock options and restricted stock), and compensation of current earnings or awards that are part of a compensation plan. The information is typically reported for the top five executives, including the CEO and the CFO, on a per-person basis. It also requires a Compensation Discussion & Analysis section, which highlights the factors underlying compensation policies and decisions reflected on data presented on the Summary Compensation Table (SEC, 2006).

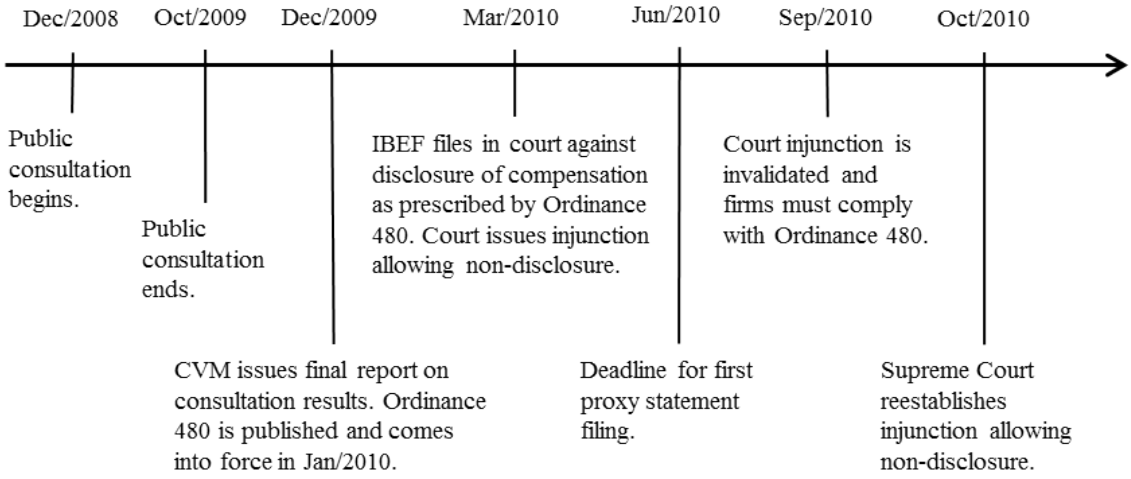


Figure 2: Timeline of the Brazilian disclosure reform – from public consultation to court injunction.

Source: author.

to address the issue of non-compliance as directly as we do. Some studies rely on the lobby against more stringent rules (LO, 2003), while others use the degree of compliance with mandatory rules (ETTREDGE et al., 2011; PETERS; ROMI, 2013). We take advantage of the fact that we directly observe firms that explicitly deny complying and firms that duly comply with the new regulation to study the determinants and consequences of non-disclosure.

1.2.2 Security level in Brazil

One of the main arguments Brazilian firms used in court is the concern about the safety of the executives and their families. The argument is that both the executive and his family are at increased risk once the executive's compensation is publicly available. Given the high crime rates in large cities – where most firms' headquarters reside – executives and their families would be exposed to potential violent crimes against themselves and their property. Such worries may be genuine. Brazil ranks among the most violent countries in the world. According to the United Nations Office on Drugs and Crime (UNODC), in 2009, the homicide rate in Brazil was 22.7 for every 100,000 individuals. This number is comparable to other countries with a recent history of conflicts, such as Democratic Republic of Congo (21.7 in 2008), Mexico (18.1 in 2010), and Russia (11.2 in 2009). Figure 3 shows the homicide rates of Brazil and selected countries for the latest year the information is available.

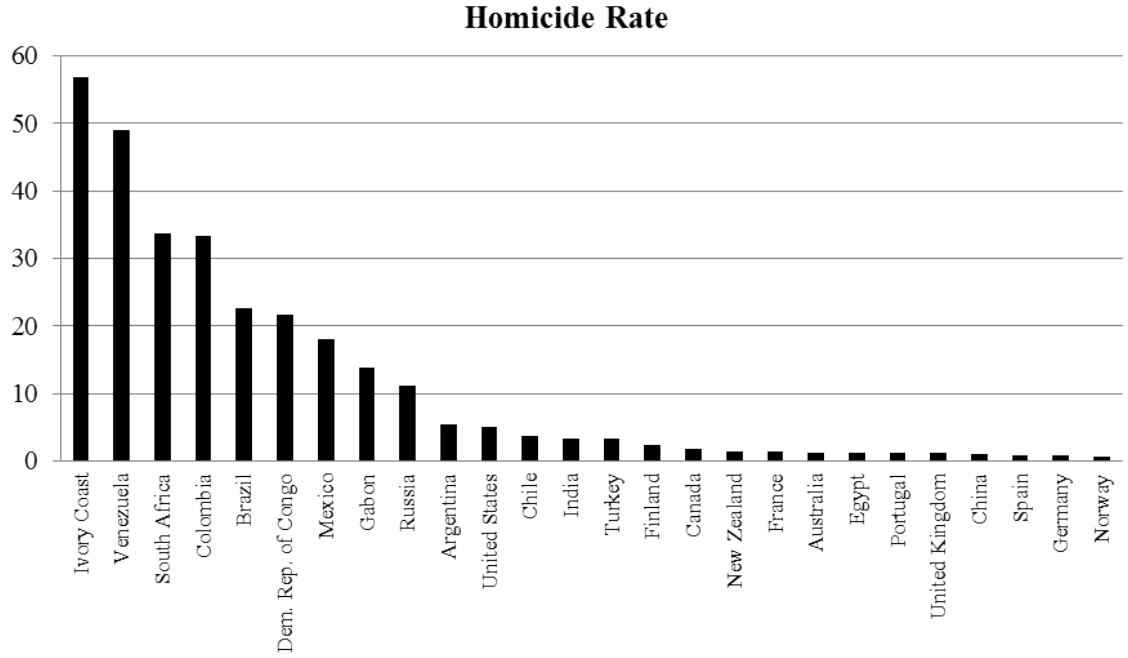


Figure 3: Number of homicides per 100,000 individuals in selected countries. Rates are for the latest year available for each country.

Source: UNODC, 2011.

Despite its recent period of economic growth, robbery rates are very high in Brazil. In the state of São Paulo, where the headquarters of many firms in our sample are located, the total robbery rate in 2009 was 794.7 for every 100,000 individuals. This is almost six times the rate in the United States (132.7) or Russia (143.6) and more than 13 times the robbery rate in Germany (59.8). In 2009, according to the Ministry of Justice of Brazil, the total robbery rate in the Federal District was 1,005.9 for every 100,000 individuals. The state of Rio de Janeiro, known for its beautiful landscape and as global tourist destination, has the second highest robbery rate in the country, 862.5 for every 100,000. These numbers describe a scenario where the probability of becoming subject to a major crime ranks among the highest in the world. Despite economic and social progress, such as the attempt to pacify the favelas (Brazilian slums) in the city of Rio de Janeiro and to lower crack-cocaine addiction in a neighborhood known as Cracolândia in São Paulo, Brazilian cities are still among the most violent places in the world. Based on this evidence, it seems sensible to believe that firms located in regions where the criminality is high are concerned about releasing information about executive compensation.

1.2.3 Disclosure literature

Whether disclosure regulation results in positive net benefits is still an open question. Unraveling results (GROSSMAN; HART, 1980; GROSSMAN, 1981; MILGROM, 1981; MILGROM; ROBERTS, 1986) suggest that, assuming no disclosure costs, firms should voluntarily disclose all their private information. In a perfect market, firms would evaluate the costs and benefits of disclosure, bringing about an equilibrium point. However, because firms operate in markets with significant frictions, full disclosure equilibrium may not occur (VERRECCHIA, 1983).

A prominent argument in support of increasing disclosure is that by reducing information asymmetry between insiders and outsiders, a firm is able to lower its costs of capital (DIAMOND; VERRECCHIA, 1991; LEUZ; VERRECCHIA, 2000; HERMALIN; WEISBACH, 2012). While there may be clear benefits, firms must consider the potential costs associated to the decision to disclose information. Direct firm-specific costs include the effort necessary to prepare and provide accounting information, related opportunity costs in the disclosure process (RIBSTEIN, 2005) and litigation risk (HEALY; PALEPU, 2001). Firms also face indirect costs in the form of proprietary costs, since other parties, such as competitors, may exploit the information released, which effectively decreases disclosure incentives, ex ante (VERRECCHIA, 1983). In sum, firms assess the trade-off between cost and benefits of disclosure to decide whether or not to disclosure (LEUZ; WYSOCKI, 2008).

In the context of executive compensation, higher levels of disclosure about compensation plans should increase investors' ability to monitor and to evaluate executives (COX, 2006; ROBINSON; XUE; YU, 2011), which in turn may lower agency costs. Nevertheless, the security-related costs faced by the executive could be potentially serious enough for firms to deny disclosing mandatory information. We exploit and test this tension in our study.

1.2.4 Executive compensation disclosure

Empirical research examines the implications of executive compensation disclosure, finding that managers use discretion in the disclosure of information (ABOODY; KASZNIK, 2000; NAGAR; NANDA; WYSOCKI, 2003). Prior literature focuses on voluntary disclosure, while we investigate a scenario of explicit non-disclosure of mandatory information. Beyer et al. (2010) explain that managers have incentives to disclose information strategically and selectively, so we argue that strong enough incentives can also determine their will to deny complying with regulation.

Some theoretical models consider possible disclosure-related costs to the managers. Since there are costs associated with disclosing proprietary information, when the manager withholds information the market cannot ascertain the real reason for non-disclosure, whether it is “bad” news or “not good enough” news (VERRECCHIA, 1983). Hermalin & Weisbach (2012) show that the disclosing of private information may reduce executives’ private benefits due to the increased monitoring and disciplinary actions the owners take based on the information they receive. Although these models do not fit our scenario directly, we believe that they provide an intuition for our research. These models explicitly show that managers assess personal costs of disclosing private information, which may prevent disclosure. We propose that personal costs of disclosure may affect a firm’s decision to deny disclosing mandatory information.

1.2.5 Hypotheses

The purpose of our first hypothesis is to test the alleged security-related cost that executives face. Executives rightfully point out that Brazil is a violent country, even when compared with countries at similar development stages around the world (e.g., Mexico, and Colombia). Part of the research discussed above offers some support to the idea that executives may be actually assessing security-related cost in deciding whether to comply with the regulation. Hence, hypothesis one (H1) is a direct translation of the main argument presented by non-complying firms in court:

H1: *A firm’s decision to request a court injunction not to disclose executive compensation is positively related to the CEO’s security-related costs.*

Executive security-related costs may be a genuine reason to use the injunction not to disclose executive compensation details. An alternative explanation is that executives are just creating an excuse to avoid political and proprietary costs. In order to shed light on these seemingly competing explanations, we analyze how the decision to use the court injunction to avoid disclosure of executives’ compensation affects proxies of information asymmetry. Shin (2003) models the effects of disclosure on asset returns to study information dissemination in financial markets, and concludes that the absence of news is interpreted as bad news, which in turn increases information risk. In our context, because some executives explicitly deny the disclosure of mandatory information, it is reasonable to expect that market participants interpret it as a source of adverse selection

and information risk (VERRECCHIA; WEBER, 2006)[10]. If investors do not find the security-related costs explanation as credible, it is possible to observe increases in bid-ask spreads and stock price volatility, and declines in firms' stock trade volume. Hence, our second hypothesis (H2), in the alternate form, follows::

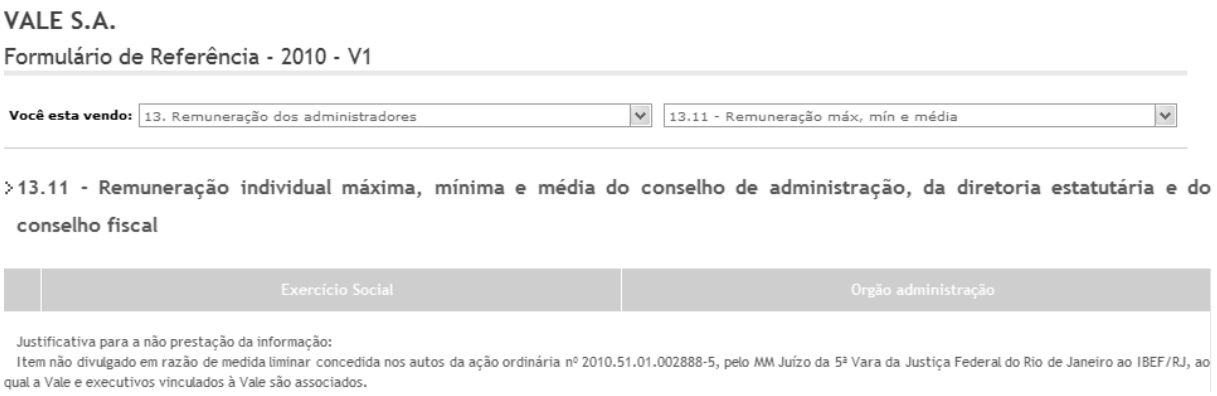
H2: *Firms that do not comply with the disclosure of executive compensation requirement experience increases in stock price bid-ask spread and volatility, and decreases in stock trade volume.*

1.3 SAMPLE SELECTION

Our starting point to identify firms that avoid compliance with disclosure rules is a survey published by the Brazilian Institute of Corporate Governance (IBGC), which provides a list of firms protected by the injunction (IBGC, 2011). We also manually checked the proxy statements to ascertain that the firm was covered under the injunction. Firms typically declared that they withheld the minimum, average and maximum compensation information due to the court injunction, as Figure 4 shows. We examine all proxy statements filed for 2010 and 2011, containing information about fiscal years 2009 and 2010, from all firms listed in the São Paulo Stock Exchange (Bovespa). Non-compliant firms, typically declared that they withheld the minimum, average and maximum compensation information due to the court injunction, as figure 4 shows.

All financial statement data are from Economatica; a database similar to Compustat covering publicly traded firms in several Latin American countries, including Brazil. We match data from the proxy statements to the financial data from Economatica using the CVM registration number. Table 1 panel A details our final sample. Major observation losses come from missing data, both from the proxy statement filing itself or from Economatica (287 firm-years). We exclude firms in the financial industry because they are subject to Brazil's Central Bank regulation, different accounting standards and face a different institutional environment (107 firm-years). Table 1 panel B shows the sample breakdown by industry, year and type (non-injunction or injunction) after merging with financial data from Economatica. The sample consists of 258 non-injunction firm-years (152 unique firms) and 56 injunction firm-years (34 unique firms), totaling 314 firm-years (186 unique firms), with a predominance of manufacturing firms. These 186 firms represent 60% of the 306 non-financial

[10] Leuz & Wysocki (2008) view increased market liquidity as one of the main benefits of disclosure. Leuz & Verrecchia (2000) study German firms that have increased levels of disclosure by switching GAAP regimes and find a decrease in the bid-ask spread and an increase in trade volume.


VALE S.A.
Formulário de Referência - 2010 - V1

Você esta vendo: 13. Remuneração dos administradores | 13.11 - Remuneração máx, mín e média

13.11 - Remuneração individual máxima, mínima e média do conselho de administração, da diretoria estatutária e do conselho fiscal

	Exercício Social	Orgão administração

Justificativa para a não prestação da informação:
Item não divulgado em razão de medida liminar concedida nos autos da ação ordinária nº 2010.51.01.002888-5, pelo MM Juízo da 5ª Vara da Justiça Federal do Rio de Janeiro ao IBEF/RJ, ao qual a Vale e executivos vinculados à Vale são associados.

Figure 4: Sample with mining firm Vale's 2010 proxy statement, showing that the court injunction is the reason for the non-disclosure of maximum, minimum and average compensation..

Source: CVM website. Free translation: "Reason for the non-disclosure of the information: Item not disclosed per the preliminary court injunction granted in the proceedings of the ordinary lawsuit no. 2010.51.01.002888-5 by His Honor the Judge of the 5th Court of the Federal Justice of Rio de Janeiro to IBEF/RJ, to which Vale and its executives are affiliated.".

firms trading in Bovespa in December 2010.

Table 1 panel C shows the geographical distribution of firms' headquarters[11]. Most of the firms are located in the Southeast region of Brazil, mainly in Rio de Janeiro and São Paulo states, Brazil's richest ones. The second largest is the South region, with an even distribution of firms among its three states . The representation of the Northeast, Midwest and North regions is substantially smaller.

1.3.1 Empirical models

1.3.1.1 Hypothesis 1: security-related costs

Our proxy for testing hypothesis 1, on the positive relation between security-related costs and the withholding of compensation information, is the total robbery rate. The robbery rates are the state-level figures per 100,000 inhabitants[12], and we collect them from the Brazilian Forum of Public Security yearbook (FBSP, 2010). To determine the state of the federation in which the firm is located, we collect the headquarters' address reported to CVM, which is the place where the CEO is more likely to reside or spend most of his time.

[11] The South region is often considered as Brazil's most developed one, followed by the Southeast. According to the Brazilian Central Bank (BCB), the HDIs for the regions, in the year 2007, were 0.850 (South), 0.847 (Southeast), 0.838 (Midwest), 0.786 (North) and 0.749 (Northeast).

[12] In Brazil, state governments, as opposed to municipal governments as in the U.S., are responsible for public security. Measuring this variable at the state level helps to reduce endogeneity concerns.

TABLE 1: SAMPLE DETAILS

Panel A: sample reconciliation (firm-years, 2009-2010)

Initial sample	708
Missing CVM data or Assets < R$100k	(-) 134
Financial services	(-) 107
Missing financial data or suspended operations	(-) 153
Final sample	(=) 314

Panel B: Firms by industry, year and type

NAICS Industry	2009			2010			Total		
	Injunction?		Total	Injunction?		Total	Injunction?		Total
	No	Yes		No	Yes		No	Yes	
Adm. & Supp. and Waste Mngt & Remed. Serv.	1	0	1	0	0	0	1	0	1
Agriculture, Forestry, Fishing and Hunting	2	0	2	1	0	1	3	0	3
Arts, Entertainment, and Recreation	0	0	0	1	0	1	1	0	1
Construction	14	2	16	14	2	16	28	4	32
Educational Services	3	0	3	3	0	3	6	0	6
Health Care and Social Assistance	3	1	4	3	0	3	6	1	7
Information	3	4	7	4	5	9	7	9	16
Management of Companies and Enterprises	7	0	7	7	2	9	14	2	16
Manufacturing	50	8	58	55	12	67	105	20	125
Mining, Quarrying, and Oil and Gas Extraction	0	1	1	1	1	2	1	2	3
Professional, Scientific, and Technical Services	1	0	1	1	0	1	2	0	2
Real Estate and Rental and Leasing	6	2	8	7	2	9	13	4	17
Retail Trade	6	2	8	6	2	8	12	4	16
Transportation and Warehousing	3	3	6	3	3	6	6	6	12
Utilities	23	2	25	28	2	30	51	4	55
Wholesale Trade	2	0	2	0	0	0	2	0	2
Total	124	25	149	134	31	165	258	56	314

Panel C: Firms by region, state, year and type

Region	State	2009			2010			Total		
		Injunction?		Total	Injunction?		Total	Injunction?		Total
		No	Yes		No	Yes		No	Yes	
MW	Mato Grosso	0	0	0	1	0	1	1	0	1
N	Amazonas	0	0	0	1	0	1	1	0	1
NE	Bahia	2	2	4	3	2	5	5	4	9
	Ceará	3	0	3	3	0	3	6	0	6
	Maranhão	1	0	1	1	0	1	2	0	2
	Pernambuco	1	0	1	1	0	1	2	0	2
	Rio Grande do Norte	1	0	1	2	0	2	3	0	3
S	Paraná	8	1	9	9	1	10	17	2	19
	Rio Grande do Sul	15	1	16	16	1	17	31	2	33
	Santa Catarina	14	0	14	15	0	15	29	0	29
SE	Espírito Santo	1	0	1	1	0	1	2	0	2
	Minas Gerais	10	0	10	10	0	10	20	0	20
	Rio de Janeiro	14	12	26	12	13	25	26	25	51
	São Paulo	54	9	63	59	14	73	113	23	136
Total		124	25	149	134	31	165	258	56	314

We choose robbery over other types of crime based on the claim that executives are concerned about potential crimes against themselves, their families (e.g., abduction) or their property. IBEF claims that the executives and their compensation can be easily identified, which can put the safety of the executive and his family at stake (05ª Vara Federal do Rio de Janeiro, 2010). The determinant models we use to test H1 are discrete-choice probit models as equation (1.1) specifies, in which the firm's decision not to disclose is partially determined by the total robbery rates in its headquarters' state:

$$Prob(\text{Injunction} = 1)_{i,t} = \beta_0 + \beta_1 \text{Lagged robbery rate}_{i,t-1} + \sum_k \beta_k \text{Control}^k_{i,t} + \epsilon_{i,t} \qquad (1.1)$$

The variable *Injunction* equals one if the firm denies disclosing information under the injunction, and zero otherwise. *Lagged robbery rate* is the proxy we use to capture the executives' security-related costs. It is the yearly state-level robbery rate per 100,000 inhabitants. A positive coefficient on *Lagged robbery rate* would be consistent with H1. We control for variables that may affect the likelihood not complying with the requirement. First, we include the logarithm of the level of CEO compensation[13], *ln(CEO compensation)*, since Robinson, Xue & Yu (2011) find that high levels of CEO compensation relates to executive compensation disclosure deficiencies in the U.S. Social and economic disparities may generate political costs. Hence, we include a measure of inequality, the previous year state-level Gini index (*Lagged state's Gini index*). Finally, it could also be that the state's level of development (*Lagged HDI*) influences the decision, since the political cost of higher CEO compensation is lower in more developed places.

We also include a set of firm characteristics as control variables. Specifically, we include the firm's one-year raw stock return (*1-yr stock return*), lagged return on assets (*Lagged ROA*), a bankruptcy score for emerging markets (*EM score*), the ratio of debt to total assets (*Leverage*), firm size (*ln(total assets)*), and the market to book ratio (*Market/book*). We also control for proprietary costs (ROBINSON; XUE; YU, 2011), such as the degree of firm differentiation, *Differentiation*, or the sales to operating costs ratio; the size of the market within an industry, *Industry size*, or the total industry sales, and the level of difficulty of entering an industry, *Barriers to entry*, measured as the natural logarithm of industry-weighted average of PP&E. We also include two variables to control

[13] Please refer to appendix A.1, for a discussion on how we estimate CEO compensation for the firms that did not disclose this information.

for CEO attributes. *CEO has strong ties w/ controller* is an indicator variable set to one if the CEO has been elected by the controller, has another position in top management (e.g., is also a board member), or has relatives among top management, and zero otherwise. *CEO age* controls for CEO experience.

Governance control variables include two dummies. *ADR*, a dummy set to one if the firm is cross-listed in the US and thus subject to more strict rules and supervision by the SEC, and zero otherwise; *Subject to Bovespa's arbitration*, a dummy set to one if the firm has voluntarily subjected itself to the Bovespa's Market Arbitration Panel[14], and zero otherwise. The last governance variable is *High ownership concentration*, which proxies for dispersion of control among blockholders. It is set to one if the firm has an above-average number of individual investors or institutional blockholders (stockholders with more than 5% of voting stock), set to two if it has both, or zero otherwise. The *Number board members* is a proxy for staggered boards, while *Average board members age* is a proxy for directors' experience.

Finally, we include controls for firm management diversity, since diversity influences firm management practices positively (RICHARD, 2000). Women among top execs/directors is set to one if there is at least one woman among executive officers or board members, and zero otherwise. Age diversity top execs/directors capture diversity in generations and experiences. Please refer to appendix A.2 for details on the construction of these measures.

1.3.1.2 Hypothesis 2: economic effects of non-disclosure

We assess the effects of non-disclosure of mandatory compensation information on three information asymmetry measures: bid-ask spread, stock trading volume and stock volatility (Diamond and Verrecchia, 1991; Leuz and Verrechia, 2000). Since the dependent variables of interest are continuous, we estimate the following OLS model:

$$\text{EconEffect}^{k}_{i,t} = \gamma_0 + \gamma_1 \text{Lagged injunction}_{i,t-1} + \sum_{j} \gamma_j \text{Control}^{j}_{i,t-1} + \epsilon_{i,t} \tag{1.2}$$

$\text{EconEffect}^{k}, k = 1 \ldots 3$, are (1) the firm's stock bid-ask spread, (2) the firm's stock trading volume, or (3) the firm's stock volatility. We industry-adjust each of these variables (i.e., firm-year

[14] When a firm is subject to the arbitration panel, it must comply to the ruling of Bovespa's specialists in matters regarding corporate and stock market disputes.

observation minus the industry-year average) to account for the expected level for a given industry. Our variable of interest is *Lagged injunction*, on which we expect a positive (negative) coefficient when the dependent variable takes the value of stock bid-ask spread and volatility (stock trading volume).

We include a set of control variables that might affect the information asymmetry measures. We include two variables related to CEO compensation (ROBINSON; XUE; YU, 2011): *Lagged ln(CEO compensation)* as defined previously, and *Lagged % stock comp.* which measures the executive's stock-based compensation to total compensation ratio. Collectively, these two measures control for the executives' incentives. *Lagged ln(market cap)* is the logarithm of market value and controls for firm size. *Trading volume* and *Volatility* are defined above, and are included or excluded from the model, depending of the dependent variable of interest (e.g., volatility is included as an explanatory variable when bid-ask spread is the dependent variable). *Lagged free float* is the previous period industry-adjusted percentage of stock not held by block or institutional holders, which proxies for dispersion of control. More details on the definitions of the variables appear in appendix A.2.

1.4 RESULTS

We initially detail univariate statistics of the sample, splitting it into two groups: injunction (non-disclosing) firms, and non-injunction (disclosing) firms. We conduct difference in means and in medians tests to assess whether these firms are fundamentally different. Next, we present the results of the multivariate models discussed in sections 1.3.1.1 and 1.3.1.2.

1.4.1 Testing hypothesis 1: determinants of compensation information non-disclosure

Univariate tests are in table 2 and support the notion that injunction and non-injunction firms are fundamentally different. The first set of variables, in Panel A, are the variable the interest, *Lagged total robbery rate*, *ln(CEO compensation)*, *Lagged state's Gini index*, and *Lagged HDI*. The results suggest that injunction firms are headquartered in states where robbery rates are significantly higher, and support H1. Injunction firms also exhibit larger CEO compensation, more inequality, and higher levels of human development.

TABLE 2: SUMMARY STATISTICS FOR BRAZILIAN LISTED FIRMS IN FISCAL YEARS 2009 AND 2010 – DETERMINANTS OF DISCLOSURE

Variable	Non Injunction		Injunction		Test of diff.	
	Mean	Median	Mean	Median	t test	Wilcoxon
Panel A: criminality, compensation, development & inequality variables						
Lagged Total robbery rate	592.400	680.000	775.900	794.700	***	***
	(253.300)	(442.800)	(159.100)	(182.500)		
CEO Compensation	6.792	4.323	14.850	13.260	***	***
	(9.290)	(5.983)	(12.680)	(11.230)		
ln(CEO Compensation)	2.212	2.202	2.940	3.256	***	***
	(0.889)	(1.147)	(1.109)	(0.945)		
Lagged State's Gini Index	0.503	0.502	0.523	0.540	***	***
	(0.024)	(0.024)	(0.028)	(0.044)		
Lagged HDI	0.720	0.733	0.729	0.735	**	***
	(0.031)	(0.020)	(0.029)	(0.007)		
Panel B: firm & market characteristics variables						
Total assets (BRL)	3,215.3	14,510.3	25,798.5	8,367.4	**	***
	(5,405.0)	(2,834.0)	(82,102.2)	(18,424.8)		
Total assets (USD)	1,722.5	730.3	14,145.6	4,734.1	*	***
	(2,936.2)	(1,495.0)	(46,407.0)	(10,016.7)		
ln(Total assets)	13.970	14.190	15.910	15.940	***	***
	(1.639)	(1.930)	(1.402)	(2.010)		
Lagged ROA	(0.019)	0.051	0.043	0.039		
	(0.733)	(0.090)	(0.104)	(0.075)		
Leverage	0.535	0.217	0.353	0.321		***
	(4.503)	(0.283)	(0.215)	(0.255)		
EM Score	2.342	6.247	6.166	5.721		
	(47.540)	(3.358)	(2.323)	(2.251)		
Market/Book	2.474	1.570	3.041	2.063		**
	(5.326)	(1.826)	(4.815)	(1.489)		
1-yr stock return	0.586	0.343	0.618	0.283		
	(0.802)	(0.835)	(0.897)	(0.990)		
Differentiation	1.143	1.086	1.154	1.068		
	(0.569)	(0.199)	(0.543)	(0.212)		
Industry size	18.460	19.130	18.450	18.940		
	(1.573)	(2.210)	(1.365)	(2.180)		
Barriers to entry	15.040	15.760	15.330	15.760		
	(1.658)	(1.250)	(1.379)	(0.820)		
Panel C: CEO, governance & board characteristics variables						
CEO has strong ties w/ controller	0.895	1.000	0.768	1.000	**	***
	(0.307)	(0.000)	(0.426)	(0.000)		
CEO age	55.370	54.000	49.570	49.000	***	***
	(10.610)	(14.000)	(7.922)	(10.000)		
ADR	0.054	0.000	0.357	0.000	***	***
	(0.227)	(0.000)	(0.484)	(1.000)		
Subject to Bovespa's Arbitration	0.496	0.000	0.500	0.500		
	(0.501)	(1.000)	(0.505)	(1.000)		
Top5 share (%)	69.370	74.540	71.160	73.990		
	(26.350)	(37.950)	(22.260)	(38.290)		
High own. concentration	1.322	1.000	1.250	1.000		
	(0.679)	(1.000)	(0.694)	(1.000)		
Women among top execs/directors	0.593	1.000	0.536	1.000		

continued

Variable	Non Injunction		Injunction		Test of diff.	
	Mean	Median	Mean	Median	t test	Wilcoxon
	(0.492)	(1.000)	(0.503)	(1.000)		
Age diversity top execs/directors	0.105	0.096	0.095	0.094	*	
	(0.072)	(0.046)	(0.022)	(0.024)		
# board members	6.810	6.670	8.477	9.000	***	***
	(2.975)	(3.000)	(3.229)	(3.000)		
Average board members age	56.250	56.390	54.020	52.040	**	**
	(6.620)	(9.400)	(6.082)	(9.640)		

Source: author. This table presents descriptive statistics for sample firms, separated by type: no injunction (firms that fully disclosed compensation) and injunction (firms that withheld minimum, average and maximum compensation). N=314 firm-years. The values in parentheses under the means and medians are the standard deviations and interquartile ranges, respectively. The t test and the Wilcoxon rank-sum test tests for differences in the means or in the medians, respectively. The t test assumes unequal variances. The stars represent the significance of the tests: *** is significant at 1%, ** is significant at 5%, and * is significant at 1%. *Lagged total robbery rate* is the previous year total robbery rate per 100,000 inhabitants. *CEO compensation* is the maximum compensation for executive officers (no injunction) or the calculated CEO compensation (injunction), in USD100,000, and *ln(CEO compensation)* is the natural logarithm of the values in BRL. *Lagged state's Gini index* is the previous year Gini index at the firm's headquarters state. *Lagged HDI* is the previous year Human Development Index at the firm's headquarters state. *Total assets* are the total assets of the firm (in BRL and in USD), and *ln(Total assets)* is the natural logarithm of total assets in BRL. *Lagged ROA* is the previous year net income-average total assets ratio. *Leverage* is the total debt-total assets ratio. The *EM score* is the Altman's bankruptcy score for emerging markets. *Market/Book* is the market value-book value of equity ratio. *1-yr stock return* is the one-year buy-and-hold strategy raw return. *Differentiation* proxies for differentiation within an industry and is sales divided by operating costs. *Industry size* is the natural logarithm of total industry sales (first level NAICS). *Barriers to entry* proxies for the difficulty in entering a given industry and is the natural logarithm of the weighted average of plant, property and equipment of the industry (first level NAICS). *CEO has strong ties with controller* is a dummy set to one if the controller elected the CEO, the CEO holds another position (such as a seat on the board), or the CEO has relatives in top management. *CEO age* proxies for CEO experience. *ADR* is a dummy set to one if the firm has ADRs being traded, and thus is subject to the SEC. *Subject to Bovespa's* arbitration is a dummy set to one if the firm has chosen to comply with voluntary differentiated governance levels that require that disputes to be subject to Bovespa's market arbitration panel, before resorting to traditional courts in case it remains unresolved. *Top5 share %* is the percentage of voting (common) stock held by the top 5 shareholders. *High ownership concentration* is the sum of two dummies: firm has above-average number of block holders (shareholders with more than 5% of common stock) and firm has above-average number of institutional shareholders (institutions with more than 5% of common stock). *Women among top execs / directors* proxies for gender diversity is set to one if there is at least one woman in top management. *Age diversity top execs / directors* proxies for age diversity among top management, and is the average of the normalized Z of top execs and directors. *# board members* proxies for staggered boards and is the quantity of directors. *Average board members age* proxies for directors' experience. More details on the definition of variables are in appendix A.2.

Panel B of table 2 shows important firm-specific differences between firm groups. Injunction firms are larger (as measured by total assets) and more profitable than their non-injunction counterparts. There is also some weaker evidence that injunction firms are more leveraged and more valuable (as measure by the market to book ratio) than non-injunction firms. Finally, there is some weak evidence that firm groups operate in different markets, as the proprietary costs proxies (*Differentiation*, *Industry size* and *Barriers to entry*) show significant median differences.

Table 2 Panel C shows some differences regarding CEO, governance, diversity and board attributes. Non-injunction firms have CEOs more strongly tied to controllers, signaling that controllers may be pressing CEOs to disclose to avoid costs to the firm, even if this means personal costs for the CEO. Non-injunction firms also have older CEOs. Oddly, non-injunction firms are less likely to be cross-listed in the U.S., which may be partially explained by firm size. Finally, there is weak evidence that non-injunction firms' management is more diverse in terms of age, while injunction firms exhibit larger boards (partially due to the mechanical relation with firm size) and younger, less experienced boards.

Results in table 3 are the estimates from equation (1.1). All estimates are pooled probit regressions with year dummies and standard errors clustered by firm. The base test for H1 is in column (a), in which the coefficient on *Lagged total robbery rate* is positive and significant, supporting the claims that non-disclosure of executive compensation details is positively related to personal security-related costs.

TABLE 3: PROBIT ESTIMATES OF THE DETERMINANTS OF INJUNCTION (NON-DISCLOSURE) FOR BRAZILIAN LISTED FIRMS IN FISCAL YEARS 2009 AND 2010

Dependent variable: injunction	a	b	c	d
Lagged Total robbery rate	0.0029***			0.0018**
	(3.68)			(2.24)
ln(CEO Compensation)		0.5307***		0.5831***
		(3.55)		(3.23)
Lagged State's Gini Index			26.3317***	20.2008**
			(3.91)	(2.43)
Lagged HDI			18.1087***	7.9400
			(3.32)	(1.19)
1-yr return	0.4269***	0.3558**	0.4596***	0.3531*
	(2.58)	(2.09)	(2.80)	(1.85)
Lagged ROA	-0.1249	-0.4006	0.2138	-0.4859
	(-0.12)	(-0.30)	(0.23)	(-0.41)
EM Score	0.0518**	0.0604**	0.0468*	0.0508*
	(1.99)	(2.30)	(1.78)	(1.90)
Leverage	0.4034*	0.4352*	0.4050*	0.3637
	(1.79)	(1.82)	(1.82)	(1.53)
ln(Total assets)	0.6969***	0.6541***	0.6691***	0.6528***
	(3.94)	(3.94)	(3.84)	(3.15)
Market/Book	0.0451**	0.0193	0.0381*	0.0255
	(2.00)	(0.84)	(1.70)	(0.88)
Differentiation	-0.1848	-0.2143	-0.2015	-0.2444*
	(-1.33)	(-1.11)	(-1.50)	(-1.77)
Industry size	-0.1246	-0.1773	-0.0902	-0.0997
	(-0.80)	(-1.28)	(-0.60)	(-0.60)
Barriers to entry	0.0507	0.0428	0.0443	0.0783
	(0.49)	(0.38)	(0.48)	(0.80)

continued

Dependent variable: injunction	a	b	c	d
CEO has strong ties w/ controller	-0.7693**	-0.7222*	-0.6980**	-0.6970*
	(-2.10)	(-1.83)	(-1.99)	(-1.75)
CEO age	-0.0472**	-0.0522***	-0.0402**	-0.0392*
	(-2.42)	(-2.63)	(-2.15)	(-1.92)
ADR	-0.0122	0.3292	0.1492	0.3215
	(-0.03)	(0.72)	(0.34)	(0.62)
Subject to Bovespa's Arbitration	-0.5951	-0.8750**	-0.4844	-0.5508
	(-1.55)	(-2.21)	(-1.23)	(-1.30)
High own. concentration	-0.2810	-0.2642	-0.1173	-0.0838
	(-1.18)	(-1.04)	(-0.49)	(-0.33)
# board members	0.0657	0.0448	0.0413	0.0553
	(1.52)	(1.03)	(0.90)	(1.21)
Average board members age	-0.0356	-0.0202	-0.0331	-0.0311
	(-1.47)	(-0.88)	(-1.48)	(-1.25)
Women among top execs/directors	-0.3465	-0.2059	-0.3165	-0.2585
	(-1.22)	(-0.86)	(-1.19)	(-0.99)
Age diversity top execs/directors	-9.0188*	-11.3558**	-7.7206*	-8.5730
	(-1.75)	(-2.43)	(-1.73)	(-1.50)
Pseudo R-Squared	0.4697	0.4572	0.4864	0.5498
Log likelihood	-78.0811	-79.9088	-75.6203	-66.2763

Source: author. Estimates for *Prob*(Injunction = 1)$_{i,t} = \beta_0 + \beta_1$Lagged robbery rate$_{i,t-1} + \sum_k \beta_k$Control$^k_{i,t} + \epsilon_{i,t}$. All regressions are pooled probit with a constant and a year dummy. N=314. Standard errors are clustered by firm. The dependent variable is Preliminary Court Injunction (1 if firm used injunction not to disclose, 0 otherwise). The z statistics are between parentheses. *, ** and *** mean statistical significance at 10%, 5% and 1%, respectively. Estimates in bold are significant at the 10% level. *Lagged total robbery rate* is the previous year total robbery rate per 100,000 inhabitants. *CEO compensation* is the maximum compensation for executive officers (no injunction) or the calculated CEO compensation (injunction), in USD100,000, and *ln(CEO compensation)* is the natural logarithm of the values in BRL. *Lagged state's Gini index* is the previous year Gini index at the firm's headquarters state. *Lagged HDI* is the previous year Human Development Index at the firm's headquarters state. *Total assets* are the total assets of the firm (in BRL and in USD), and *ln(Total assets)* is the natural logarithm of total assets in BRL. *Lagged ROA* is the previous year net income-average total assets ratio. *Leverage* is the total debt-total assets ratio. The *EM score* is the Altman's bankruptcy score for emerging markets. *Market/Book* is the market value-book value of equity ratio. *1-yr stock return* is the one-year buy-and-hold strategy raw return. *Differentiation* proxies for differentiation within an industry and is sales divided by operating costs. *Industry size* is the natural logarithm of total industry sales (first level NAICS). *Barriers to entry* proxies for the difficulty in entering a given industry and is the natural logarithm of the weighted average of plant, property and equipment of the industry (first level NAICS). *CEO has strong ties with controller* is a dummy set to one if the controller elected the CEO, the CEO holds another position (such as a seat on the board), or the CEO has relatives in top management. *CEO age* proxies for CEO experience. *ADR* is a dummy set to one if the firm has ADRs being traded, and thus is subject to the SEC. *Subject to Bovespa's* arbitration is a dummy set to one if the firm has chosen to comply with voluntary differentiated governance levels that require that disputes to be subject to Bovespa's market arbitration panel, before resorting to traditional courts in case it remains unresolved. *Top5 share %* is the percentage of voting (common) stock held by the top 5 shareholders. *High ownership concentration* is the sum of two dummies: firm has above-average number of block holders (shareholders with more than 5% of common stock) and firm has above-average number of institutional shareholders (institutions with more than 5% of common stock). *Women among top execs / directors* proxies for gender diversity is set to one if there is at least one woman in top management. *Age diversity top execs / directors* proxies for age diversity among top management, and is the average of the normalized Z of top execs and directors. *# board members* proxies for staggered boards and is the quantity of directors. *Average board members age* proxies for directors' experience. More details on the definition of

variables are in appendix A.2.

Results in column (b) of table 3 show that the level of CEO compensation is significant and positively related to the probability of not disclosing. This result corroborates findings by Robinson, Xue & Yu (2011), who find that highly paid executives try to obscure compensation information. This result is also consistent with the argument that for CEOs concerned with disclosing seemingly excessively compensation, the criminality allegation would be a potentially credible excuse not to disclose.

The model presented in column (c) of table 3 includes the Gini Index and the HDI level in the state. The coefficient on the Gini index is positive and significant, suggesting that firms located in places that are more unequal are more likely not to disclose compensation information. This supports the view that firms may incur political costs of disclosing high salaries in a region that has high levels of social inequality. In contrast, HDI is also positive and significant suggesting that firms in more developed places are more likely not to disclose. We must interpret this result carefully, as regions with high HDI levels are also more urbanized and it usually implies more violence (e.g., the HDI may be capturing the criminality levels). Once we include the robbery rate, CEO compensation, and Gini index in the model presented in column (d), the coefficient on HDI becomes insignificant, reinforcing the previous idea that it is positively related to urban violence. More importantly, the coefficient of *Lagged total robbery rate* remains positive and significant, consistent with H1.

In sum, it appears that security-related costs seem to play an important role on the decision not to disclose compensation details, even after controlling for a series of firm and industry-level variables. This result holds in the presence of other variables that proxy for other types of cost, namely the political costs related to disclosing high levels of CEO compensation in a state where social inequality is high. To the best of our knowledge, we present a novel result, in which firms are assessing executives' personal costs in the decision to deny disclosing mandatory information. In a way, these results also provide some support for the claim of Hermalin & Weisbach (2012), who argue that greater corporate disclosure may entail increased costs.

1.4.2 Testing hypothesis 2: economic effects of non-disclosure

We next examine the impact of injunction on three proxies for information asymmetry: (a) bid-ask spread, (b) trading volume level, and (c) volatility level. These proxies assess the impact

of not disclosing CEO compensation on the informational component of a firms' cost of capital. As explained before, most of the independent variables are lagged, so that they can be considered exogenous and mitigate concerns over endogeneity. Furthermore, they also represent the proper timing and availability of the information to the investor.

Table 4 displays the univariate statistics by firm type. Panel A contains the main variables of interest. Out of the three proxies we consider, only *Trading volume (%)* exhibits significant difference, showing that injunction firms' stocks are more liquid, a result that at first goes against the prediction of H2. *Lagged ln(CEO compensation)* and *Lagged % stock comp* are significantly different, with injunction firms having better paid CEOs whose compensation relies more heavily on equity-based compensation. Table 4 panel B shows differences for the two remaining variables, and only firm market value is significantly higher for injunction firms. Note that all these differences can be attributed, at least partially, to the fact that injunction firms are larger.

TABLE 4: ECONOMIC CONSEQUENCES OF NON-DISCLOSURE (YEARS 2010 AND 2011) FOR LISTED BRAZILIAN FIRMS SEPARATED BY TYPE

Variable	Non Injunction		Injunction		Test of diff.	
	Mean	Median	Mean	Median	t test	Wilcoxon
Panel A: main variables						
Excess bid-ask spread	-1.318	-0.074	-0.688	-0.075		
	(3.343)	(0.821)	(1.851)	(0.757)		
Excess trading volume (%)	-0.744	-0.070	0.085	0.208	***	***
	(2.680)	(0.762)	(0.696)	(0.255)		
Excesss volatility	-5.959	-6.832	-8.183	-10.810		
	(22.970)	(16.374)	(12.130)	(17.040)		
Tobin's Q	1.796	1.387	2.486	1.533		
	(1.914)	(1.312)	(2.971)	(1.081)		
Lagged ln(CEO Compensation)	2.481	2.510	3.074	3.293	***	***
	(0.797)	(0.987)	(1.018)	(0.798)		
Lagged % stock comp.	0.066	0.000	0.179	0.057	***	***
	(0.162)	(0.044)	(0.256)	(0.257)		
Panel B: control variables						
Lagged ln(Market cap)	14.360	14.380	15.740	15.750	***	***
	(1.425)	(2.060)	(1.257)	(1.560)		
Lagged Excess free float	7.213	5.459	10.820	10.590		
	(18.770)	(28.670)	(17.130)	(22.167)		

Source: author. This table presents descriptive statistics for sample firms in years 2010 and 2011 (N=204), separated by type: no injunction (firms that fully disclosed compensation, N=158) and injunction (firms that withheld minimum, average and maximum compensation, N=46). The values in parentheses under the means and medians are the standard deviations and interquartile ranges, respectively. The t-test and the Wilcoxon rank-sum test tests for differences in the means or in the medians, respectively. The t-test assumes unequal

variances. The stars represent the significance of the tests: *** is significant at 1%, ** is significant at 5%, and * is significant at 1%. "Excess" stands for level minus industry-second semester average. *Excess bid-ask spread* is the firm's average bid-ask spread for Jul 1 to Dec 31, divided by second semester average bid-ask. *Excess trading volume* is the average daily traded value for Jul 1 to Dec 31, divided by market value multiplied by 100. *Excess volatility* is the standard deviation of returns for Jul 1 to Dec 31. *Lagged ln(CEO compensation)* is the natural logarithm of previous year maximum compensation for executive officers (no injunction) or the calculated CEO compensation (injunction). *Lagged % stock comp* is the previous year proportion of stock-based compensation in relation to total compensation. *Lagged ln(market cap)* is the natural logarithm of the firm's market value on Dec 31 of the previous year. *Lagged excess free float* is the percentage of common and preferred stocks not held by block and institutional holders on Dec 31 of the previous year. More details on the definition of variables are in appendix A.2.

Results in table 5 reflect the estimates for equation (1.2). All regressions are pooled OLS with a constant and a year dummy, and standard errors clustered by firm. There are six regressions, two for each dependent variable. According to H2, the coefficient on injunction should be positive for bid-ask spread and volatility, and negative for trading volume. Column (a) shows that injunction firms suffer a significant increase in bid-ask spread, partially supporting H2. Column (c) shows that not disclosing leads to a decrease in trading volume, providing further support for H2. Finally, we do not detect any effect of injunction on volatility, as shown in columns (e) and (f). In aggregate, these results corroborate two out of the three predictions from H2.

TABLE 5: ECONOMIC CONSEQUENCES OF EXECUTIVE COMPENSATION NON-DISCLOSURE

Dependent variable:	B-A spread		Trading volume		Volatility	
	a	b	c	d	e	f
Lagged Injunction	0.7010*	0.9470**	-0.5561**	-0.8203***	3.2768	3.1888
	(1.74)	(2.43)	(-2.12)	(-2.73)	(1.08)	(0.97)
Lagged ln(CEO Compensation)		-0.2251		0.5574**		-3.2091
		(-0.90)		(2.59)		(-1.52)
Lagged % stock comp.		-1.3952		0.5064		12.8156**
		(-1.06)		(1.48)		(2.32)
Lagged ln(Market cap)	-0.2115	-0.2049	0.9629***	0.8791***	-4.1659**	-3.7578**
	(-1.52)	(-1.57)	(4.33)	(4.71)	(-2.01)	(-2.05)
Excess trading volume (%)	0.2239	0.2654				
	(1.22)	(1.48)				
Excesss volatility	-0.0094	-0.0088	-0.0100	-0.0082		
	(-0.90)	(-0.91)	(-1.13)	(-0.89)		
Lagged Excess free float	0.0050	0.0055	0.0082	0.0074	0.0740	0.0701
	(0.33)	(0.37)	(1.52)	(1.43)	(0.78)	(0.75)
Adjusted R-Sq	0.0389	0.0422	0.3850	0.4213	0.0593	0.0712
One-sided test p-value	0.0425	0.0082	0.0180	0.0036	0.1415	0.1680
Log likelihood	-511.2158	-509.8240	-415.8053	-408.5575	-901.9026	-899.5660

Source: author. Estimates for $\text{EconEffect}^k_{i,t} = \gamma_0 + \gamma_1 \text{Lagged injunction}_{i,t-1} + \sum_j \gamma_j \text{Control}^j_{i,t-1} + \epsilon_{i,t}$. All regressions are pooled OLS with a constant, a year dummy and clustered by firm standard errors. N=204. Models (a) & (b) have Excess bid-ask spread as dependent variable, models (c) & (d) have Excess trading volume

as dependent variable, and models (e) & (f) have Excess volatility as dependent variable. The one-sided test p-value refers to the one-sided Wald test for the predictions according to Hypothesis 2, i.e., the effect of injunction is to increase bid-ask spread, decrease trading volume, and increase volatility. The t statistics are between parentheses. *, ** and *** mean statistical significance at 10%, 5% and 1%, respectively."Excess" stands for level minus industry-second semester average. *Excess bid-ask spread* is the firm's average bid-ask spread for Jul 1 to Dec 31, divided by second semester average bid-ask. *Excess trading volume* is the average daily traded value for Jul 1 to Dec 31, divided by market value multiplied by 100. *Excess volatility* is the standard deviation of returns for Jul 1 to Dec 31. *Lagged ln(CEO compensation)* is the natural logarithm of previous year maximum compensation for executive officers (no injunction) or the calculated CEO compensation (injunction). *Lagged % stock comp* is the previous year proportion of stock-based compensation in relation to total compensation. *Lagged ln(market cap)* is the natural logarithm of the firm's market value on Dec 31 of the previous year. *Lagged excess free float* is the percentage of common and preferred stocks not held by block and institutional holders on Dec 31 of the previous year. More details on the definition of variables are in appendix A.2.

Collectively, these results corroborate the findings of Verrecchia & Weber (2006), of a negative impact on the informational component of the cost of capital when U.S. firms obscure proprietary information from material contracts. The effect of injunction is also robust to the inclusion of compensation-related variables. The rationale for the inclusion of these variables is that the information embedded in the level of compensation may be useful to investors. The results are also consistent with Shin (2003), in the sense that the explicit non-disclosure is increasing the uncertainty about the firm. Collectively, our models signal that a firm that explicitly decides not to comply with a disclosure rule suffers a significant penalty by the market.

1.5 CONCLUSION

Theoretical disclosure models show that in a frictionless world, full disclosure should occur. Since frictions imply costs, firms assess the costs and benefits of disclosing before releasing their private information. Corporate scandals in the mid-2000s and the financial crisis of 2008 increased the demand for more disclosure of executive compensation, on the basis that more compensation information would lead to reductions in agency costs. Brazil answered this call by implementing a new regulation in 2009, CVM Ordinance 480, the most complex and comprehensive set of disclosure rules ever implemented in the Brazilian market.

We examine the determinants and consequences of firms' choice not to comply with executive compensation disclosure regulation. We exploit a unique feature of Brazilian markets, where the change of regulation of executive compensation disclosure could arguably lead to personal security-related costs for executives. We exploit the tension that exists between the potential benefits of executive compensation disclosure regulation and the personal costs that executives face related to the

disclosure of their compensation. Firms that managed to circumvent the requirements of Ordinance 480 did so through a court injunction. Injunction firms alleged that disclosing executive compensation information would reveal the identity of top executives and criminals would use this information to plan abductions and other crimes against executives, their families and their property.

Consistent with our expectations, we find a positive association between security-related cost and the decision not to comply with the new regulation. This is a novel result, in which firms seem to consider executive's personal cost in the decision to comply with mandatory disclosure regulation. We believe that we bring a new factor to the regulatory debate, supporting the view of Hermalin & Weisbach (2012) that increased disclosure may imply in increased costs.

Regarding the consequences of non-compliance, we find that injunction firms experience an increase in stock bid-ask spread and a decrease in trading volume. This is consistent with the market interpreting the non-disclosure as bad news, leading to an increase in uncertainty (SHIN, 2003). Taken together, our results suggest that although firms suffer a significant penalty by the market, they deem their executives' costs as high enough to justify the non-disclosure. More importantly, our results highlight that there may be more costs associated with disclosure than generally accepted. We believe we bring useful insights to regulatory and standardization bodies like the International Accounting Standards Board and the European Commission.

2 FAMILY MANAGEMENT: CREATING OR DESTROYING FIRM VALUE?

Figure 5: On family relations.

Source: Saturday Morning Breakfast Cereal.

2.1 INTRODUCTION

My study explores whether management by family members creates or destroys firm value. I do this by estimating the impact of family pervasiveness in top management (family members as executive officers or board members) on firm value as measured by Tobin's Q. Results indicate that family members acting as executive officers decrease firm value. More, this effect is exacerbated when the family relationships are farther away, i.e., second-degree vs. first-degree or in-law vs. same-kin relationships. I contribute to the literature in the Brazilian context, in which the influence of family management on firm value remains largely unexplored. I also shed light on the issue of family firms in emerging markets, which contrary to their counterparts in the U.S. and the U.K., are often managed by family members (FAN; WEI; XU, 2011). An assessment of the impact of family management on firm value may be important for corporate valuations. Moreover, a better understanding of the effect of family management has potential implications for governance mechanisms. The effect of governance is exacerbated in emerging markets, lowering external capital cost especially in lower investor protection countries like Brazil, with potential implications for firm growth and investments (FAN; WEI; XU, 2011; NENOVA, 2003). I also propose a new way of measuring family management pervasiveness which takes into account the closeness of relationships, thus controlling for the costs and benefits of altruistic acts within the family.

Family ownership and control is quite pervasive around the world (LAPORTA; LOPEZ-DE-SILANES; SHLEIFER, 1999; MAURY, 2006; VILLALONGA; AMIT, 2006). According to LaPorta, Lopez-De-Silanes & Shleifer (1999) about one third of the large firms in 27 countries are family-controlled. Laeven & Levine (2008) show that, by far, the most common type of large shareholder in a sample of 1657 public firms in Europe is "family". Specifically in Brazil there is a widespread presence of large controlling shareholders (LEAL; SILVA; VALADARES, 2002), and family ownership is a very common trait of publicly traded firms: Silva (2004) states that 48% of traded firms in Brazil are family-controlled. Furthermore, controlling shareholders often exert great influence on the decisions of the managers, and these managers typically come from the controlling family (LAPORTA et al., 2000). As Khanna & Yafeh (2007) report, in Brazil families play a key role in business groups, and hold control of firms for decades. To add to this non-trivial importance of families, Brazil is not known for investor protection. As the latest 2013 Doing Business Report from the World Bank points out, Brazil ranks 82nd in investor protection out of 185 countries surveyed, a three places drop from the 2012 report. On

related issues Brazil performs even worse: 116th in contract enforcement and 143rd in insolvency resolution, partly an effect of the French civil law system adopted, which is known for inefficiently protecting investors (TIROLE, 2005; NENOVA, 2003). Such landscape only adds more importance to understanding the role of family management in Brazil.

Particularly, it is not clear whether family improves or hinders firm performance (SCHULZE; GEDAJLOVIC, 2010). From a theoretical standpoint, Dyer (2006) argues that there are agency benefits, but agency costs as well, of having family members in firms. Benefits include better principal-agent alignment, higher trust among family members, and deeper knowledge of the firm underpinnings (ADAMS; FERREIRA, 2009; DYER, 2006; TIROLE, 2005). The other side of the coin include costs of opportunism, shirking, and adverse selection due to altruism: family contracting can be seem as a perk consumed by family at the expense of non-family shareholders (ADAMS; FERREIRA, 2009; DYER, 2006; TIROLE, 2005). In the end of the day, determining which effect dominates is an empirical question. Anderson & Reeb (2003) find that, in the US, family firms outperform non-family firms. However, this gain in performance is non-linear in ownership: at first, performance increases on family holdings, but then it reverses and family ownership becomes detrimental to performance. When Anderson & Reeb (2003) look at management by family CEOs, results are mixed: accounting measures signal that family CEOs lead to increased performance, while market measures indicate that family CEOs may not matter. Maury (2006) indicates that Western European firms are more profitable when they are family controlled and a family member holds the CEO or Chairman positions. Nevertheless, Maury (2006) results also point that although family control seems to lower agency conflicts between owners and managers, it creates conflicts between family and minority shareholders. Andres (2008) also finds a positive relationship between family ownership and firm performance among German listed firms, but also poses that this relation only holds when the founding family is still active in family management. In Canada, King & Santor (2008) find that family ownership does not affect firm value, as long as there are no dual class shares, a control enhancing mechanism. Barontini & Caprio (2006) explores a large dataset of Western European firms and find no evidence that family control, nor family-descendant CEO, harm performance. In sum, there are certain conditions under which family ownership, control, and management seem to have some effect on firm performance or firm value. Even so, studies differ on the direction of these effects, specially regarding family management effects.

Bennedsen et al. (2007) use a unique dataset with Danish data to study succession of

CEOs in family firms. They find a negative impact on firm performance when the successor CEO takes over the management of the firm. Cucculelli & Micucci (2008) also study CEO succession and resort to a survey comprising small manufacturing firms from four Italian regions. The Italian results are similar to the Danish ones, with continued management by the family harming firm performance. Pérez-González (2006) resorts to an extensive research of CEO successions that occurred during a single year (1994) in US-listed firms. He finds that succession of the founder CEO by a family member drives down the performance of the firm, just like the Danish and Italian studies. However, Pérez-González (2006) finds that when the successor CEO has a "good" schooling background, performance remains unaffected, giving rise to a limited pool explanation. This limited pool of family members may not be as skilled as external CEOs, driving down the performance of the firm. Villalonga & Amit (2006) also spend a huge effort on sifting through Fortune 500 firms to gather family information from a large array of sources, comprising years 1994-2000. They also find a negative association between descendant CEOs and Chairmen and firm value. All of these studies rely on the founder/descendant dichotomy, and focus on top positions within management (CEO or Chairman). In Brazil, research on family firms is relatively scarce, and tend to focus on succession, strategy, and management models (PAIVA; OLIVEIRA; MELO, 2008). This is partially due to the fact that until recently, it was not straightforward to conduct research on publicly traded Brazilian family firms. For instance, Silva & Grzybovski (2006) conduct interviews to obtain information on family ties of a subset of public Brazilian firms and Okimura (2003) resorts to unstructured, pre-reform information from CVM.

I take advantage of the detailed information present in the Brazilian proxy statements to provide a new perspective on the relationship of family management and firm value. These proxy statements became effective in 2010, after an extensive disclosure reform that culminated with CVM Ordinance[1] 480 (CVM, 2009). Among several disclosure provisions, it requires that firms inform all family relationships within top management (executive officers and board members), providing the data to calculate a measure of family pervasiveness in management. It also mandates the listing of all relevant shareholders, allowing for the calculation of family ownership and control fairly precisely. This dataset allows the study of all Brazilian listed firms, with an unprecedented level of detail and scope. Firms are obliged to list all relationships indicating their type (e.g., parent-child, siblings, husband-wife), and for all top management, not only CEOs and Chairmen, enriching the understanding of family management as a whole, not only as a founder/descendant CEO issue. Next I turn to

[1] CVM is the Brazilian counterpart of the SEC, and oversees listed firms and capital markets. A CVM Ordinance is similar to an SEC Rule

the details of my dataset.

2.2 SAMPLE SELECTION

The main data source is the Brazilian proxy statement. I use all statements available, filed in 2010, 2011 and 2012, relative to fiscal years 2009, 2010 and 2011, respectively. Table 6 breaks down the sample by industry and type of management. I consider a firm to be family-managed when there is at least one family relationship reported within executive officers and board members. After all data requirements, there is a total of 677 firm-years, with a predominance of manufacturing firms. A slight majority (56%) of firms have no family in management.

TABLE 6: SAMPLE BY INDUSTRY AND MANAGEMENT

1st level NAICS	Family members in management					
	No		Yes		Total	
	No.	%	No.	%	No.	%
Accommodation and Food Services	1	0.3	0	0.0	1	0.1
Adm. & Supp. and Waste Mngt & Remed. Serv.	3	0.8	6	2.0	9	1.3
Agriculture, Forestry, Fishing and Hunting	2	0.5	7	2.4	9	1.3
Arts, Entertainment, and Recreation	3	0.8	0	0.0	3	0.4
Construction	22	5.8	36	12.2	58	8.6
Educational Services	6	1.6	6	2.0	12	1.8
Finance and Insurance	10	2.6	0	0.0	10	1.5
Health Care and Social Assistance	11	2.9	2	0.7	13	1.9
Information	26	6.8	10	3.4	36	5.3
Management of Companies and Enterprises	10	2.6	15	5.1	25	3.7
Manufacturing	126	33.0	147	49.8	273	40.3
Mining, Quarrying, and Oil and Gas Extraction	12	3.1	3	1.0	15	2.2
Professional, Scientific, and Technical Services	3	0.8	3	1.0	6	0.9
Real Estate and Rental and Leasing	16	4.2	13	4.4	29	4.3
Retail Trade	12	3.1	22	7.5	34	5.0
Transportation and Warehousing	15	3.9	15	5.1	30	4.4
Utilities	102	26.7	8	2.7	110	16.2
Wholesale Trade	2	0.5	2	0.7	4	0.6
Total	382	100.0	295	100.0	677	100.0

Source: author. Firm-years, fiscal years 2009, 2010 and 2011. A firm is family-managed when there is at least one family relationship reported within executive officers and board members

The proxy statement provides detailed information to measure the three elements that define a family firm: ownership, control, and management (VILLALONGA; AMIT, 2006). Brazilian firms usually issue dual-class shares, which provide a simple way of calculating the control–cash flow wedge (ADAMS; FERREIRA, 2008). Common shares bear the right to vote, while preferred shares do not. However, preferred shares have preference in the payment of dividends under certain conditions, but no vote, creating a deviation from the one share-one vote principle. While the proportion of

common shares owned provide a measure of control *and* potential cash flow rights, the proportion of preferred shares owned measures the cash flow rights *without* control. Another common feature of Brazilian firms is an intricate system of ownership, through a series of intermediary firms totally or partially owned by the largest shareholders. I drill down this hierarchy of ownership, and consolidate the effective proportion of common and preferred shares owned by each shareholder. These two measures, the proportions of common and preferred shares, provide the family ownership control variables for the study. Figure 8 is an example of the control section of the proxy statement. Notice on the left side the intricate hierarchy of ownership for Gerdau, a steel producer. The same shareholders from the Gerdau Johannpeter family indirectly own and control the firm through a series of different intermediate firms. On the right side, there are the percentages each shareholder has, separated by common ("*ordinárias*"), preferred ("*preferenciais*") and total shares.

I devise a measure of family management pervasiveness that accounts not only for the positions held by family members, but by the characteristics of the family relationship. There is indication that genetic closeness may play a role on the assessment of costs and benefits of altruistic acts (COX, 2007; HAMILTON, 1964). Hamilton is considered the "founder of the modern theory of *kin selection*" (BERGSTROM, 1996), and his rule focuses on the genes rather than on the individual, and provided an answer to phenomena such as self-sacrificing honeybees. Hamilton's rule states that "an organism will issue a risky, even suicidal, warning cry if it rescues *sufficient numbers* of relatives of *sufficient genetic closeness*" (COX, 2007). In mathematical terms, such behavior will occur when there is a benefit B and a cost C such that $rB > C$, r being the coefficient of relatedness (COX, 2007; BERGSTROM, 1996). This coefficient is just the probability that a randomly selected gene is shared between two individuals (COX, 2007; BERGSTROM, 1996). Table 7 shows some numbers for r.

TABLE 7: COEFFICIENTS OF RELATEDNESS *r* FOR SELECTED FAMILY RELATIONSHIPS

Relation	*r*
Parent-child	0.5
Full siblings	0.5
Half siblings	0.25
Grandparent-grandchild	0.25
Aunt or uncle-nephew or niece	0.25
First cousins (monogamous system)	0.125

Source: adapted from Bergstrom (1996).

Some evidence points that altruistic acts within family may limit the pool of management candidates to family members, thus reducing the quality of firm managers (PÉREZ-GONZÁLEZ, 2006).

However, the fine detail of the Brazilian data allows an approach that does not need to rely on successions of top managerial positions like previous studies. The proxy statement details family relationships within top management, i.e., executive officers and board members. It indicates the closeness of the relation (first or second degree) and if it is a same-kin (genetic link) or an in-law (no genetic link) relation. All mandatory relations are listed in table 8. Note that there are relations without a genetic direct link, i.e., by marriage (in-law) relationships. I deem these relations farther apart than same-kin links. Although these "aggregated" family members do not directly carry family genes, they most likely are responsible for offspring carrying some proportion of family genes. Therefore, it is reasonable to consider them under Hamilton's rule as less strongly related than same-kin relations.

TABLE 8: RELATIONS LISTED ON THE BRAZILIAN PROXY STATEMENT

Relation	Degree	Same-kin
Parent	1	Yes
Sibling	1	Yes
Child	1	Yes
Grandparent	2	Yes
Spouse	1	No
Parent-in-law	2	No
Child-in-law	2	No
Sibling-in-law	2	No
Step-parent	2	No
Stepchild	2	No
Stable union	1	No

Source: author.

The statements also contain all the positions held by these family members. For instance, the family member may be the CEO and the Chairman of the board. So, the strategy consists of focusing both on the relationships and on the weight of the related people. Using these data I extract an index of family pervasiveness in firm management. Figure 9 is an example of family relations in Gerdau. It details the related parties (names and ID numbers), the type of relationship, whether CVM considers it a first or second-degree relation, and whether it is by blood (same-kin) or by marriage (in-law). Take the first relation, between Jorge Gerdau Johannpeter and Germano Hugo Gerdau Johannpeter. They are brothers, a first-degree, same-kin relationship. Jorge is the chairman of the board (not shown) and Germano is the vice-president of the board of directors, i.e., it is an intra-board relationship. Relationships can be between executive officers, between directors, and between executives and directors. Section 2.2.1 details how this data is incorporated into the model.

The main goal of this study is to measure the influence of family management on the value

the firm. The measure of the value of the firm is Tobin's Q, defined as the book value of average total assets and market value of equity, minus book value of equity, all divided by book value of average total assets (BARONTINI; CAPRIO, 2006). In this way, Q can be seen as the present value of cash flows divided by the replacement cost of tangible assets. It is a measure of value and already incorporates risk, so that it is straightforward to use it to compare different firms. In contrast, other measures like stock returns or accounting-based returns would require some kind of adjustment (LANG; STULZ, 1994). Descriptive statistics are in table 10, section "Dependent variable". The value of approximately 1.9 is close to the estimations of Barontini & Caprio (2006) for continental Europe. Note that non-family-managed firms are more valuable than family firms, hinting that family management may drive down firm value. In the following section I detail how to calculate the family pervasiveness in management index, *F-Index*. Equation (2.1) displays the model. The coefficients of interest are the ϕ_f, which measure the effect of family management, after controlling for variables that potentially affect Tobin's Q.

$$Q_{i,t} = \beta_0 + \sum_f \phi_f \text{F-Index}^f_{i,t} + \sum_g \gamma_g \text{Control}^g_{i,t} + \epsilon_{i,t} \tag{2.1}$$

2.2.1 Measuring family pervasiveness in management

The base to measure family pervasiveness in firm management – the *F-Index* – is the number of possible relationships within the group, e.g., executive officers. So, for n components of a given group g from firm i, there are r possible relations given by the pairwise permutation formula:

$$r_{i,g} = \frac{n!}{(n-2)!} \tag{2.2}$$

The *F-Index* is the position-weighted sum of all family relations divided by the number of possible relations r. Namely, executive officers may have a weight between one (just one position) and three (the three possible positions: CEO, VP, and officer), i.e., $w_{j,k} \in [1,3]$ for each family member j related to family member k. The same goes for board members, who can be Chairman, VP of the board, or director. Note that attributing equal weights to all positions is the most conservative approach[2]. Thus, if there are f family relations within group g of firm i, the definition of the *F-Index*

[2] For instance, the CEO or the VP may exert more influence on decisions than an ordinary executive. However, as intuitive as it may seem, it is hard to quantify different weights. How much more influence does a CEO have? Two times? Three times? Does it vary from firm to firm?

is:

$$\text{F-Index}_{i,g} = \frac{\sum_{j=1}^{f} \sum_{k=1}^{f} w_{j,k}}{r_{i,g}}, j \neq k \tag{2.3}$$

To account for the closeness of the relationship, as well as for the kinship, I partition the index into classes. There is an F-Index for the top management (executive officers and board members as a group, $F\text{-}Index_{top}$). Then, I partition it into two indices: one for executive officers as a group ($F\text{-}Index_{exec}$) and another for board members as a group ($F\text{-}Index_{board}$). I also divide each of these groups into subgroups, separating by degree and by kin. For a given subgroup s, the *F-Index* is:

$$\text{F-Index}_{i,g,s} = \frac{\sum_{j=1}^{f_s} \sum_{k=1}^{f_s} w_{j,k}}{r_{i,g}}, j \neq k \tag{2.4}$$

In this fashion, the sum of the index for first and second-degree relations equals the sum of the index for same-kin and in-law relations, which in turn equals the index of the group, e.g., $F\text{-}Index_{exec,1st} + F\text{-}Index_{exec,2nd} = F\text{-}Index_{exec,kin} + F\text{-}Index_{exec,law} = F\text{-}Index_{exec}$. These partitions, instead of unifying family influence in firm management into a single index, has the advantage of not imposing a functional form or arbitrary weights to the degrees of separation or kinship. The only assumption is that there is a linear relation between the partitioned F-Indices and firm value. I always combine the partitioned F-Indices in such a way that they account for the total number of family relations both among executives and directors. In this way, all regressions contains the total effects of family pervasiveness on management. The following examples will make the index clearer.

Assume there are four executive officers in firm i. So, $r_{i,exec} = \frac{4!}{(4-2)!} = 12$. Say there are three related family members as officers (six relationships: $A \rightarrow B, A \rightarrow C, B \rightarrow A, B \rightarrow C, C \rightarrow A, C \rightarrow B$,). A is the CEO and the CFO (weight two), B is the COO (weight one), and C is the CIO (weight one). In this way: $F\text{-}Index_{exec} = \frac{(2+2)+(1+1)+(1+1)}{12} = \frac{8}{12} = \frac{2}{3}$. Now, assume $C \rightarrow D$, but D is in the board. The $D \rightarrow C$ relation will be accounted for in the board relationships and the $C \rightarrow D$ relation implies $F\text{-}Index_{exec} = \frac{(2+2)+(1+1)+(1+1+1)}{12} = \frac{9}{12} = \frac{3}{4}$. Additionally, there can be partitions: if $A \leftrightarrow B$ is a first degree relationship (e.g., father and son), and the others (between B, C, and D) are second degree ones, then $F\text{-}Index_{exec,1st} = \frac{2+1}{12} = \frac{3}{12} = \frac{1}{4}$, $F\text{-}Index_{exec,2nd} = \frac{2+1+(1+1+1)}{12} = \frac{6}{12} = \frac{1}{2}$, and $F\text{-}Index_{exec,1st} + F\text{-}Index_{exec,2nd} = \frac{1}{4} + \frac{1}{2} = \frac{3}{4} = F\text{-}Index_{exec}$.

The main effects section of table 9 shows descriptive statistics for these measures. I only

show the executive officers partitions for the sake of simplicity, since the other partitions did not yield significant regression coefficients. Family members have a participation in management around 6%, as *F-Index within firm* shows. Apparently, families prefer to exert power as executive officers (20.3%) rather than as board members (12.6%). The majority of these relations are of first-degree, same-kin type. Note that as it is defined *F-Index* can exceed one, although values from P75 and P99 in table 9 show that it is rare.

TABLE 9: MAIN EFFECTS VARIABLES

	Mean	SD	P1	P25	P50	P75	P99
Main effects							
F-Index within firm	0.059	0.078	0.002	0.016	0.030	0.070	0.400
F-Index within execs	0.203	0.368	0.000	0.000	0.050	0.250	2.500
F-Index within directors	0.126	0.224	0.000	0.027	0.050	0.100	1.500
F-Index within 1st-deg execs	0.187	0.356	0.000	0.000	0.050	0.200	2.500
F-Index within 2nd-deg execs	0.017	0.086	0.000	0.000	0.000	0.000	0.500
F-Index within same-kin execs	0.175	0.356	0.000	0.000	0.033	0.167	2.500
F-Index within in-law execs	0.029	0.105	0.000	0.000	0.000	0.000	0.500
Observations	295						

Source: author. Firm-years, fiscal years 2009, 2010 and 2011. P# refers to the percentile, e.g., P50 = percentile 50 (median). The statistics on this table refer only to family-managed firms, hence the smaller number of observations. A firm is family-managed when there is at least one family relationship reported within executive officers and board members. *F-Index within firm* is the ratio of number of family relationships (weighted by number of managerial positions held) within top management to number of possible top management relationships. *F-Index within execs* is the same as *F-Index within firm*, but only for executive officers. *F-Index within directors* is the same as *F-Index within firm*, but only for board members. *F-Index within 1st-deg execs* is the same as *F-Index within execs*, but only for first-degree relations. *F-Index within 2nd-deg execs* is the same as *F-Index within execs*, but only for first-degree relations. *F-Index within same-kin execs* is the same as *F-Index within execs*, but only for same-kin relations. *F-Index within in-law execs* is the same as *F-Index within execs*, but only for in-law (by marriage) relations. Table 30 has additional details on variable definitions.

2.2.1.1 Controls

The sample comprises all listed Brazilian firms in years 2009, 2010 and 2011. I begin by controlling for financial characteristics of the firm. Most of the data is extracted from Economatica, a database similar to Compustat containing firms in Latin America. The summary statistics are in section “Firm controls” of table 10. The control for size is the logarithm of average total assets. The average firm is relatively large and has BRL1.8 billion in assets (approximately USD880 million as of May/2013). Sales growth is the yearly average of the two-year raw sales growth and measures expansion of firm activity. Industry-average Q is the first-level NAICS average Tobin’s Q, by year, weighted by total assets. If a given industry-year has less than five firms, I use the year-average,

thus avoiding one firm excessively skewing the average. ROA is the operating income to average total assets ratio, an accounting measure of performance. It is industry-adjusted by taking the firm's ROA and subtracting the average industry-level, weighted by total assets, ROA. As with Q, the yearly average substitutes the industry average when there are less than five firms in a given industry-year. Leverage is the total debt to average total assets ratio, and controls for the tax benefit of debt as well as for the risk of default. CapEx/Assets is the capital expenses to average total assets, and controls for the level of investment of the firm, which influences long-term growth and thus, firm value. I calculate the log of firm age from the founding year reported in the proxy statement, to control for firm and industry maturity, as it proxies for limits in opportunities of growth. Finally, the Ibovespa dummy indicates if the firm is part of the Bovespa index (an index similar to the S&P 500 in the US); about a fifth of the sample is in the index. The ratios ROA, leverage, and CapEx/Assets are winsorized at the 1% level. The average firm of the sample shows high sales growth, has moderate leverage levels, invests reasonably, and is "old" with almost four decades of existence. However, mean industry-adjusted profitability is negative, indicating that many firms underperform in relation to the industry's average. Non-family-managed firms are larger, operate in less valuable industries, are younger, and are more likely to be part of the Bovespa index. The other firm controls show no significant differences.

TABLE 10: DESCRIPTIVE STATISTICS

	All firms		Non-fam.	Family	Difference	
Variables	Mean	SD	Mean	Mean	Diff	t
Dependent variable:						
Tobin's Q	1.896	3.089	2.160	1.555	0.604**	2.782
Firm controls:						
ln(Avg total assets)	14.413	1.786	14.645	14.112	0.533***	3.956
Sales growth (2-yr avg)	0.232	0.801	0.213	0.256	-0.043	-0.638
Industry-avg Q	1.413	0.465	1.358	1.484	-0.126***	-3.499
Industry-adj ROA	-0.034	0.428	-0.045	-0.020	-0.026	-0.836
Leverage	0.319	0.364	0.299	0.346	-0.047	-1.647
CapEx/Assets	0.073	0.093	0.075	0.071	0.004	0.510
ln(Firm age)	3.225	1.037	3.122	3.358	-0.236**	-2.969
Part of Ibovespa	0.225	0.418	0.262	0.176	0.086**	2.703
Ownership structure controls						
Family proportion common shares	0.247	0.305	0.103	0.434	-0.331***	-15.859
Family proportion pref shares	0.026	0.102	0.004	0.053	-0.049***	-5.683
Dividends/Book value equity	0.087	0.273	0.103	0.066	0.037	1.662
Governance & diversity controls						
Women in top management	0.566	0.496	0.545	0.593	-0.049	-1.270
Age diversity (top management)	0.406	0.120	0.371	0.452	-0.081***	-9.070
Quantity directors	8.947	4.823	9.513	8.214	1.300***	3.540
Board average age	55.848	6.585	54.875	57.108	-2.233***	-4.399

continued

Variables	All firms Mean	SD	Non-fam. Mean	Family Mean	Difference Diff	t
ln(CEO age)	3.985	0.188	3.977	3.996	-0.019	-1.253
ADR listed	0.239	0.427	0.272	0.197	0.076*	2.326
Subject to Bovespa Arbitration	0.340	0.474	0.343	0.336	0.007	0.200
Shareholders agreement	0.371	0.483	0.393	0.342	0.050	1.348
No. firm-years	677		382	295		

Source: author. Variables calculated using data from the Brazilian proxy statements, Economatica and JP Morgan's ADR website (https://www.adr.com/). SD stands for standard deviation. Stars are the significante of the t-test for the equality of means. * p < 10%, ** p < 5%, *** p < 1%. The test assumes unequal variances. *Tobin's Q* is average total assets plus market value of equity, minus book value of equity, all divided by average total assets. *ln(Avg total assets)* is the natural logarithm of average total assets. *Sales growth* is the yearly average of the two-year raw sales growth. *Industry-avg Q* is the first-level NAICS average Tobin's Q, by year, weighted by total assets. *Industry-adj ROA* is the industry-adjusted operating income to average total assets ratio. It is industry-adjusted by taking the firm's ROA and subtracting the average industry-level, weighted by total assets, ROA. *Leverage* is the total debt to average total assets ratio. *CapEx/Assets* is The capital expenses to average total assets ratio. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *Part of Ibovespa* is a dummy indicating if the firm is part of the Bovespa index. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *Dividends/Book value equity* is the total dividends paid to book value of equity ratio. *Women in top management* is a dummy set to one if there is at least one woman in top management. *Age diversity (top management)* is the normalized to [0, 1] standard deviation of the ages of top management members. *Quantity directors* equals the number of board members. *Board average age* is the average age of board members. *ln(CEO age)* is the natural logarithm of the age of the CEO. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 30 has additional details on variable definitions.

The next set of variables controls for the family ownership structure of the firm and the levels of dividends. The proxy statement contains the number and proportion of shares held by each relevant shareholder, by class. It also indicates whether the shareholder participates of a shareholders' agreement, and whether is a natural or legal person. In Brazil it is fairly common for large shareholders to have intricate ownership schemes through a series of intermediate companies. Fortunately, the statements also detail the stakes in each of these intermediates, so that it is possible to compute the effective holdings by drilling down the ownership hierarchy. Furthermore, since the report is also separated by class (voting common and non-voting preferred), it provides enough information regarding the cash flow rights and control rights. Another issue I tackle is that there is no information of family relations for shareholders, only for the top management. My program separates first names from last names, and it looks for family relations based on last names. Usually Brazilians have more than one last name, bearing last names both from the mother and from the father, and the program has some intelligence to deal with this. The first way of detecting family membership is checking whether the last names are also present in the family relations in top management database. The

second source is a grouping of family members based on the Levenshtein's edit distance (REIF, 2010) of the last names, which I check manually after running the program[3]. With the definition of family members it is straightforward to obtain the proportion of family owned stock by class, i.e., the proportion of non-voting preferred shares and the proportion of voting common shares held. Finally, the dividends to equity ratio measures how much of the cash flows is being returned to the shareholders. More dividends decrease the probability of expropriation by managers. As table 10 section "Ownership structure controls" shows, family shareholders possess a sizable amount of control over the firm of 25% on average, but a low proportion of preferred shares. Note how these proportions vary between groups. As expected, family-managed firms have a larger control stake in the hands of the families (43.4% vs. 10.3%). Family-managed firms also exhibit a larger proportion of preferred shares held by family, while the difference in the payment of dividends is not significant.

My last set of controls relates to top management diversity and to the corporate governance environment. There is some evidence pointing that diversity in management contributes to firm performance (RICHARD, 2000; KILDUFF; ANGELMAR; MEHRA, 2000; RICHARD et al., 2004). The proxies for diversity I extract from the statements are gender and age. I manually code if top managers are males or females based on their name to extract a dummy that indicates the presence of women in top management. I also add a measure of age diversity, the normalized to $[0, 1]$ standard deviation of age of top management members. The quantity of directors proxy for ineffective boards, while average board age and CEO age proxy for experience. The ADR listed dummy is set to one if the firm was cross-listed in the US in that year, and I extract it from JP Morgan's ADR site (https://www.adr.com/). Subject to Bovespa arbitration is set to one if the firm is listed on Bovespa's voluntary differentiated governance levels 2 and New Market, thus subject to a specialized market arbitration panel before taking disputes to court. Lastly, shareholders' agreement is set to one if any shareholder of the firm participates in an agreement. These agreements extend the firm's bylaws, and may contain control-enhancing or governance-enhancing mechanisms. Table 10, section "Diversity & governance controls" shows that more than half of the sample has a woman either on the board or as an executive, and that the average firm has 40% of the age diversity of the most age diverse firm. Firms in the sample posses around 9 people in the board, with directors and CEO being about 56 years old. Almost one quarter of the firms are cross-listed, more than a third are subject to the market arbitration panel, and about 37% have a shareholders' agreement. Non-family-managed

[3] Please refer to section B.1 for more information on Levenshtein's algorithm.

firms exhibit less age diverse management, larger and younger boards, and a higher chance of being cross-listed.

2.3 ESTIMATION AND RESULTS

The goal is to determine which is the effect of family management on firm value. To accomplish this, I regress Tobin's Q on several determinants of firm value. One set of these determinants are measures of family pervasiveness in firm management, which are the variables of interest. The models are pooled OLS regressions, with year dummies and clustered standard errors by firm. I decided for this approach because there are only three years. There are no industry dummies because I include the industry-average Q as a control. The model is depicted as equation (2.1), in which ϕ_f are the parameters of interest on *F-Index*, the family pervasiveness in management measures. Controls for firm characteristics, ownership structure, and diversity and governance complement the model. The first regression has a firm-wide measure involving the whole top management team, $\textit{F-Index}_{top}$. Then, this index is disaggregated into $\textit{F-Index}_{exec}$ and $\textit{F-Index}_{board}$. The following regressions hold $\textit{F-Index}_{board}$ and disaggregate $\textit{F-Index}_{exec}$ into degree and kinship. Originally there was a disaggregation of $\textit{F-Index}_{board}$ as well, but no coefficient came up significant and for the sake of simplicity I drop these regressions.

The variables of interest are the ones in section "Main effects" of table 11. Model A is the base model, with the F-Index for the top management (executive officers and board of directors). The effect is not significant at usual levels. There are significant negative relations with size, industry-adjusted profitability, and board age. Being part of Ibovespa, the dividend to equity ratio and being subject to Bovespa arbitration yield positive significant relations. These results for the controls remain virtually unchanged throughout especifications, although the Bovespa arbitration coefficient loses significance on the last model. The remaining models disaggregate the F-Index, to measure the effects of each subgroup separately.

TABLE 11: EFFECTS OF FAMILY MANAGEMENT ON FIRM VALUE

Variables	Model A	Model B	Model C	Model D
Main effects:				
F-Index within firm	-1.803			
	(-1.034)			
F-Index within execs		-0.790**		
		(-2.493)		
F-Index within directors		0.246	0.310	0.309
		(0.396)	(0.500)	(0.500)
F-Index within 1st-deg execs			-0.741**	
			(-2.391)	
F-Index within 2nd-deg execs			-1.807***	
			(-2.797)	
F-Index within same-kin execs				-0.709**
				(-2.327)
F-Index within in-law execs				-1.988***
				(-3.864)
Firm controls:				
ln(Avg total assets)	-0.441***	-0.449***	-0.451***	-0.455***
	(-3.784)	(-3.856)	(-3.871)	(-3.885)
Sales growth (2-yr avg)	0.251	0.252	0.250	0.250
	(0.923)	(0.924)	(0.916)	(0.919)
Industry-avg Q	0.054	0.038	0.038	0.031
	(0.214)	(0.152)	(0.149)	(0.124)
Industry-adj ROA	-5.392***	-5.381***	-5.387***	-5.381***
	(-13.843)	(-13.976)	(-14.011)	(-14.120)
Leverage	0.453	0.474	0.463	0.478
	(0.885)	(0.930)	(0.907)	(0.935)
CapEx/Assets	0.223	0.159	0.178	0.186
	(0.251)	(0.178)	(0.199)	(0.208)
ln(Firm age)	0.046	0.048	0.044	0.043
	(0.492)	(0.524)	(0.478)	(0.471)
Part of Ibovespa	1.146***	1.135***	1.141***	1.148***
	(3.420)	(3.417)	(3.434)	(3.448)
Ownership structure controls				
Family proportion common shares	-0.271	-0.209	-0.208	-0.185
	(-0.807)	(-0.666)	(-0.665)	(-0.592)
Family proportion pref shares	-0.185	-0.142	-0.104	-0.159
	(-0.195)	(-0.186)	(-0.140)	(-0.214)
Dividends/Book value equity	1.679**	1.758**	1.747**	1.741**
	(2.005)	(2.265)	(2.244)	(2.231)
Governance & diversity controls				
Women in top management	0.037	0.043	0.034	0.049
	(0.269)	(0.311)	(0.247)	(0.358)
Age diversity (top management)	-0.236	-0.332	-0.357	-0.345
	(-0.388)	(-0.541)	(-0.579)	(-0.558)
Quantity directors	0.021	0.027	0.027	0.027
	(1.249)	(1.586)	(1.610)	(1.580)
Board average age	-0.023**	-0.025**	-0.025**	-0.025**
	(-2.018)	(-2.081)	(-2.115)	(-2.093)
ln(CEO age)	0.098	0.105	0.135	0.122
	(0.200)	(0.213)	(0.271)	(0.247)
ADR listed	-0.183	-0.199	-0.198	-0.196
	(-1.037)	(-1.129)	(-1.122)	(-1.112)
Subject to Bovespa Arbitration	0.331*	0.331*	0.328*	0.324*

continued

Variables	Model A	Model B	Model C	Model D
	(1.851)	(1.853)	(1.836)	(1.812)
Shareholders agreement	-0.013	-0.044	-0.045	-0.046
	(-0.077)	(-0.265)	(-0.274)	(-0.279)
Adjusted R^2	0.746	0.748	0.748	0.749
No. of clusters	289	289	289	289
Wald test			0.056	0.009
Observations	677	677	677	677

Source: author. Estimates for $Q_{i,t} = \beta_0 + \sum_f \phi_f \text{F-Index}^f_{i,t} + \sum_g \gamma_g \text{Control}^g_{i,t} + \epsilon_{i,t}$. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled OLS with year dummies and clustered standard errors. The Wald test is the p-value of the test that the coefficient of the second-degree (in-law) F-Index is more negative than the coefficient of the first-degree (same-kin) F-Index. The number of clusters is the number of distinct firms. *Tobin's Q* is average total assets plus market value of equity, minus book value of equity, all divided by average total assets. *F-Index within firm* is the ratio of number of family relationships (weighted by number of managerial positions held) within top management to number of possible top management relationships. *F-Index within execs* is the same as *F-Index within firm*, but only for executive officers. *F-Index within directors* is the same as *F-Index within firm*, but only for board members. *F-Index within 1st-deg execs* is the same as *F-Index within execs*, but only for first-degree relations. *F-Index within 2nd-deg execs* is the same as *F-Index within execs*, but only for first-degree relations. *F-Index within same-kin execs* is the same as *F-Index within execs*, but only for same-kin relations. *F-Index within in-law execs* is the same as *F-Index within execs*, but only for in-law (by marriage) relations. *ln(Avg total assets)* is the natural logarithm of average total assets. *Sales growth* is the yearly average of the two-year raw sales growth. *Industry-avg Q* is the first-level NAICS average Tobin's Q, by year, weighted by total assets. *Industry-adj ROA* is the industry-adjusted operating income to average total assets ratio. It is industry-adjusted by taking the firm's ROA and subtracting the average industry-level, weighted by total assets, ROA. *Leverage* is the total debt to average total assets ratio. *CapEx/Assets* is The capital expenses to average total assets ratio. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *Part of Ibovespa* is a dummy indicating if the firm is part of the Bovespa index. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *Dividends/Book value equity* is the total dividends paid to book value of equity ratio. *Women in top management* is a dummy set to one if there is at least one woman in top management. *Age diversity (top management)* is the normalized to $[0, 1]$ standard deviation of the ages of top management members. *Quantity directors* equals the number of board members. *Board average age* is the average age of board members. *ln(CEO age)* is the natural logarithm of the age of the CEO. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 30 has additional details on variable definitions.

Model B shows a negative influence of family management in family value. It is also economically meaningful: an increase of 10 percentage points on the executive officers' F-Index (family members increase their participation as executive officers in 10 p.p) leads to a decrease of 0.08 of the firm's Q. The average Q is approximately 1.9, meaning that it leads to a 4% drop in Q. However, there is no evidence that family members as directors have any impact on firm value. This

means that when family members are officers, their contribution is more negative than positive. It may be an indication of lack of skills (CUCCULELLI; MICUCCI, 2008; PÉREZ-GONZÁLEZ, 2006) or minority expropriation.

The first break-down of the executive officers subgroup is by degree (Model C). The influence of first-degree relatives is similar to the overall influence of family members. However, the influence of second-degree relatives is stronger. This means that firms with more distant relationships may suffer more severely with nepotism, decreasing firm value. In this case, a 10 p.p. increase of second-degree relatives leads to a 0.18 drop in Q. That is a 9.5% decrease in average value. The Wald test at the bottom of table 11 shows that the coefficient on the second-degree F-Index is significantly more negative then the coefficient on the first-degree F-Index at the 10% level.

The second-break down, by kin, also supports the view that the more distant the family relationships in management, the greater the negative impact on firm value (Model D). Same-kin relatives have a very similar effect when compared to first-degree or even the overall effect of family members as executive officers. In-law relationships have a more negative impact than same-kin ones, significant at the 1% level as the Wald test at the bottom of table 11 shows. Now, a 10 p.p. increase of in-law relatives leads to a 0.2 drop in Q, a 10.5% loss in average value.

2.3.1 Robustness tests

I run a robustness test by changing the definition of the dependent variable. Instead of using the firm's Q, I switch to the firm's industry-ajusted Q, and drop the independent variable Industry-avg Q. The industry-adjusted Q is the firm's Q minus the industry average Q, for a given year. If there are less than five firms in a given industry-year, then I subtract the year average Q from the firm's Q. Table 12 shows the results. It leads to the same conclusions, with similar loadings and slightly different significance levels. Family-members as executive officers drive down the value of the firm, and the more distant the relationships, the more negative the effect.

TABLE 12: EFFECTS OF FAMILY MANAGEMENT ON FIRM VALUE – ROBUSTNESS TEST USING INDUSTRY-ADJUSTED Q

Variables	Model A	Model B	Model C	Model D
Main effects:				
F-Index within firm	-1.481			
	(-0.932)			
F-Index within execs		-0.694**		
		(-2.167)		
F-Index within directors		0.326	0.387	0.379
		(0.592)	(0.702)	(0.688)
F-Index within 1st-deg execs			-0.648**	
			(-2.044)	
F-Index within 2nd-deg execs			-1.669**	
			(-2.235)	
F-Index within same-kin execs				-0.626**
				(-1.978)
F-Index within in-law execs				-1.696***
				(-3.031)
Firm controls:				
ln(Avg total assets)	-0.376***	-0.382***	-0.384***	-0.387***
	(-3.391)	(-3.449)	(-3.463)	(-3.469)
Sales growth (2-yr avg)	0.277	0.278	0.276	0.277
	(0.956)	(0.957)	(0.950)	(0.953)
Industry-adj ROA	-5.340***	-5.330***	-5.335***	-5.330***
	(-12.825)	(-12.924)	(-12.957)	(-13.031)
Leverage	0.586	0.607	0.597	0.611
	(1.136)	(1.183)	(1.161)	(1.189)
CapEx/Assets	-0.311	-0.380	-0.362	-0.361
	(-0.342)	(-0.416)	(-0.395)	(-0.395)
ln(Firm age)	-0.050	-0.049	-0.053	-0.054
	(-0.515)	(-0.506)	(-0.546)	(-0.554)
Part of Ibovespa	1.055***	1.044***	1.050***	1.054***
	(3.164)	(3.155)	(3.170)	(3.178)
Ownership structure controls				
Family proportion common shares	-0.539	-0.493	-0.493	-0.475
	(-1.642)	(-1.575)	(-1.577)	(-1.525)
Family proportion pref shares	-0.209	-0.211	-0.174	-0.225
	(-0.242)	(-0.302)	(-0.252)	(-0.325)
Dividends/Book value equity	1.649*	1.719**	1.709**	1.705**
	(1.934)	(2.155)	(2.135)	(2.127)
Governance & diversity controls				
Women in top management	0.018	0.022	0.014	0.027
	(0.119)	(0.148)	(0.092)	(0.183)
Age diversity (top management)	-0.435	-0.527	-0.552	-0.540
	(-0.689)	(-0.816)	(-0.849)	(-0.829)
Quantity directors	0.021	0.027	0.027	0.027
	(1.272)	(1.589)	(1.610)	(1.583)
Board average age	-0.023**	-0.024**	-0.025**	-0.025**
	(-1.997)	(-2.066)	(-2.099)	(-2.076)
ln(CEO age)	0.525	0.535	0.563	0.552
	(1.100)	(1.104)	(1.154)	(1.137)
ADR listed	-0.215	-0.230	-0.229	-0.228
	(-1.195)	(-1.282)	(-1.276)	(-1.269)
Subject to Bovespa Arbitration	0.108	0.104	0.101	0.097
	(0.516)	(0.502)	(0.487)	(0.467)

continued

Variables	Model A	Model B	Model C	Model D
Shareholders agreement	-0.009	-0.036	-0.038	-0.038
	(-0.049)	(-0.206)	(-0.214)	(-0.216)
Adjusted R^2	0.729	0.731	0.731	0.731
No. of clusters	289	289	289	289
Wald test			0.091	0.032
Observations	677	677	677	677

Source: author. Estimates for I-A$Q_{i,t} = \beta_0 + \sum_f \phi_f$F-Index$^f_{i,t} + \sum_g \gamma_g$Control$^g_{i,t} + \epsilon_{i,t}$ (the dependent variable is the industry-adjusted Q). * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled OLS with year dummies and clustered standard errors. The Wald test is the p-value of the test that the coefficient of the second-degree (in-law) F-Index is more negative than the coefficient of the first-degree (same-kin) F-Index. The number of clusters is the number of distinct firms. The *Industry-adjusted Q* is the firm-year Q minus the industry-year Q, and Q is average total assets plus market value of equity, minus book value of equity, all divided by average total assets. *F-Index within firm* is the ratio of number of family relationships (weighted by number of managerial positions held) within top management to number of possible top management relationships. *F-Index within execs* is the same as *F-Index within firm*, but only for executive officers. *F-Index within directors* is the same as *F-Index within firm*, but only for board members. *F-Index within 1st-deg execs* is the same as *F-Index within execs*, but only for first-degree relations. *F-Index within 2nd-deg execs* is the same as *F-Index within execs*, but only for first-degree relations. *F-Index within same-kin execs* is the same as *F-Index within execs*, but only for same-kin relations. *F-Index within in-law execs* is the same as *F-Index within execs*, but only for in-law (by marriage) relations. *ln(Avg total assets)* is the natural logarithm of average total assets. *Sales growth* is the yearly average of the two-year raw sales growth. *Industry-adj ROA* is the industry-adjusted operating income to average total assets ratio. It is industry-adjusted by taking the firm's ROA and subtracting the average industry-level, weighted by total assets, ROA. *Leverage* is the total debt to average total assets ratio. *CapEx/Assets* is The capital expenses to average total assets ratio. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *Part of Ibovespa* is a dummy indicating if the firm is part of the Bovespa index. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *Dividends/Book value equity* is the total dividends paid to book value of equity ratio. *Women in top management* is a dummy set to one if there is at least one woman in top management. *Age diversity (top management)* is the normalized to $[0, 1]$ standard deviation of the ages of top management members. *Quantity directors* equals the number of board members. *Board average age* is the average age of board members. *ln(CEO age)* is the natural logarithm of the age of the CEO. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 30 has additional details on variable definitions.

Conclusions remains unaltered if the Finance and Insurance industry is dropped (results not shown). Andres (2008) and Anderson & Reeb (2003), for instance, argue that there are problems in calculating Q for this industry. The sample drops to 667 firm-years (285 distinct firms), but significance levels and coefficients remain very similar.

2.4 CONCLUSION

Family firms play a major role in the economy. Despite their importance, the study of family firms is relatively recent. More, results are still mixed: it is not clear whether families enhance or hinder firm performance (SCHULZE; GEDAJLOVIC, 2010; MAZZI, 2011). This is partly due to the lack of data. I assemble a unique and detailed database comprising Brazilian listed firms. I gather the data from the newly released Brazilian proxy statements, which became mandatory from 2010 on, following a major disclosure reform that culminated with CVM Ordinance 480 (CVM, 2009). The proxy statements detail family relationships within firm management, with an unprecedented level of detail. Firms inform the type of the relation (e.g., parent-child, husband-wife), from which I extract the degree of separation (first or second degree) and the kinship (same-kin and in-law) for all fiscal years available (2009-2011). Firms also report all relevant shareholders, in such a way that it is possible to calculate family ownership and control fairly precisely. These elements provide a comprehensive characterization of the "family firm" (VILLALONGA; AMIT, 2006), and are the bases of this study.

Using this data set, I assess the impact of family management on firm value controlling for other family characteristics, namely family control and family ownership. Family control nor family ownership seem to affect firm value, as measured by Tobin's Q. However, I find a negative and economically meaningful effect of family management on firm value. Although family members do not seem to affect firm performance when they act as directors in the board, there is a statistically significant effect of family members as executive officers. Results indicate that family officers drive down the value of the firm. The effect is even more negative when the relationship is more distant: second-degree and in-law relationships show a more negative impact than first-degree and same-kin relationships, respectively. This signals that these family members are not qualified enough to act as officers, have executive positions to expropriate non-family shareholders, or both. The economic scale of the effect is meaningful: a 10 p.p. increase of the family pervasiveness as officers lead to a decrease of 4% in firm value. When this increase in family pervasiveness is due to more distant relationships (second-degree or in-law), the decrease in firm value jumps to approximately 10%.

My results contribute to a relatively unexplored feature of family firms: family management. Previous studies focus on CEO transitions on family firms, and find a significant negative impact on firm performance when the successor is from the family (CUCCULELLI; MICUCCI, 2008; BENNEDSEN et al., 2007; PÉREZ-GONZÁLEZ, 2006). Villalonga & Amit (2006) focus on family CEOs and Chairmen

and report that when these positions are taken by descendents of the founder, firm value is destroyed. I propose a new measure of family pervasiveness on management. This measure accounts for all managerial positions held by family members within top management, not only top positions, and for the type of the existing relationships (degree and kinship). This measure shows that family management can exert an important influence on firm value, not only when a family member holds the CEO or the Chairman position. The measure explicits the importance of taking the type of family relationships into account: more distant relationships exacerbate the negative effect of family management.

A possible interpretation of these results may be a corroboration of Cucculelli & Micucci (2008) and Pérez-González (2006): family members are appointed as officers, but they are not as skilled as external officers, which are not taken into consideration when filling the executive positions. This limited pool of candidates drives down the quality of management, thus destroying firm value. A competing explanation is that the placing of family members as officers is a strategy of maximizing family welfare in spite of non-family shareholders. In this sense, family officers work to expropriate value from non-family shareholders. Future research may delve into this question and clarify which one is valid, or whether it is a combination of both.

3 PAYOUT DECISIONS AND FAMILIES: A STUDY OF BRAZILIAN LISTED FIRMS

3.1 INTRODUCTION

My study explores the effects of family management, ownership, and control on the corporate payout policy of Brazilian listed firms. I do this by calculating the proportion of common and preferred shares held by family members, as well as family pervasiveness on top management (family members as executive officers or board members). Results indicate that family members as executive officers tend to increase the level of interest on equity[1], a way of paying dividends in Brazil, while decreasing the levels of dividends[2] and stock repurchases[3]. Family members in the board of directors have the opposite effect, decreasing the level of interest on equity and increasing both dividends and repurchases. The greater the family control, the higher the level of interest on equity, dividends and repurchases. Greater ownership of preferred shares by family seems to have the same effect of family as executive officers. The interesting trade-off pattern between the three modes of payment indicates that family members in different management positions or ownership situations have different incentives, exacerbating agency problems in some cases. I contribute to the dividend literature by including family as a determinant of dividend policy, a relatively unexplored attribute. A better understanding of how families can affect the distribution of dividends has implications for investors and policy makers, leading to improved governance mechanisms aiming at protecting non-family shareholders. This is especially important in a low investor protection country like Brazil.

As discussed in section 2.1, family firms are widespread throughout the world. Despite this importance, the field remains relatively unexplored (SCHULZE; GEDAJLOVIC, 2010; MAZZI, 2011). Furthermore, ownership structures in emerging markets differ fundamentally from the ones observed in developed markets. Some studies point that these differences are related to distortions such as stock price discounts and misguided firm policies like overinvestment, and only now research is beginning to uncover the reasons for these phenomena (FAN; WEI; XU, 2011). I contribute to the discussion by

[1] Recipients of interest on equity are taxed at 15%, while the firm can record the payment as an interest-like expense, hence its name (BRASIL, 1995).

[2] Dividends in Brazil are taxed at the corporate level and tax-free for the recipients (Receita Federal do Brasil, 1996, Art 51).

[3] Repurchases in Brazil are taxed at 15% of the net capital gain (Receita Federal do Brasil, 2010, Art 46).

studying family as a determinant of payout policy. I take advantage of the unique data set gathered from the Brazilian proxy statements, and of a unique Brazilian feature of payouts called interest on equity, to shed light on the issue.

The payout of investor remuneration is deeply related to governance structures. The seminal work by LaPorta et al. (2000) highlights issues involving country-level investor protection and the payment of dividends. As Tirole (2005) and Nenova (2003) point out, there are two broad legal systems: common law, prevailing among Anglophone countries and providing superior investor protection, and civil law, which provides lower investor protection. However, even within civil law countries there is a diversity of systems, namely the French, Scandinavian and German traditions. Among these, the lowest investor protection is provided by the French tradition (TIROLE, 2005, p. 54), which Brazil abides by (NENOVA, 2003). As discussed earlier in section 2.1, Brazil ranks badly in the 2013 Doing Business index regarding investor protection, at 82nd from 185 countries surveyed. This is a stark contrast even with other Latin American counterparts, like Colombia (6th), Chile (32nd), and Mexico (49th). This lack of institutionalized country-level protection structures highlights the potential importance of firm-level governance structures.

However, this study is about a governance-related mechanism, the influence of family within the firm. Families are especially pervasive and powerful in the Brazilian context (KHANNA; YAFEH, 2007; SILVA, 2004), and they may be able to steer governance-related decisions like investor remuneration. Such power is not intrinsically “bad” or “good”, as families may enhance governance to protect their own stake on the firm, or they may take advantage of non-family shareholders and implement family-value maximizing strategies at the expense of firm-value maximizing strategies (MILLER; BRETON-MILLER, 2006; FACCIO; LANG; YOUNG, 2001; SCHULZE et al., 2001).

In the end of the day it is an empirical question how families influence investor remuneration. Results regarding the effects of families in payout policy are conflicting. A set of studies show a positive relation between family and payout ratios. Masulis, Pham & Zein (2011) study the effects of family business groups in 28635 firms in 45 countries. They find that group firms exhibit higher dividend yields, consistent with a reputation building argument. Setia-Atmaja, Tanewski & Skully (2009), using data from Australian firms, find that family firms pay more dividends, have higher debt ratios, and have less independent boards than non-family firms and conclude that this is evidence that higher dividends and higher debt serve as substitutes for board independence. Yoshikawa &

Rasheed (2010) find similar results for a set of OTC Japanese firms, with family control positively related to dividend payouts. In another study by Setia-Atmaja (2010), results point that Australian family-controlled firms have higher payout ratios, but that this effect is mediated by independent board members.

Other studies find a negative relation, no relation, or a non-linear relation. For instance, Gugler (2003) studies Austrian firms, and finds that although family firms do not seem to engage in dividend smoothing, they do pay less dividends than their state-controlled counterparts. Using data from Chinese firms, Wei et al. (2011) also find that family firms have a lower dividend payout ratio, besides having a lower likelihood of paying dividends that their non-family counterparts. Chen et al. (2005) find little evidence that families have any effect on dividends using a set of listed Hong Kong firms. Faccio, Lang & Young (2001) find that firms that are tightly affiliated to a business group (at least 20% of the control rights at each link of the pyramid), usually a family, pay more dividends to offset investor concerns about expropriation. However, when the affiliation is loose (more than 10%, but not all above 20%), the dividend is lower, suggesting that investors do not anticipate expropriation in these weaker links cases. Huang, Chen & Kao (2012) find a non-monotonic relationship using data from Taiwan. Low levels of controlling families' cash flow rights lead firms to disgorge more cash as dividends. However, at moderate levels the relation reverses, signaling an entrenchment effect. The relation reverses once more at high levels, and this fact is attributed to excessive firm-specific risk borne by the controlling families.

The Brazilian literature on the theme is basically non-existent. As a literature survey from Martins & Famá (2012) shows, firm-level features like ownership and control have been explored, but no research directly studies the relation of family and payout policy from 1990 to 2010. Additional search of more recent research yielded no results. However, there are features in Brazil that make it a unique setting for studying dividends. Besides contributing to the field in the Brazilian context, this study may help understanding the conflicting results in the literature. The first particularity is the mandatory dividend rule, which is relatively uncommon[4]. Brazilian corporate law mandates that public firms include in their bylaws a minimum percentage of profits to be distributed as mandatory dividends (BRASIL, 1976; BRASIL, 1997; BRASIL, 2001b). Typically the minimum is set at 25%, mainly for historical reasons. If the bylaws omit it, a minimum of 50% is automatically set. However, when

[4] LaPorta et al. (2000, p. 9) identify Brazil, Chile, Colombia, Venezuela and Greece as mandatory dividend countries. As LaPorta et al. (2000) argue, this is a sign of the importance of agency issues, as it is a mechanism that avoids extreme expropriation of outside investors.

the 1976 Brazilian corporate law became effective, if a firm wanted to set a minimum below 25%, it would have to repurchase the shares of "unhappy" shareholders (BRASIL, 1976). Although it is a "mandatory" dividend, the firm may withhold it under some circumstances and pay it later. Martins & Novaes (2012) test whether this feature of mandatory dividends make it harder for Brazilian firms to invest. The data indicates that mandatory dividends increase payout ratios, while there is no evidence that these rules hinder investment by firms. In sum, Martins & Novaes (2012) find that the rules efficiently protect cash flow rights while allowing firms to invest. However, it remains to be tested whether despite of this rule families still have leeway to expropriate outsiders.

Another particularity is that dividends can be paid in two forms: in the form of dividends or as interest on equity. Brazil implements a full imputation tax system, in which the taxation of dividends happens only at the corporate level and the shareholders pay no additional tax on dividends (Receita Federal do Brasil, 1996, Art 51). In the case of interest on equity, there is an interest-like tax advantage for the firm under certain circumstances, while the shareholders pay a 15% income tax on the interest received (BRASIL, 1995). To be eligible to the tax advantage it cannot exceed 50% of the earnings (or retained earnings), and the rate of return on equity cannot exceed the TJLP (long-term interest rate, a rate defined by the government based on the inflation target plus a premium (BRASIL, 2001a). If the firm is eligible for the tax benefit of interest on equity, overall taxation is lower for interest on equity than for dividends[5]. Share repurchases are taxed at 15% of the net capital gains (Receita Federal do Brasil, 2010, Art 46). Boulton, Braga-Alves & Shastri (2012) explore this setting arguing that interest on equity and dividends are closer substitutes than capital gains and dividends, the usual payout forms studied (see, for instance, Skinner (2008)). DeAngelo, DeAngelo & Skinner (2009, Chapter 7) suggest that dividends and repurchases may be complements, with dividends being the persistent component and repurchases the transitory component of corporate payouts. In the Brazilian case, interest on equity can be classified as a persistent component and thus a substitute for dividends. Results from Boulton, Braga-Alves & Shastri (2012) point that taxes are an important determinant of payout policy decisions. DeAngelo, DeAngelo & Skinner (2009, Chapter 11) highlights that controlling shareholders' preferences can influence the payout policies of the firm, even in the absence of agency problems. These preferences, combined with the complexity of family dynamics, may constitute important first-order determinants of payout policy (DEANGELO; DEANGELO; SKINNER, 2009, Chapter 11). I explore the substitution and complement effects of these three ways of paying

[5] Section C.2 of the appendix details the calculation of the tax benefit.

shareholders – dividends, interest on equity, and share repurchases – by keeping them separate to measure the effect of family on each of these payout modes,

Additionally, I also take advantage of the detailed information present in the Brazilian proxy statements to provide a new perspective on the relationship of family management and payout policy. These proxy statements became effective in 2010, after an extensive disclosure reform that culminated with CVM Ordinance[6] 480 (CVM, 2009). Among several disclosure provisions, it requires that firms inform all family relationships within top management (executive officers and board members), providing the base to calculate a measure of family pervasiveness in management. It also mandates the listing of all relevant shareholders, allowing for the calculation of family ownership and control fairly precisely. This dataset allows the study of all Brazilian listed firms, with an unprecedented level of detail and scope. Firms are obliged to list all relationships indicating their type (e.g., parent-child, siblings, husband-wife), and for all top management, not only CEOs and Chairmen, enriching the understanding of family management as a whole, not only as a founder/descendant CEO issue. Finally, the Brazilian proxies clearly state the dividends, interest on equity, and repurchases of the firms. I expect the exploration of this richness of detail, combined with the Brazilian corporate payout setting, to contribute to the literature by providing a deeper understanding on the influence of family on payout policy.

3.2 SAMPLE SELECTION

The main data source is the Brazilian proxy statement. The departing point is the same from chapter 2, but with slightly different data requirements. This means this study uses all available proxies, relative to fiscal years 2009, 2010 and 2011. On table 13 there is a breakdown of the sample by industry and type of firm. A family firm is defined as a firm which has family relationships within executive officers and board members, or which any fraction is owned (be it as common or preferred shares) by a family. The final sample consists of 697 non-financial firm-years. Manufacturing and utilities dominate the sample. According to the classification, the majority (57%) of the sample is composed of family firms.

As discussed previously in section 2.2, the design of the study takes into consideration the

[6] CVM is the Brazilian counterpart of the American SEC, and oversees listed firms and capital markets. A CVM Ordinance is similar to an SEC Rule

TABLE 13: SAMPLE BY INDUSTRY AND TYPE (FAMILY VS. NON-FAMILY)

1st level NAICS	Family firm: No		Yes		Total	
	No.	%	No.	%	No.	%
Accommodation and Food Services	2	0.7	0	0.0	2	0.3
Adm. & Supp. and Waste Mngt & Remed. Serv.	3	1.0	7	1.8	10	1.4
Agriculture, Forestry, Fishing and Hunting	2	0.7	6	1.5	8	1.1
Arts, Entertainment, and Recreation	3	1.0	1	0.3	4	0.6
Construction	10	3.3	23	5.8	33	4.7
Educational Services	2	0.7	8	2.0	10	1.4
Health Care and Social Assistance	4	1.3	10	2.5	14	2.0
Information	15	5.0	26	6.6	41	5.9
Management of Companies and Enterprises	11	3.6	20	5.1	31	4.4
Manufacturing	77	25.5	190	48.1	267	38.3
Mining, Quarrying, and Oil and Gas Extraction	7	2.3	5	1.3	12	1.7
Other Services (except Public Administration)	1	0.3	0	0.0	1	0.1
Professional, Scientific, and Technical Services	0	0.0	5	1.3	5	0.7
Real Estate and Rental and Leasing	14	4.6	20	5.1	34	4.9
Retail Trade	8	2.6	30	7.6	38	5.5
Transportation and Warehousing	11	3.6	30	7.6	41	5.9
Utilities	129	42.7	11	2.8	140	20.1
Wholesale Trade	3	1.0	3	0.8	6	0.9
Total	302	100.0	395	100.0	697	100.0

Source: author. Firm-years, fiscal years 2009, 2010 and 2011. A firm is family when there is at least one family relationship reported within executive officers and board members, or family members own any fraction of common or preferred shares.

three dimensions of family firms: ownership, control, and management (VILLALONGA; AMIT, 2006). Just as before, ownership and control are accounted for by calculating the proportions of common and preferred shares owned by family. The F-Index is also defined as in section 2.2.1, and measures family management.

The dependent variables I use are in table 14. I use four denominators to calculate the payout ratios and turn different sized firms comparable, following Faccio, Lang & Young (2001): cash flow from operations, operational income, sales revenues, and market capitalization. Cash flows are accruals-free, and thus, not affected by accounting earnings management. Operating income and sales revenues proxy for the profitability and size of the operation, while market capitalization is a market estimate of the value of the firm's equity. This approach mitigates concerns about the appropriateness of a given denominator. I also keep separate the three measures of payment to investors: interest on equity (tax-advantaged for the firms and taxed for the investors), dividends (taxed at the corporate level but tax-free for the investors), and repurchases (taxed as capital gains). The separation is useful because they may work as substitutes or as complements, and aggregating them could lead to a net zero effect (SKINNER, 2008; DEANGELO; DEANGELO; SKINNER, 2009; BOUL-

TABLE 14: DESCRIPTIVE STATISTICS OF DEPENDENT VARIABLES

	All firms		Non-fam.	Family	Difference	
Variables	Mean	SD	Mean	Mean	Diff	t
IoE/CFO	50.390	119.785	40.384	58.040	-17.656*	-2.033
IoE/OpInc	63.789	137.526	62.104	65.076	-2.972	-0.286
IoE/Sales	8.690	20.544	8.990	8.460	0.529	0.338
IoE/MktCap	4.654	10.817	4.851	4.504	0.347	0.416
Div/CFO	105.424	244.428	80.471	124.501	-44.030*	-2.472
Div/OpInc	121.720	239.127	118.367	124.284	-5.917	-0.316
Div/Sales	23.392	81.760	22.478	24.091	-1.612	-0.273
Div/MktCap	8.921	21.064	8.265	9.423	-1.158	-0.708
Repurch/CFO	2.574	12.497	1.592	3.324	-1.732	-1.891
Repurch/OpInc	4.091	20.674	2.529	5.285	-2.756	-1.824
Repurch/Sales	0.839	5.325	0.657	0.978	-0.321	-0.798
Repurch/MktCap	0.337	1.784	0.193	0.446	-0.253*	-1.973
No. firm-years	697		302	395		

Source: author. Variables calculated using data from the Brazilian proxy statements and Economatica. *IoE* stands for interest on equity, *Div* stands for dividends, and *Rep* stands for repurchases. *CFO* is cash flow from operations, *OpInc* is operating income, *Sales* is sales revenues, and *MktCap* is market capitalization. Table 31 contains the definitions of all variables. SD stands for standard deviation. Stars are the significance of the t-test for the equality of means. * p < 10%, ** p < 5%, *** p < 1%. The test assumes unequal variances. Firm-years, fiscal years 2009, 2010 and 2011. A firm is family when there is at least one family relationship reported within executive officers and board members, or family members own any fraction of common or preferred shares. Table 31 has more details on the definitions of all variables.

TON; BRAGA-ALVES; SHASTRI, 2012; KULCHANIA, 2013; JIANG et al., 2013). In total, there are $k = 12$ dependent variables (three measures times four deflators). Interestingly, as table 14 shows, there is no systematic significant payment differences between firm types. These dependent variables are plugged into the right-hand side of equation (3.1).

If the shareholders get paid at all, the payout is a positive number, and zero otherwise. Thus, the dependent variable is always equal or greater than zero, exhibiting a qualitative difference between the zero (limit) observations and the positive (non-limit) ones. This characterizes a censored (or corner solution outcome) data set, and the econometric procedure must account for that. In this way, in section 3.3 I run equation (3.1) as Tobit models, which yield maximum likelihood estimators (GREENE, 2002, Chapter 22). Nevertheless, there are cases in which the the divisor is a negative number. Both cash flow from operations and operating income may be negative, while sales revenues and market capitalization are non-negative numbers. The approach is to drop such observations. However, to alleviate concerns about fluctuations, I smooth all denominators by using their three-year average. In this way, a transient negative result can be averaged into a positive number, and only persistent negative results firms are left out of the sample. I also substitute the maximum

TABLE 15: MAIN EFFECTS VARIABLES

	Mean	SD	P1	P25	P50	P75	P99
F-Index within execs	0.167	0.366	0.000	0.000	0.000	0.167	2.000
F-Index within directors	0.094	0.201	0.000	0.000	0.033	0.083	1.000
Family proportion common shares	0.431	0.305	0.000	0.167	0.442	0.639	1.000
Family proportion pref shares	0.058	0.162	0.000	0.000	0.000	0.003	0.897
Observations	395						

Source: author. Firm-years, fiscal years 2009, 2010 and 2011. P# refers to the percentile, e.g., P50 = percentile 50 (median). The statistics on this table refer only to family firms, hence the smaller number of observations. A firm is family when there is at least one family relationship reported within executive officers and board members, or family members own any fraction of common or preferred shares. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. Table 31 has more details on the definitions of all variables.

industry-year ratio for the missing observation when the divisor equals zero, thus maximizing sample size.

$$\begin{aligned} \textit{PayRatio}^{k}_{i,t} = & \beta_0 + \phi_{exec}\text{F-Index}^{exec}_{i,t} + \phi_{board}\text{F-Index}^{board}_{i,t} \\ & + \phi_{common}\text{Proportion family shares}^{common}_{i,t} + \phi_{pref}\text{Proportion family shares}^{pref}_{i,t} \\ & + \sum_{g} \gamma_g \text{Control}^{g}_{i,t} + \epsilon_{i,t} \end{aligned} \tag{3.1}$$

Table 15 contains the *F-Index* and the *Proportion family shares* from equation (3.1), the main effects variables. The values refer to the subset of family firms, since for non-family firms all descriptive statistics values are zero. I use two indices of family pervasiveness (F-Index), one for executive officers and another for directors, besides the proportion of common shares (a measure of control) and the proportion of total shares (a measure of additional ownership without the corresponding additional control) held by family. These variables proxy for the three aspects of family firms advocated by Villalonga & Amit (2006), namely family management, ownership and control.

3.2.1 Control variables

Table 16 shows the control variables. The first set are controls for characteristics of the firm: firm size as measured by the log of total assets, firm age (older firms may be more stable and able to pay more dividends), leverage (more leveraged firms may have more incentives to hold cash as pro-

TABLE 16: DESCRIPTIVE STATISTICS OF CONTROL VARIABLES

Variables	All firms Mean	SD	Non-fam. Mean	Family Mean	Difference Diff	t
Firm controls:						
ln(Avg total assets)	14.529	1.732	14.835	14.295	0.540***	4.183
ln(Firm age)	3.269	0.991	3.083	3.410	-0.327***	-4.340
Sales growth (2-yr avg)	0.213	0.512	0.176	0.241	-0.065	-1.785
Capital-rationed?	0.429	0.495	0.434	0.425	0.008	0.223
Leverage	0.300	0.290	0.282	0.314	-0.033	-1.600
Net interest expenses/Assets	0.019	0.094	0.014	0.023	-0.008	-1.268
Governance controls						
Quantity directors	8.973	4.962	9.639	8.463	1.176**	3.071
ADR listed	0.230	0.421	0.265	0.203	0.062	1.918
Subject to Bovespa Arbitration	0.280	0.449	0.248	0.304	-0.055	-1.630
Shareholders agreement	0.402	0.491	0.384	0.415	-0.031	-0.830
No. firm-years	697		302	395		

Source: author. Variables calculated using data from the Brazilian proxy statements, Economatica and JP Morgan's ADR website (https://www.adr.com/). Table 31 contains the definitions of all variables. SD stands for standard deviation. Stars are the significance of the t-test for the equality of means. * p < 10%, ** p < 5%, *** p < 1%. The test assumes unequal variances. Firm-years, fiscal years 2009, 2010 and 2011. A firm is family when there is at least one family relationship reported within executive officers and board members, or family members own any fraction of common or preferred shares. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.

tection from the more risky operation), yearly sales growth for the last two years (fast-growing firms may have more investment opportunities and therefore, lower payouts), capital rationed dummy (capital-rationed firms may need more internal cash to finance investments), and net interest expenses (more interest expenses signal less cash available to disgorge). The capital rationed dummy is an adaptation of Faccio, Lang & Young (2001) and is set to one if its one-year net increase of capital divided by sales is above industry-year median. The net increase of capital is the reported net increase of capital, minus the variation in earnings reserves, retained earnings, and capital reserves[7]. Non-family firms are significantly larger and younger. No other significant difference arises from the univariate tests.

[7] These reserves and retained earnings may be used to pay dividends or repurchase stock.

The last set of controls proxy for the governance level of the firms. These controls are important because governance can influence the payouts, either through a substitution effect (thus reducing payout) or an enforcement effect (which increases payouts) (LAPORTA et al., 2000; ALZAHRANI; LASFER, 2012). The quantity of directors proxies for board effectiveness. ADR listed is a dummy that indicates if the firm is listed in the US and thus subject to stricter rules and superior supervising by the SEC. Subject to Bovespa arbitration is set to one if the firm voluntarily adhered to the Differentiated Governance Level 2 or the New Market of Bovespa, and thus subject to a specialized market arbitration panel to resolve litigation. Lastly, there is a dummy indicating if the firm has any kind of shareholders agreement[8]. As expected, non-family firms have significantly larger boards due to its mechanical relation with firm size. No significant difference shows in the other variables.

At first, there are only a few differences between groups in the univariate tests, which in principle go against finding any significant results. However, the relations may be intricate, and the univariate tests may fail to capture them. Next we turn to multivariate Tobit estimates to study the determinants of payout ratios and verify if family has any influence on the definition of payout policies.

3.3 ESTIMATION AND RESULTS

The goal is to study the effects of family on the distribution of dividends. In this fashion, I regress several measures of payout ratios on family attributes and control variables. All models are pooled Tobit, with year and industry (first level NAICS) dummies to account for year-specific and industry-specific effects. Standard errors are clustered by firm, allowing for intra-firm correlation. Beware of the interpretation of the coefficients, which are not the marginal effects of a standard OLS regression. The coefficient is the marginal effect on the latent variable. The marginal effect on the actual variable is the coefficient multiplied by the probability that the actual variable is greater than zero (MCDONALD; MOFFITT, 1980; GREENE, 2002).

Table 17 is a summary of the main results. Each sign represents the signal ("+" is significant positive, "–" is significant negative, and "?" is not significant) of the estimated coefficient. There are three groups, the modes of payment, and one sign for each of the four different denominators under each group. In this way, the leftmost sign under "Interest" refers to the model of interest on equity

[8] A shareholder agreement is an extension of the corporate bylaws and can contain governance-enhancing or control-enhancing mechanisms. Shares under a shareholder agreement cannot be traded neither in stock exchanges, nor in OTC markets (BRASIL, 1976, Art. 118).

divided by cash flow from operations as dependent variable, the next sign to the right is interest on equity divided by operating income, and so on.

TABLE 17: SUMMARY OF FAMILY EFFECTS ON PAYOUT RATIOS

Variable	Interest				Dividends				Repurchases			
	CFO	OI	SLS	MKT	CFO	OI	SLS	MKT	CFO	OI	SLS	MKT
F-Index within execs	+	+	−	+	−	−	−	−	−	−	−	−
F-Index within directors	−	−	−	−	+	+	+	+	+	+	+	+
Family proportion common shares	+	+		+	+	+	+	+	+	+		+
Family proportion pref shares	+	+	+	+		−	+	−	−	−		−

Source: author. Summary of the estimates from model (3.1) on tables 18, 19 and 20. The "+" sign means that the variable has a positive and significant relation with the dependent variable, "–" means a negative and significant relation, and a blank means a not significant relation, considering α = 10%. The dependent variables are Interest on Equity, Dividends and Stock repurchases and are indicated in the first line of the column headers. The second line of the column headers are the variables used to scale the dependent variables (denominators): *CFO* is cash flow from operations, *OI* is operating income, *SLS* is sales revenues, and *MKT* is market capitalization. These several denominators mitigate concerns about the appropriateness of a given divisor (FACCIO; LANG; YOUNG, 2001). *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. Table 31 has more details on the definitions of all variables.

From the summary table 17 it is easy to see the patterns emerge. There is a clear substitution effect between interest on equity and the other modes (dividends and stock repurchases) regarding family members as executive officers and as directors, and they have opposite effects. More family executives increase interest on equity and decrease the others, while more family directors do the contrary. This indicates that the type of the position (executive or director) the family member holds is linked to his set of incentives. Family executives apparently try to maximize the value of the firm, by using more tax-advantaged interest on equity and less of the others, which are fully taxed. This is consistent with reputation-building by family executives, since it signals that the firm wishes to disburse cash as efficiently as possible. The incentives reverse for family directors, who seem to prefer dividends and repurchases. This may be a sign of these directors, representing family preferences, implementing "non-value-maximizing policies because the time and risk profile of payouts under value maximization has unattractive consumption attributes given their utility functions, and the portfolio trades needed to offset those attributes would weaken their hold on control" (DEANGELO; DEANGELO; SKINNER, 2009, Chapter 1).

The positive effect of family control, as measured by the proportion of common shares held by family, is strikingly clear. The more family control, the more cash the firm disgorges, regardless

of the type. As long as these payments are not affecting investments, it is a sign of families building reputation as “good payers”, specially in Brazil’s weak investor protection environment (LAPORTA et al., 2000; DEANGELO; DEANGELO; SKINNER, 2009). However, if this extra cash disbursement induces the firm to forgo profitable investment opportunities, it is not efficient maybe indicates the same preference problem signaled by family directors. Family proportion of preferred shares, in turn, indicates the extra ownership and cash flow in the hands of family members that does not translate into additional control. It seems that the more preferred shares, the more interest on equity is used in detriment of the two other types, similar to the effect of family executives. As these shares do not represent control, these family members may prefer a mix of interest on equity and share sales to realize capital gains, which are maximum under the firm value maximization strategy and do not dilute control.

It is interesting to note that both directors and controllers seem to have a flair for stock repurchases. Some effects of repurchasing may explain this phenomenon (DEANGELO; DEANGELO; SKINNER, 2009, Chapter 13). First, given that insiders have better knowledge of the true value of the firm, repurchases can function as a way of exploiting outsiders by buying undervalued stocks. Second, repurchases removes low valuation shareholders from the pool, thus making takeovers more expensive. Third, these repurchases modify the percentages of voting rights, thus reinforcing control of non-selling parties. Fourth, repurchases mechanically increase EPS, an important firm performance indicator. Lastly, stock repurchases are more financially flexible than dividends and interest on equity, in the sense that repurchases do not signal a commitment from the firm to keep or increase the amount of distributed cash.

This signal analysis facilitates detecting any patterns. However, there clearly is a loss of detail, since coefficients have been omitted. Next section tackles this concern, with a more detailed analysis of the coefficients complemented by a marginal effect analysis.

3.3.1 Drilling down: the coefficients

Let us examine the effects on interest on equity first, displayed in table 18[9]. The effects are robust, with most coefficients significant and with stable signs. The exceptions are *F-Index within*

[9] For simplicity, the following tables display only the main effects variables. The effects of control variables are in separate tables in section 3.3.2. For instance, tables 18 and 22 refer to the same model (determinants of interest on equity), with variables split into two separate tables.

execs, which exhibits one signal flip, and *Family proportion of common shares*, which has one non-significant coefficient. It is interesting to note that coefficients on *F-Index within directors* are much larger in absolute values than the ones on *F-Index within execs*, about five to ten times depending on the denominator. This means that family members seem to exert much more power over dividend policy as directors than as executives. It also seems to outweigh family stock holdings, but scales between an F-Index and a proportion are slightly different. The F-Index can be greater than one, while the proportion is limited to the interval [0, 1]. In sum, family directors tend to decrease the level of interest on equity, while family executives, and family control and ownership, tend to push in the opposite direction.

TABLE 18: EFFECTS OF FAMILY ON INTEREST ON EQUITY PAYOUT RATIOS

	Interest on equity			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	74.698***	55.348***	-4.972**	5.627***
	(5.407)	(3.857)	(-2.142)	(4.140)
F-Index within directors	-752.724***	-886.301***	-25.379***	-64.759***
	(-10.814)	(-12.109)	(-5.756)	(-10.294)
Family proportion common shares	100.613***	39.382*	-2.604	7.852***
	(4.826)	(1.727)	(-0.852)	(3.879)
Family proportion pref shares	64.190*	251.772***	36.654***	15.746***
	(1.856)	(7.115)	(7.289)	(4.557)
Pseudo R^2	0.123	0.121	0.156	0.168
Log likelihood	-1308.487	-1346.376	-1019.253	-849.024
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Estimates from model (3.1). The dependent variable is the interest on equity payout ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). This table contains only the main effects variables for ease of reading, the control variables are in table 22. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. Table 31 has more details on the definitions of all variables.

Table 19 displays the main effects on dividends. Here, family control and family in the board reinforce each other, with positive and significant coefficients. Except for sales revenues, the coefficients exhibit similar values. The opposing forces in this case are family executives and family holders of preferred shares, which prefer less dividends and more interest on equity (see table 18). Results are fairly robust, with only a non-significant coefficient and a signal flip for the preferred

shares.

TABLE 19: EFFECTS OF FAMILY ON DIVIDEND PAYOUT RATIOS

	Dividends			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	-160.708***	-62.485***	-98.968***	-22.083***
	(-6.652)	(-3.203)	(-6.864)	(-9.874)
F-Index within directors	272.640***	276.950***	190.614***	29.011***
	(7.247)	(8.001)	(15.641)	(9.558)
Family proportion common shares	252.370***	135.780***	26.417***	21.487***
	(9.698)	(5.305)	(2.693)	(9.026)
Family proportion pref shares	67.931	-94.987**	58.585***	-11.561***
	(1.538)	(-2.263)	(3.354)	(-2.943)
Pseudo R^2	0.101	0.092	0.099	0.128
Log likelihood	-1858.029	-1886.268	-1613.731	-1172.986
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Estimates from model (3.1). The dependent variable is the dividend ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). This table contains only the main effects variables for ease of reading, the control variables are in table 23. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. Table 31 has more details on the definitions of all variables.

Table 20 show results on the last way of remunerating shareholders: stock repurchases. The pattern is similar to the one in dividends, with family directors and family control pushing for more repurchases, and family directors and family holders of preferred shares pushing in the other direction. Family controllers may like repurchases because it can decrease the number of common shares outstanding and therefore increase the proportion of these shares under family control even if family members do not buy any extra share. Again, results are fairly robust, with no signal flip and only two non-significant coefficients under sales revenues.

Analyzing the modes of payment separately allows to disentangle the effects of family on each of them. However, note that although there is a substitution effect between them, this substitution may not be perfect, thus leading to a non-zero net effect. This means that family could in fact increase or decrease overall payouts to investors, regardless of the mode. Next section sheds light on this issue.

TABLE 20: EFFECTS OF FAMILY ON REPURCHASE PAYOUT RATIOS

	Repurchases			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	-77.324***	-121.451***	-18.125***	-10.211***
	(-6.716)	(-6.698)	(-4.823)	(-6.561)
F-Index within directors	40.665***	72.564***	32.569***	6.178***
	(3.288)	(3.768)	(8.693)	(3.764)
Family proportion common shares	37.988***	59.403***	-0.402	5.666***
	(5.261)	(5.111)	(-0.153)	(5.747)
Family proportion pref shares	-49.248***	-80.740***	2.855	-7.630***
	(-4.376)	(-4.482)	(0.710)	(-4.911)
Pseudo R^2	0.132	0.126	0.139	0.172
Log likelihood	-298.012	-316.776	-289.102	-217.884
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Estimates from model (3.1). The dependent variable is the cash disbursed in stock repurchases ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). This table contains only the main effects variables for ease of reading, the control variables are in table 24. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. Table 31 has more details on the definitions of all variables.

3.3.1.1 Overall effects

Let us focus on the operating income (*OpInc*) denominator. It may be more intuitive than the other denominators, since the ratio means what proportion of income was distributed to investors. First I obtain the average marginal effects using the Tobit estimators: as mentioned earlier, the coefficients from a Tobit estimation are not the marginal effects as in an OLS regression. Differently from the marginal effects at means (MEM), which is a point estimate at the means of the covariates, the average marginal effect (AME) is the estimate of a population-averaged marginal effect (BARTUS, 2005).

Table 21 presents the overall effects. The first column is the ratio. For instance, the the first group is about the effect on the interest on equity to operating income ratio. Within each group, the average marginal effect of each variable of interest is displayed on column AME. Column Δy is the effect on the ratio of a 10% increase on the independent variable mean, and the next column Δy (%) represents the percentage Δy represents of the dependent variable mean. The last column Δy (%, total) is the effect on the average total payout (interest on equity plus dividends plus repurchases)

to operating income ratio. Notice that the magnitudes differ, resulting in a non-zero net effect. As the Total group shows, family members as executives or directors lead to an overall decrease in investor remuneration. However, family control or ownership has the reverse effect, increase overall payout. This result highlights how different situations regarding family leads to different outcomes on dividend policy. This distinction may help explaining the conflicting results of the literature, and reinforces the importance of separating the effects of family management, ownership and control on firm decisions.

TABLE 21: OVERALL EFFECTS OF FAMILY ON PAYOUT RATIOS

Payout	Variable	AME	Δy	Δy (%)	Δy (%, total)
Int. on Eqty	F-Index within execs	55.348	0.924	1.4	0.5
	F-Index within directors	-886.301	-8.331	-13.1	-4.4
	Family proportion common shares	39.382	1.697	2.7	0.9
	Family proportion pref shares	251.772	1.46	2.3	0.8
Dividends	F-Index within execs	-62.485	-1.043	-0.9	-0.6
	F-Index within directors	276.95	2.603	2.1	1.4
	Family proportion common shares	135.78	5.852	4.8	3.1
	Family proportion pref shares	-94.987	-0.551	-0.5	-0.3
Repurchases	F-Index within execs	-121.451	-2.028	-49.6	-1.1
	F-Index within directors	72.564	0.682	16.7	0.4
	Family proportion common shares	59.403	2.56	62.6	1.4
	Family proportion pref shares	-80.74	-0.468	-11.4	-0.2
Total	F-Index within execs				-1.2
	F-Index within directors				-2.6
	Family proportion common shares				5.4
	Family proportion pref shares				0.3

Source: author. Estimates from model (3.1). This table displays the average marginal effects (AME) of the payout over operating income ratio. It contains only the main effects variables for ease of reading, and the effects are derived from the Tobit estimates on tables 18, 19, 20. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. Δy is the variation on the payout ratio due to a 10% increase of the variable mean, ΔY (%) is the percentage increase on a given mode of payment using the ratio's average as the denominator $\frac{\Delta Y}{\text{average payout ratio}} \cdot 100$ and ΔY (%, total) is the percentage increase on all modes of payment using the total ratio's average as the denominator $\frac{\Delta Y}{\text{average total payout ratio}} \cdot 100$. Means extracted from tables 14 and 15. Table 31 has more details on the definitions of all variables.

Having analyzed the main effects variables, it remains the analysis of the controls. Although these variables are not the main concern in this research, it is important to verify if the controls behave as one would expect. No significance or counter-intuitive signs should serve as a "yellow flag", pointing to potential design problems. Next section deals with this briefly.

3.3.2 Control variables

Now I turn to the control variables used on the estimation of the main effects on tables 18, 19 and 20. As tables 22, 23, and 24 show, in general, the larger and the older the firm, the more cash it disgorges. This is consistent with the view that more established, older firms are more stable and have less investment opportunities, and should pay the investors more. In turn, rapid growing firms should disburse less cash, since rapid growth indicates plenty of investment opportunities. The same should happen with capital constrained firms, they should withhold more cash to be able to invest. This is exactly what shows on the tables, with sales growth and the capital rationed dummy exhibiting significant and negative coefficients. More leveraged firms should also disburse less cash. They pay interest and thus have less cash available. In the regressions, this factor is controlled by the net interest expenses scaled by total assets. However, another reason that could lead more leveraged firms to pay less is that leverage turn them into more risky operations, and larger cash reserves can serve as a type of insurance against an uncertain future. Again, the coefficients are as expected, with significant and negative coefficients on leverage and interest expenses.

The expected signs on governance controls are less obvious. As LaPorta et al. (2000) argue, there may be two effects of governance on dividends. There can be a substitution effect, with superior governance serving as a substitute for dividends, allowing firms to disgorge less cash (the "substitute model"). But there can be an enforcement effect as well, with better governance mechanisms forcing firms to pay the investors more (the "outcome model"). Which one dominates is an empirical question. Results show that larger boards and being subject to Bovespa's arbitration panel seem to be related to larger payments, suggesting an enforcement effect of these elements. However, being cross-listed in the US, as indicated by the ADR dummy, decreases payments, consistent with more oversight by a theoretically more strict regulator serving as a substitute. The coefficients on shareholders agreement should be interpreted with care. It is just a dummy that indicates whether the firm has a shareholders agreement, an extension of the firm's bylaws. This agreement may implement governance-enhancing mechanisms, and in this case the negative coefficient is consistent with the enforcement effect. However, it may also implement control-enhancing mechanisms, and then the negative coefficient may signal expropriation by the agreement's parties.

Firm controls on the interest on equity regressions are pretty robust, as table 22 shows. There are no sign flips, and only sales growth is not significant in the sales revenues model. Coeffi-

cients on governance controls exhibit fair robustness, with a handful of not significant numbers and no sign flip.

TABLE 22: COEFFICIENTS OF CONTROL VARIABLES OF INTEREST ON EQUITY PAYOUT MODELS

	Interest on equity			
Variables	CFO	OpInc	Sales	MktCap
Firm controls:				
ln(Avg total assets)	22.976***	40.648***	7.157***	3.921***
	(25.595)	(39.872)	(51.895)	(45.436)
ln(Firm age)	105.615***	125.763***	14.640***	10.548***
	(29.909)	(31.058)	(27.367)	(30.533)
Sales growth (2-yr avg)	-61.440***	-82.519***	2.264	-9.896***
	(-4.912)	(-5.399)	(1.586)	(-6.170)
Capital-rationed?	-96.569***	-86.727***	-20.191***	-9.093***
	(-10.186)	(-8.116)	(-13.932)	(-9.940)
Leverage	-146.430***	-184.172***	-37.898***	-20.519***
	(-4.908)	(-5.349)	(-7.996)	(-6.955)
Net interest expenses/Assets	-1634.214***	-1567.856***	-321.330***	-129.603***
	(-17.922)	(-13.862)	(-20.493)	(-13.919)
Governance controls				
Quantity directors	6.243***	5.151***	0.876***	0.378***
	(6.451)	(4.550)	(5.741)	(3.982)
ADR listed	-15.607	-23.918**	-2.966*	-1.574
	(-1.560)	(-2.062)	(-1.936)	(-1.615)
Subject to Bovespa Arbitration	27.881**	24.059**	2.268	2.291**
	(2.480)	(2.099)	(1.304)	(2.547)
Shareholders agreement	-64.779***	-44.694***	-9.016***	-4.167***
	(-6.529)	(-3.873)	(-5.768)	(-4.272)
Pseudo R^2	0.123	0.121	0.156	0.168
Log likelihood	-1308.487	-1346.376	-1019.253	-849.024
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Estimates from model (3.1). The dependent variable is the interest on equity payout ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). This table contains only the control variables, the main effects variables are in table 18. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.

Firm controls in the dividends regressions are consistent, as table 23 shows. There is only a sign flip on the total assets variable, but it is marginally significant at 10%. The remaining coefficients

are as expected, with only a couple of non-significant estimates. Governance variables exhibit a good level of robustness, with only three non-significant estimates and no sign flip.

TABLE 23: COEFFICIENTS OF CONTROL VARIABLES OF DIVIDENDS PAYOUT MODELS

	Dividends			
Variables	CFO	OpInc	Sales	MktCap
Firm controls:				
ln(Avg total assets)	-2.350*	13.541***	3.096***	1.779***
	(-1.895)	(10.043)	(7.378)	(13.446)
ln(Firm age)	10.547**	47.636***	-0.180	8.085***
	(2.116)	(8.855)	(-0.104)	(15.492)
Sales growth (2-yr avg)	74.590***	34.717**	6.592	5.753***
	(5.546)	(2.486)	(1.583)	(4.272)
Capital-rationed?	-137.647***	-79.749***	-40.436***	-11.490***
	(-10.394)	(-5.469)	(-8.468)	(-7.967)
Leverage	-332.467***	-263.377***	-113.948***	-16.754***
	(-8.345)	(-5.901)	(-8.550)	(-3.867)
Net interest expenses/Assets	-2178.419***	-1340.478***	-864.262***	-213.031***
	(-16.152)	(-8.229)	(-19.776)	(-13.909)
Governance controls				
Quantity directors	0.426	6.096***	0.560	1.358***
	(0.300)	(3.861)	(1.195)	(8.962)
ADR listed	-16.772	-63.769***	-12.856***	-4.327***
	(-1.199)	(-3.954)	(-2.745)	(-2.788)
Subject to Bovespa Arbitration	37.775***	37.241***	13.074***	5.712***
	(2.940)	(2.715)	(3.131)	(4.593)
Shareholders agreement	-31.017**	-57.796***	-13.600***	-7.855***
	(-2.243)	(-3.732)	(-2.876)	(-5.061)
Pseudo R^2	0.101	0.092	0.099	0.128
Log likelihood	-1858.029	-1886.268	-1613.731	-1172.986
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Estimates from model (3.1). The dependent variable is the dividend ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). This table contains only the control variables, the main effects variables are in table 19. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.

Finally, table 24 show the controls of the stock repurchases regressions. Except for leverage and interest expenses, the signs are as expected. It seems that more leveraged, with more interest

expenses firms repurchase more stock, which seems counter intuitive. However, this may be due to the very transitory nature of repurchases. These more leveraged firms may pay more using repurchases because they do not represent any commitment from the firm in continue paying the same in the future (DEANGELO; DEANGELO; SKINNER, 2009, Chapter 13), and leverage increases the riskiness of the firm. Thus, these more volatile firms use this transitory component of payout more. Governance variables exhibit a significant positive effect, but only for size of the board and the subject to arbitration dummy.

3.3.3 Robustness tests

There are two robustness tests. The first one substitutes the dependent variable. Instead of using the calculated payout ratio, I use the ratio minus the industry-year average. If the industry-year subsample contains less than five firms, I use the industry subsample average. In case the industry subsample contains less then five firm-years, I use the year's average. Tables with the complete results are in section C.4.1, tables 33, 34 and 35. Previous conclusions remain unchanged, with identical qualitative results.

The second test uses the original dependent variables, but with different controls. I include ROA, an indicator of firm performance. I also add the proportion of board members that are also family executive officers. Theoretically the greater the proportion, the less effective is the board. Finally, I substitute an indicator variable for firms which only have common shares for the Subject to Bovespa Arbitration dummy. Conclusions remain unaltered, as tables 36, 37, and 38 on section C.4.2 show.

3.4 CONCLUSION

This research takes advantage of two unique features of the Brazilian environment in an attempt to deepen the understanding of the determinants of corporate dividend payout policy. The first feature is that cash may be distributed to investors in the form of dividends or interest on equity. Interest on equity has the advantage of offering a lower net taxation, while dividends are tax free for the shareholders under the full imputation Brazilian system. This creates types of payment with different tax incentives that are close substitutes. The other feature is the fine detail on family relations

TABLE 24: COEFFICIENTS OF CONTROL VARIABLES OF REPURCHASES PAYOUT MODELS

	Repurchases			
Variables	CFO	OpInc	Sales	MktCap
Firm controls:				
ln(Avg total assets)	10.290***	17.578***	2.365***	1.477***
	(29.854)	(31.451)	(20.029)	(30.958)
ln(Firm age)	9.798***	16.121***	4.724***	1.321***
	(6.887)	(7.002)	(9.951)	(6.725)
Sales growth (2-yr avg)	-53.724***	-83.170***	1.171	-7.438***
	(-6.393)	(-6.142)	(1.281)	(-6.484)
Capital-rationed?	-9.401**	-11.475*	-5.408***	-0.974*
	(-2.345)	(-1.757)	(-4.104)	(-1.744)
Leverage	23.776**	36.377*	-7.462*	3.338**
	(1.964)	(1.837)	(-1.799)	(1.979)
Net interest expenses/Assets	107.131**	256.264***	-1.047	21.630***
	(2.200)	(3.171)	(-0.072)	(3.124)
Governance controls				
Quantity directors	1.251***	2.429***	0.582***	0.212***
	(3.340)	(4.008)	(4.452)	(4.095)
ADR listed	-0.328	-8.148	0.837	-0.895
	(-0.081)	(-1.221)	(0.584)	(-1.569)
Subject to Bovespa Arbitration	49.911***	83.787***	13.261***	6.988***
	(12.964)	(13.329)	(9.828)	(13.235)
Shareholders agreement	-4.060	-6.075	-0.883	-0.652
	(-1.019)	(-0.939)	(-0.647)	(-1.182)
Pseudo R^2	0.132	0.126	0.139	0.172
Log likelihood	-298.012	-316.776	-289.102	-217.884
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Estimates from model (3.1). The dependent variable is the cash disbursed in stock repurchases ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). This table contains only the control variables, the main effects variables are in table 20. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.

on top management, which allows the creation of a family pervasiveness index on firm management. I use these setting to study the effect of family on the dividend policy of Brazilian listed firms.

Results show interesting patterns. More family control seems to make firms disgorge more cash, independent of the way: there is a positive relation between family control and interest on equity, dividends and repurchases. This is consistent with family-controlled firms building reputation and trying to decrease principal-principal conflicts (DEANGELO; DEANGELO; SKINNER, 2009; YOUNG et al., 2008; FACCIO; LANG; YOUNG, 2001), with the goal of being able to raise capital without forgoing control (TIROLE, 2005, Chapter 10). It may also be that these controlling family shareholders prefer more cash to decrease their exposure to firm-specific risk (DEANGELO; DEANGELO; SKINNER, 2009; YOUNG et al., 2008; CARNEY; GEDAJLOVIC, 2002). In any case, this leads to an increased cost of capital that may translate into lower firm valuations (FACCIO; LANG; YOUNG, 2001). Moreover, if the family controllers force the firm to disgorge cash in excess, it may be obliged to forgo positive NPV projects, thus steering it away from the value maximization goal.

In turn, other family attributes seem to exhibit a trade-off between interest on equity, dividends and repurchases. The family pervasiveness among executive officers index and the family proportion of non-voting preferred shares exhibit the same effect. There is a positive relation with interest on equity, and a negative relation with dividends and repurchases. This is consistent with family members in these situations exploiting the tax advantages of interest on equity, which offer a lower net taxation and an interest-like tax advantage for the firm (BOULTON; BRAGA-ALVES; SHASTRI, 2012). Exploiting this tax advantage is aligned with the goal of maximizing firm value. It is consistent with family executives trying to build reputation as good, firm-value maximizer managers. It also signals that family ownership without control leads to an attempt of maximizing firm value which translates into capital gains.

Lastly, the family pervasiveness among directors index exhibit a negative relation with interest on equity and a positive relation with dividends and repurchases. These family directors do not seem interested in maximizing firm value. This signals that they may be serving family shareholders who prefer non value-maximizing policies. This preference arises because the time and risk profile of the value-maximizing payouts do not maximize the family's utility. Furthermore, the realization of the firm value maximization would imply in the sale of shares, which would lead to a dilution of family ownership and control (DEANGELO; DEANGELO; SKINNER, 2009, Chapter 1).

Note that the observed substitution does not translate into a net zero effect. Family executives, as well as family directors, tend to decrease overall payments to investors. This may signal family management overconfidence, empire building, or consumption of perks. In turn, family control and ownership seems to increase overall payments to investors. It signals that families can be trying to build reputation as good payers (and, accordingly, that these firms have an increased cost of equity capital), or that they want cash to invest elsewhere and diversify risk without forgoing control.

It is interesting to note that family control and directors have a positive relation with repurchases. One key feature of repurchases is that it changes the proportion of shareholders' holdings (MATOS, 2001, p.122). It also may be used to exploit outsiders that undervalue the shares, remove low valuation shareholders to block takeovers and increase EPS (DEANGELO; DEANGELO; SKINNER, 2009, Chapter 13). It may be of the interest for the controlling family to reassure control over the firm, by decreasing the number of outstanding shares and increasing the proportion of control without buying additional common shares.

These results may help conciliating the conflicting results found in the literature. A key finding is that the position of the family members within the firm seems to be related to a certain set of incentives, thus having different effects on the dividend policy. Villalonga & Amit (2006) advocate that family firms are characterized by family ownership, control, and management. I consider these three dimensions, and go one step further. I split family management into family executives and family directors, and find that depending on the position of the family member within management the incentives seem to change.

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A NON-COMPLIANCE IN EXECUTIVE COMPENSATION DISCLOSURE: THE BRAZILIAN EXPERIENCE

A.1 CALCULATING CEO COMPENSATION

CEO compensation in Brazil is not directly observable. The new regulation, CVM Ordinance 480, requires firms to disclose total, minimum, maximum and average compensation, by group (e.g., executives and board of directors). Figure 6 is a sample disclosure for a complying firm, Petrobras, for fiscal year 2010, followed by table 25 translating and summarizing the information disclosed in the proxy statement of all complying firms:

PETRÓLEO BRASILEIRO S.A. - PETROBRAS
Formulário de Referência - 2010 - V1

Você esta vendo: 13. Remuneração dos administradores | 13.11 - Remuneração máx, mín e média

13.11 - Remuneração individual máxima, mínima e média do conselho de administração, da diretoria estatutária e do conselho fiscal

Exercício Social	Orgão administração
01/01/2009 até 31/12/2009	Conselho de Administração

Nº de membros	7,75	Valor da maior remuneração	89.132,55
Valor da menor remuneração	74.423,57	Valor médio da remuneração	76.154,50
Observação	O número de membros correspondeu à média anual do número de membros de cada órgão apurado mensalmente. Valor da Menor Remuneração: O valor foi apurado com a exclusão de um membro, que exerceu 9 meses na função.		

01/01/2009 até 31/12/2009	Diretoria Estatutária

Nº de membros	7,00	Valor da maior remuneração	975.175,81
Valor da menor remuneração	863.879,21	Valor médio da remuneração	929.867,77
Observação	O número de membros correspondeu à média anual do número de membros de cada órgão apurado mensalmente.		

01/01/2009 até 31/12/2009	Conselho Fiscal

Nº de membros	5,00	Valor da maior remuneração	74.423,57
Valor da menor remuneração	74.423,57	Valor médio da remuneração	74.423,57
Observação	O número de membros correspondeu à média anual do número de membros de cada órgão apurado mensalmente.		

Figure 6: Sample disclosure of compliant firm Petrobras, showing minimum, maximum and average compensation for the board (conselho de administração), executive officers (diretoria estatutária) and the audit committee (conselho fiscal).

Source: CVM website. All monetary values are in BRL.

In contrast to complying firms, injunction firms did not disclose the minimum, maximum or average part of the mandatory compensation information. These firms only reported the total amount of compensation for all executives and the number of executives. Figure 7 is a sample disclosure for

TABLE 25: MAXIMUM, MINIMUM AND AVERAGE EXECUTIVE COMPENSATION IN BRAZIL FOR LISTED FIRMS THAT COMPLIED WITH THE NEW COMPENSATION DISCLOSURE REGULATION FOR FISCAL YEARS 2009 AND 2010

Variable	N	Mean	Median	StdDev	IQR
Panel A: Board compensation					
Minimum compensation	229	$1.637	$0.388	$16.760	$0.672
Mean compensation	239	$2.248	$0.471	$23.160	$0.895
Maximum compensation	239	$3.341	$0.602	$29.930	$1.484
Panel B: Top executive compensation					
Minimum compensation	258	$2.520	$2.033	$2.314	$3.168
Mean compensation	258	$4.091	$3.237	$3.756	$5.211
Maximum compensation	258	$6.792	$4.323	$9.290	$8.427
Panel C: Audit committee compensation					
Minimum compensation	157	$0.246	$0.215	$0.184	$0.317
Mean compensation	161	$0.262	$0.224	$0.207	$0.326
Maximum compensation	159	$0.278	$0.227	$0.244	$0.334

Source: author. Variables' definitions are in appendix A.2. Mean tests for equality assume unequal variances. N is the number of firm-years. All variables are in 100k US Dollars, the values originally reported in Brazilian Reais (BRL) for a given year were converted by the average exchange rate for that year. The sample comprises only non-injunction companies, as the injunction companies refused to disclose this information. Not all companies report having a board or audit committee, and the ones that report not always disclose all three statistics; hence the different N.

an injunction firm, Vale S.A for fiscal year 2010, followed by table 26 translating and summarizing the information disclosed in the proxy statement of all injunction firms

TABLE 26: MAXIMUM, MINIMUM AND AVERAGE EXECUTIVE COMPENSATION IN BRAZIL FOR LISTED FIRMS THAT COMPLIED WITH THE NEW COMPENSATION DISCLOSURE REGULATION FOR FISCAL YEARS 2009 AND 2010

Variable	N	Mean	Median	StdDev	IQR
Per capita salary	56	$4.065	$4.024	$2.299	$3.285
Per capita bonus	56	$5.163	$3.709	$5.631	$8.949
Per capita stock-based	56	$3.153	$0.318	$6.854	$3.593
Per capita total	56	$12.400	$11.340	$9.561	$10.727

Source: author. The table comprises injunction firms only. These firms disclosed total compensation and the number of executives, which allows us to calculate per capita compensation values. All values are in USD100k.

Prior research shows that CEO compensation is positively related to disclosure-related agency costs (ROBINSON; XUE; YU, 2011). Since neither set of firms provides the compensation for the CEO, we estimate this value in several steps. First, for complying firms, we assume the maximum compensation among executive officers is the CEO's. This is reasonable, since the CEO is the main executive of the firm, and one of the arguments IBEF lists in the court filing is that the maximum compensation will be always the CEO's:

VALE S.A.
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Você esta vendo: 13. Remuneração dos administradores | 13.2 - Remuneração total por órgão

13.2 - Remuneração total do conselho de administração, diretoria estatutária e conselho fiscal

Exercício Social	Total da remuneração
01/01/2010 até 31/12/2010	79.533.033,00 (Real)
01/01/2009 até 31/12/2009	47.121.440,79 (Real)

Conselho de Administração		Diretoria Estatutária		Conselho Fiscal	
Nº de membros	6,33			Total da remuneração	43.047.646,79
Salário ou pró-labore	13.763.807,00			Benefícios diretos e indiretos	2.975.951,00
Participações em comitês	0,00			Outros valores fixos	0,00
Descrição outros remunerações fixas:					
Bônus	19.057.843,00			Participação de resultados	0,00
Participação em reuniões	0,00			Comissões	0,00
Outros valores variáveis	0,00				
Descrição outros remunerações variáveis					
Pós-emprego	282.556,79			Cessação do cargo	2.981.751,00
Baseada em ações	3.985.738,00				
Observação:	Foi utilizado o critério da média anual do número de membros da Diretoria Estatutária apurado mensalmente. Nos demais órgãos a quantidade de membros foi constante durante o ano. Os Benefícios motivados pela cessação do exercício do cargo incluem parcelas de 02 Diretores Executivos cujos contratos foram rescindidos,				

Figure 7: Sample disclosure of non-compliant firm Vale. There are only totals, and no minimum, maximum and average.

Source: CVM website. All monetary values are in BRL.

> Although CVM Ordinance 480 does not mandate the disclosure of the name of the administrators [with their respective compensation], there will be no difficulty in identifying them, since without exception the CEO and/or the Chairperson is the one with the highest compensation – and not rarely, these are notable people (05ª Vara Federal do Rio de Janeiro, 2010).

To calculate CEO compensation for injunction firms, we use data from the non-injunction group to calculate a ratio of CEO compensation to executive officer compensation. From this ratio, we then derive the CEO compensation for injunction firms using the total compensation for all the executive officers. We begin by deriving *CEOCompRatio* in equation (A.1), which is an index of how much more a CEO earns in relation to the average executive officer in each complying firm:

$$CEOCompRatio_{f,t} = \frac{MaxExecComp_{f,t}}{\frac{TotalExecComp_{f,t}}{\#ExecutiveOfficers_{f,t}}}, \forall \text{ non-injunction firm } f, \text{ year } t \qquad \text{(A.1)}$$

Next, we derive *AvgCEORatio* using *CEOCompRatio* in an industry-year basis. Industry is the first level of the NAICS classification provided by Economatica. If there is no industry-year average ratio for a given firm-year, we use the industry average. In case it still fails, we use the

yearly average:

$$AvgCEORatio_{i,t} = average(CEOCompRatio_{f,t}),\ \text{firms } f \text{ from industry } i \tag{A.2}$$

Finally, using the resulting average ratio, we compute CEO compensation for injunction firms by applying the industry-year average ratio to the injunction firms' total executive compensation:

$$EstCEOComp_{f,t} = \frac{TotalExecComp_{f,t}}{\#TopExecs_{f,t}} \cdot AvgCEORatio_{i,t}, \forall \text{ injunction firm } f \text{ from industry } i \tag{A.3}$$

This process estimates CEO Compensation *EstCEOComp* for injunction firms, and the maximum disclosed compensation *MaxExecComp* for the non-injunction group. We merge these two and use it as CEO Compensation *CEOComp*:

$$CEOComp_{f,t} = \begin{cases} EstCEOComp_{f,t}, \text{if } f \text{ is an injunction firm} \\ MaxExecComp_{f,t}, \text{otherwise} \end{cases} \tag{A.4}$$

A.2 VARIABLE DEFINITIONS

TABLE 27: DEFINITIONS OF VARIABLES TO TEST THE DETERMINANTS OF NON-DISCLOSURE (H1) – EQUATION (1.1)

Variable	Definition
Injunction	Coded 1 if the firm has filed for the preliminary court injunction not to disclose minimum, average and maximum salaries for executive officers, board of directors and audit committee.
Lagged total robbery rate	Previous year state-level total robbery per 100,000 inhabitants.
ln(CEO compensation)	For the non-injunction firms, it's the logarithm of the maximum compensation disclosed for the executive officers group. For the injunction firm it's the logarithm of the calculated maximum compensation. Calculations derive from the disclosed total executive officers' compensation, number of executive officers, and the industry-year average from non-injunction firms of the ratio (maximum compensation) / (average compensation). For more details, refer to appendix A.1
Lagged state's Gini index	Previous year state-level Gini index, which is the proportion between the area below the Lorenz curve defined by the income distribution and the area below the Lorenz curve defined by a 45 degree line. An index of zero means perfect equality, while an index of one means perfect inequality.
Lagged HDI	Previous year state-level Human Development Index. HDI is the geometric average of HDI - Education, HDI - Income and HDI - Longevity.
1-yr stock return	Raw stock return from a simple 1-year buy-and-hold strategy.
Lagged ROA	Previous year Return on Assets, defined as the net income to average total assets ratio.

continued

Variable	Definition
EM score	Bankruptcy score for emerging markets calculated according to Altman (2005). The larger the score, the financially healthier the firm.
Leverage	The total debt to total assets ratio.
ln(total assets)	Natural logarithm of total assets.
Market/book	Market value of equity to book value of equity ratio.
Differentiation	Measures the level of differentiation within an industry. It is sales divided by operating costs.
Industry size	Natural logarithm of total industry sales. Industry is defined as the first level NAICS
Barriers to entry	Measures the difficulty in entering an industry. It is the natural logarithm of the industry-weighted average of plant, property & equipment. Market shares are the weights. Industry is the first level NAICS.
CEO has strong ties w/ controller	Indicator variable that equals one if CEO has been elected by controller, CEO has another position (such as a seat on the board) or the CEO has relatives among top management.
CEO age	Proxies for CEO experience. Age of the CEO in years, as reported in the proxy statement.
ADR	Coded as 1 if the firm has issued American Depositary Receipts in the US, and thus is subject to scrutiny by the SEC; 0 otherwise.
Subject to Bovespa's arbitration	Set to 1 if the firm voluntarily adhered to Bovespa differentiated governance levels 2 or New Market, thus submitting itself to the Market Arbitration Panel to settle matters before going to court. Set to 0 otherwise.
High own. concentration	It is the sum of two indicators, i.e, it could be 0, 1 or 2. The first indicates if the firm has an above-average number of block holders, who are people that own more than 5% of voting stock. The other one indicates the same for institutional owners, which are firms that own more than 5% of voting stock
# board members	Proxies for staggered boards. The number board members of a firm as reported on the proxy statement.
Average board members age	Proxies for directors' experience. Average directors' age.
Women among top execs/directors	Set to 1 if there is a woman among executive officers or directors.
Age diversity top execs/directors	Average from normalized [0, 1] Z-scores from executive officers' and directors' age.

Source: author.

TABLE 28: DEFINITIONS OF VARIABLES TO TEST THE ECONOMIC EFFECTS OF NON-DISCLOSURE (H2) – EQUATION (1.2)

Variable	Definition
Bid-ask spread	The firm's industry-adjusted average bid-ask spread for Jul 1 to Dec 31, divided by second semester overall average bid-ask spread. The industry adjustment is the level minus the industry-year average. Industry is defined as the first-level NAICS.
Trading volume (%)	Industry-adjusted average daily volume of stock traded by the firm from Jul 1 to Dec 31, divided by its market value and multiplied by 100 to yield a percentage. The industry adjustment is the level minus the industry-year average. Industry is defined as the first-level NAICS.
Volatility	Industry-adjusted standard deviation of daily returns for Jul 1 to Dec 31 with at least half of the trading days with data available. The industry adjustment is the level minus the industry-year average. Industry is defined as the first-level NAICS.

continued

Variable	Definition
Lagged Injunction	Coded 1 if the firm has filed for the preliminary court injunction not to disclose minimum, average and maximum salaries for executive officers, board of directors and audit committee from the previous year.
Lagged ln(CEO compensation)	For the non-injunction firms, it's the logarithm of the maximum compensation disclosed for the executive officers group. For the injunction firm it's the logarithm of the calculated maximum compensation. Calculations derive from the disclosed total executive officers' compensation, number of executive officers, and the industry-year average from non-injunction firms of the ratio (maximum compensation) / (average compensation). For more details, refer to appendix A.1.
Lagged % stock comp.	Previous year proportion of stock-based compensation in relation to total compensation.
Lagged ln(market cap)	Previous year natural logarithm of market capitalization.
Lagged free float	Previous industry-adjusted year-end percentage of common and preferred stocks not owned by institutional or block shareholders. The industry adjustment is the level minus the industry-year average. Industry is defined as the first-level NAICS.

Source: author.

A.3 AVERAGE PARTIAL EFFECTS

TABLE 29: AVERAGE PARTIAL EFFECTS DERIVED FROM PROBIT REGRESSIONS ON DETERMINANTS OF INJUNCTION

Dependent variable: injunction	a	b	c	d
Lagged Total robbery rate	0.0004***			0.0002**
	(3.57)			(2.15)
ln(CEO Compensation)		0.0758***		0.0680***
		(3.39)		(3.17)
Lagged State's Gini Index			3.5667***	2.3576***
			(4.40)	(2.64)
Lagged HDI			2.4529***	0.9266
			(3.09)	(1.18)
1-yr return	0.0598***	0.0508**	0.0623***	0.0412*
	(2.66)	(2.18)	(2.83)	(1.86)
Lagged ROA	-0.0175	-0.0572	0.0290	-0.0567
	(-0.12)	(-0.30)	(0.23)	(-0.41)
EM Score	0.0072**	0.0086**	0.0063*	0.0059*
	(2.07)	(2.43)	(1.78)	(1.90)
Leverage	0.0565*	0.0622*	0.0549*	0.0424
	(1.90)	(1.90)	(1.90)	(1.59)
ln(Total assets)	0.0976***	0.0934***	0.0906***	0.0762***
	(4.84)	(4.48)	(4.66)	(3.45)
Market/Book	0.0063**	0.0027	0.0052*	0.0030
	(2.19)	(0.86)	(1.85)	(0.92)
Differentiation	-0.0259	-0.0306	-0.0273	-0.0285*
	(-1.31)	(-1.09)	(-1.49)	(-1.73)
Industry size	-0.0175	-0.0253	-0.0122	-0.0116
	(-0.81)	(-1.26)	(-0.60)	(-0.60)

continued

Dependent variable: injunction	a	b	c	d
Barriers to entry	0.0071	0.0061	0.0060	0.0091
	(0.49)	(0.38)	(0.48)	(0.79)
CEO has strong ties w/ controller	-0.1078**	-0.1031*	-0.0946**	-0.0813*
	(-2.20)	(-1.88)	(-2.03)	(-1.78)
CEO age	-0.0066**	-0.0074***	-0.0054**	-0.0046*
	(-2.57)	(-2.88)	(-2.24)	(-1.90)
ADR	-0.0017	0.0470	0.0202	0.0375
	(-0.03)	(0.72)	(0.35)	(0.62)
Subject to Bovespa's Arbitration	-0.0834	-0.1250**	-0.0656	-0.0643
	(-1.53)	(-2.22)	(-1.20)	(-1.27)
High own. concentration	-0.0394	-0.0377	-0.0159	-0.0098
	(-1.23)	(-1.09)	(-0.50)	(-0.33)
# board members	0.0092	0.0064	0.0056	0.0065
	(1.51)	(1.04)	(0.89)	(1.19)
Average board members age	-0.0050	-0.0029	-0.0045	-0.0036
	(-1.49)	(-0.89)	(-1.46)	(-1.27)
Women among top execs/directors	-0.0485	-0.0294	-0.0429	-0.0302
	(-1.31)	(-0.91)	(-1.28)	(-1.05)
Age diversity top execs/directors	-1.2633*	-1.6219**	-1.0458*	-1.0005
	(-1.69)	(-2.32)	(-1.65)	(-1.45)
Pseudo R-Squared	0.4697	0.4572	0.4864	0.5498
Log likelihood	-78.0811	-79.9088	-75.6203	-66.2763

Source: author. Estimates for $Prob(\text{Injunction} = 1)_{i,t} = \beta_0 + \beta_1 \text{Lagged robbery rate}_{i,t-1} + \sum_k \beta_k \text{Control}^k_{i,t} + \epsilon_{i,t}$, equation (1.1). All regressions are pooled probit with a constant and a year dummy. N=314. Standard errors are clustered by firm. The dependent variable is Preliminary Court Injunction (1 if firm used injunction not to disclose, 0 otherwise). The z statistics are between parentheses. *, ** and *** mean statistical significance at 10%, 5% and 1%, respectively. Estimates in bold are significant at the 10% level. Average partial effect is an estimate of a population-averaged marginal effect. The average partial effect of the independent variable x_k is $\frac{\beta_k}{N} \sum_{i=1}^{N} f(x_i\beta)$ if x_k is continuous. *Lagged total robbery rate* is the previous year total robbery rate per 100,000 inhabitants. *CEO compensation* is the maximum compensation for executive officers (no injunction) or the calculated CEO compensation (injunction), in USD100,000, and *ln(CEO compensation)* is the natural logarithm of the values in BRL. *Lagged state's Gini index* is the previous year Gini index at the firm's headquarters state. *Lagged HDI* is the previous year Human Development Index at the firm's headquarters state. *Total assets* are the total assets of the firm (in BRL and in USD), and *ln(Total assets)* is the natural logarithm of total assets in BRL. *Lagged ROA* is the previous year net income-average total assets ratio. *Leverage* is the total debt-total assets ratio. The *EM score* is the Altman's bankruptcy score for emerging markets. *Market/Book* is the market value-book value of equity ratio. *1-yr stock return* is the one-year buy-and-hold strategy raw return. *Differentiation* proxies for differentiation within an industry and is sales divided by operating costs. *Industry size* is the natural logarithm of total industry sales (first level NAICS). *Barriers to entry* proxies for the difficulty in entering a given industry and is the natural logarithm of the weighted average of plant, property and equipment of the industry (first level NAICS). *CEO has strong ties with controller* is a dummy set to one if the controller elected the CEO, the CEO holds another position (such as a seat on the board), or the CEO has relatives in top management. *CEO age* proxies for CEO experience. *ADR* is a dummy set to one if the firm has ADRs being traded, and thus is subject to the SEC. *Subject to Bovespa's* arbitration is a dummy set to one if the firm has chosen to comply with voluntary differentiated governance levels that require that disputes to be subject to Bovespa's market arbitration panel, before resorting to traditional courts in case it remains unresolved. *Top5 share %* is the percentage of voting (common) stock held by the top 5 shareholders. *High ownership concentration* is the sum of two dummies: firm has above-average number of block holders (shareholders with more than 5% of common stock) and firm has above-average number of institutional shareholders (institutions with more than 5% of common stock). *Women among top execs / directors* proxies for gender diversity is set to one if there is at least one woman in top management. *Age diversity top execs / directors* proxies for age diversity among top management, and is the average of the normalized Z of top execs and directors. *# board members* proxies for staggered boards and is the quantity of directors. *Average board members age* proxies

for directors' experience. More details on the definition of variables are in appendix A.2.

B FAMILY MANAGEMENT: CREATING OR DESTROYING FIRM VALUE?

B.1 THE LEVENSTHEIN EDIT DISTANCE

The Levenshtein edit distance is considered a prominent measure of similarity in signal processing (NAVARRO, 2001). Levenshtein (1966) proposed it as an algorithm capable of correcting transmission errors, not only switches in the form of $0 \rightarrow 1$ or $1 \rightarrow 0$, but also deletions and insertions. Nowadays, this algorithm is applied on approximate string matching. In the case of Levenshtein's edit distance, the goal is to calculate the minimum total cost to transform the searched pattern into its occurrence in the text, i.e., to count the minimum number of insertions, deletions and substitutions of single characters to make the pattern exactly match the occurrence (NAVARRO, 2001). Mathematically speaking, given two strings a and b, the edit distance is $d(a, b) = L_{a,b}(|a|, |b|)$, in which $|\cdot|$ is the string length operator (WAGNER; FISCHER, 1974):

$$L_{a,b}(i,j) = \begin{cases} \max(i,j) & \text{if } \min(i,j) = 0, \\ \min \begin{cases} L_{a,b}(i-1,j) + 1 \\ L_{a,b}(i,j-1) + 1 \\ L_{a,b}(i-1,j-1) + [a_i \neq b_j] \end{cases} & \text{otherwise.} \end{cases} \tag{B.1}$$

Notice that $d(a, a) = 0$, $d(a, b) = d(b, a)$, and $0 \leq d(a, b) \leq max\{|a|, |b|\}$ (NAVARRO, 2001). On this research I use the implementation by Reif (2010).

B.2 VARIABLE DEFINITIONS

TABLE 30: VARIABLE DEFINITIONS

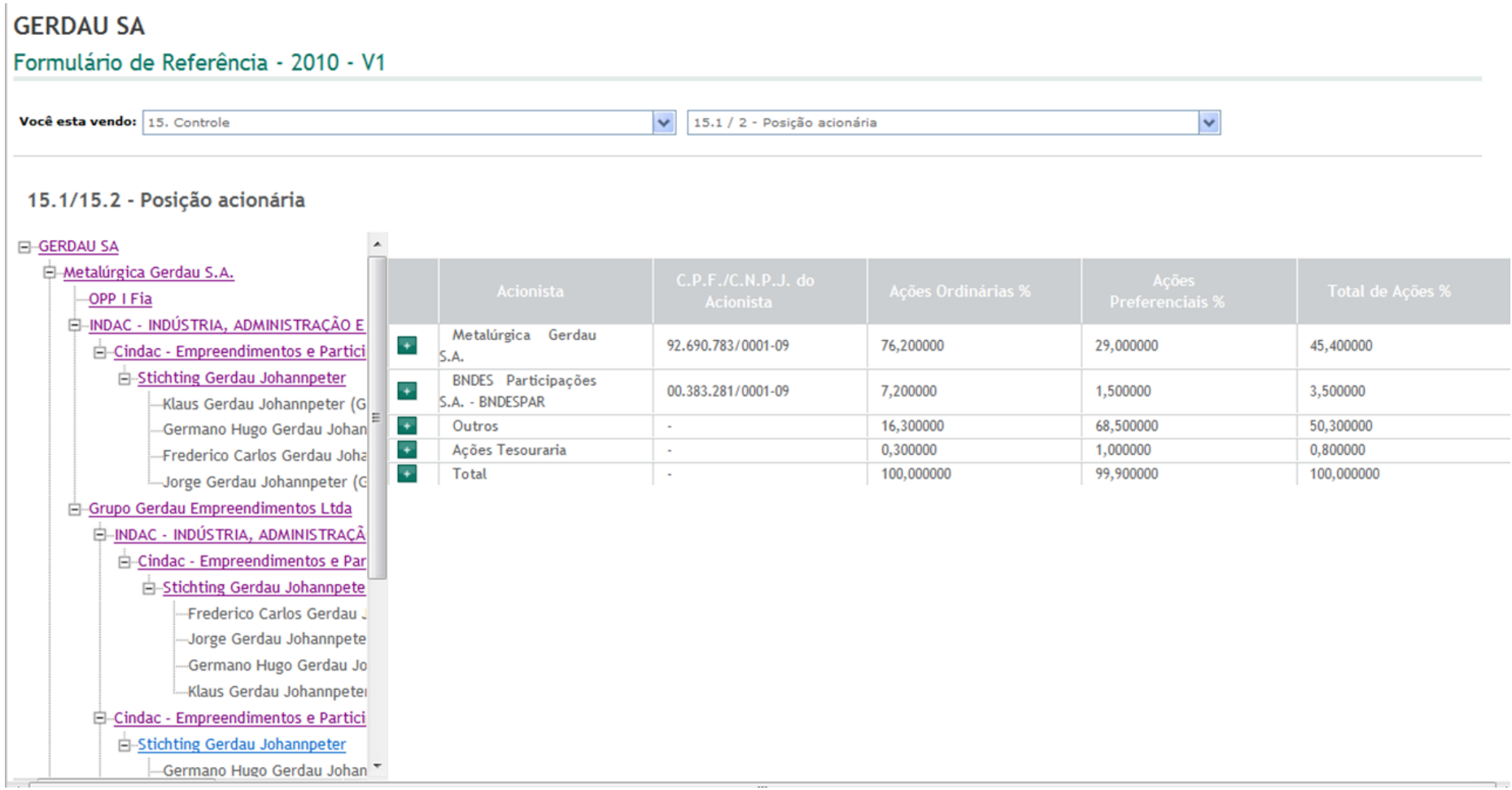
Variable	Definition
Dependent variables:	
Tobin's Q	Book value of average total assets plus market value of equity, minus book value of equity, all divided by book value of average total assets (BARONTINI; CAPRIO, 2006)
Industry-adj Tobin's Q	Firm's Tobin's Q minus the industry-year average, weighted by total assets, Tobin's Q
Main effects:	
F-Index within firm	Ratio of number of family relationships (weighted by number of managerial positions held) within executive officers and board members (top management) to number of possible top management relationships (permutation of N top managers, in sequences of two, i.e., all possible pairs)
F-Index within execs	Ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships (permutation of N officers, in sequences of two, i.e., all possible pairs)
F-Index within directors	Ratio of family relationships (weighted by number of board positions held) within board members to number of possible board members relationships (permutation of N officers, in sequences of two, i.e., all possible pairs)
F-Index within 1st-deg execs	Same as F-Index within execs, only for first-degree relationships
F-Index within 2nd-deg execs	Same as F-Index within execs, only for second-degree relationships
F-Index within same-kin execs	Same as F-Index within execs, only for same-kin relationships
F-Index within in-law execs	Same as F-Index within execs, only for in-law relationships
Firm controls:	
ln(Avg total assets)	Natural logarithm of the average of previous' year total assets and current year's total assets
Sales growth	The yearly average of the two-year raw sales growth
Industry-avg Q	The first-level NAICS average Tobin's Q, by year, weighted by total assets. If a given industry-year has less than five firms, it is the year-average
Industry-adj ROA	ROA is the operating income to average total assets ratio. It is industry-adjusted by taking the firm's ROA and subtracting the average industry-level, weighted by total assets, ROA. If a given industry-year has less than five firms, the year-average is subtracted from the firm's ROA
Leverage	The total debt to average total assets ratio
CapEx/Assets	The capital expenses to average total assets ratio
ln(Firm age)	The natural logarithm of the fiscal year minus the founding year reported in the proxy statement
Part of Ibovespa	Dummy indicates if the firm is part of the Bovespa index (an index similar to the S&P 500 in the US)
Ownership structure controls:	
Family proportion common shares	The proportion of common (voting) shares held by family members
Family proportion pref shares	The proportion of preferred (non-voting) shares held by family members
Dividends/Book value equity	Total dividends paid to book value of equity ratio
Governance & diversity controls:	
Women in top management	Dummy set to one if there is at least one woman in top management (officers and directors)
Age diversity (top management)	The normalized to $[0, 1]$ standard deviation of the ages of top management members
Quantity directors	The number of board members

continued

Variable	Definition
Board average age	The average age of board members
ln(CEO age)	The natural logarithm of the age of the CEO
ADR listed	Dummy set to one if the firm is cross-listed in the US
Subject to Bovespa Arbitration	Dummy set to one if the firm is subject to Bovespa's market arbitration panel (voluntary adhered to differentiated governance level 2 or new market)
Shareholders agreement	Dummy set to one if the firm has a shareholders' agreement

Source: author. Section 2.2.1 has more details on the definitions of all variables.

B.3 EXHIBITS



GERDAU SA

Formulário de Referência - 2010 - V1

Você esta vendo: 15. Controle | 15.1 / 2 - Posição acionária

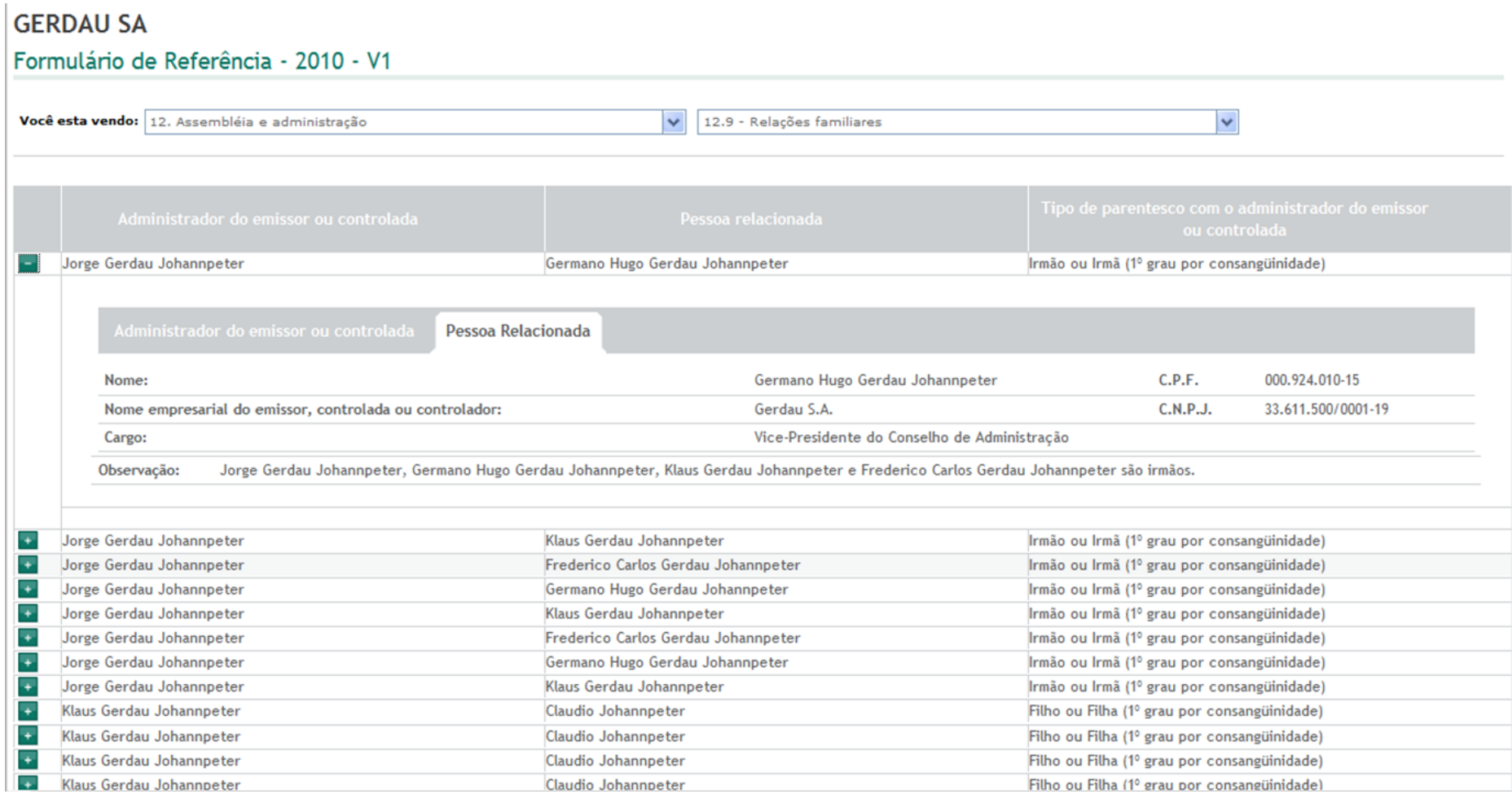
15.1/15.2 - Posição acionária

- GERDAU SA
  - Metalúrgica Gerdau S.A.
    - OPP I Fia
    - INDAC - INDÚSTRIA, ADMINISTRAÇÃO E
      - Cindac - Empreendimentos e Partici
        - Stichting Gerdau Johannpeter
          - Klaus Gerdau Johannpeter (G
          - Germano Hugo Gerdau Johan
          - Frederico Carlos Gerdau Joha
          - Jorge Gerdau Johannpeter (G
    - Grupo Gerdau Empreendimentos Ltda
      - INDAC - INDÚSTRIA, ADMINISTRAÇÃ
        - Cindac - Empreendimentos e Par
          - Stichting Gerdau Johannpete
            - Frederico Carlos Gerdau J
            - Jorge Gerdau Johannpete
            - Germano Hugo Gerdau Jo
            - Klaus Gerdau Johannpeter
      - Cindac - Empreendimentos e Partici
        - Stichting Gerdau Johannpeter
          - Germano Hugo Gerdau Johan

Acionista	C.P.F./C.N.P.J. do Acionista	Ações Ordinárias %	Ações Preferenciais %	Total de Ações %
Metalúrgica Gerdau S.A.	92.690.783/0001-09	76,200000	29,000000	45,400000
BNDES Participações S.A. - BNDESPAR	00.383.281/0001-09	7,200000	1,500000	3,500000
Outros	-	16,300000	68,500000	50,300000
Ações Tesouraria	-	0,300000	1,000000	0,800000
Total	-	100,000000	99,900000	100,000000

Figure 8: Sample page of the firm control and ownership section of the Brazilian proxy statement.

Source: CVM website.



GERDAU SA

Formulário de Referência - 2010 - V1

Você esta vendo: 12. Assembléia e administração | 12.9 - Relações familiares

	Administrador do emissor ou controlada	Pessoa relacionada	Tipo de parentesco com o administrador do emissor ou controlada
-	Jorge Gerdau Johannpeter	Germano Hugo Gerdau Johannpeter	Irmão ou Irmã (1º grau por consangüinidade)

Administrador do emissor ou controlada | Pessoa Relacionada

Nome:	Germano Hugo Gerdau Johannpeter	C.P.F.	000.924.010-15
Nome empresarial do emissor, controlada ou controlador:	Gerdau S.A.	C.N.P.J.	33.611.500/0001-19
Cargo:	Vice-Presidente do Conselho de Administração		

Observação: Jorge Gerdau Johannpeter, Germano Hugo Gerdau Johannpeter, Klaus Gerdau Johannpeter e Frederico Carlos Gerdau Johannpeter são irmãos.

+	Jorge Gerdau Johannpeter	Klaus Gerdau Johannpeter	Irmão ou Irmã (1º grau por consangüinidade)
+	Jorge Gerdau Johannpeter	Frederico Carlos Gerdau Johannpeter	Irmão ou Irmã (1º grau por consangüinidade)
+	Jorge Gerdau Johannpeter	Germano Hugo Gerdau Johannpeter	Irmão ou Irmã (1º grau por consangüinidade)
+	Jorge Gerdau Johannpeter	Klaus Gerdau Johannpeter	Irmão ou Irmã (1º grau por consangüinidade)
+	Jorge Gerdau Johannpeter	Frederico Carlos Gerdau Johannpeter	Irmão ou Irmã (1º grau por consangüinidade)
+	Jorge Gerdau Johannpeter	Germano Hugo Gerdau Johannpeter	Irmão ou Irmã (1º grau por consangüinidade)
+	Jorge Gerdau Johannpeter	Klaus Gerdau Johannpeter	Irmão ou Irmã (1º grau por consangüinidade)
+	Klaus Gerdau Johannpeter	Claudio Johannpeter	Filho ou Filha (1º grau por consangüinidade)
+	Klaus Gerdau Johannpeter	Claudio Johannpeter	Filho ou Filha (1º grau por consangüinidade)
+	Klaus Gerdau Johannpeter	Claudio Johannpeter	Filho ou Filha (1º grau por consangüinidade)
+	Klaus Gerdau Johannpeter	Claudio Johannpeter	Filho ou Filha (1º grau por consangüinidade)

Figure 9: Sample page of the family relationships section of the Brazilian proxy statement.

Source: CVM website.

C PAYOUT DECISIONS AND FAMILIES: A STUDY OF BRAZILIAN LISTED FIRMS

C.1 VARIABLE DEFINITIONS

TABLE 31: VARIABLE DEFINITIONS

Variable	Definition
Dependent variables:	
IoE/CFO	Interest on equity scaled by cash flow from operations
IoE/OpInc	Interest on equity scaled by operating income
IoE/Sales	Interest on equity scaled by sales revenues
IoE/MktCap	Interest on equity scaled by market capitalization
Div/CFO	Dividends scaled by cash flow from operations
Div/OpInc	Dividends scaled by operating income
Div/Sales	Dividends scaled by sales revenues
Div/MktCap	Dividends scaled by market capitalization
Main effects:	
F-Index within execs	Ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships (permutation of N officers, in sequences of two, i.e., all possible pairs)
F-Index within directors	Ratio of family relationships (weighted by number of board positions held) within board members to number of possible board members relationships (permutation of N officers, in sequences of two, i.e., all possible pairs)
Family proportion common shares	The proportion of common (voting) shares held by family members
Family proportion pref shares	The proportion of preferred (non-voting) shares held by family members
Firm controls:	
ln(Avg total assets)	Natural logarithm of the average of previous' year total assets and current year's total assets
ln(Firm age)	The natural logarithm of the fiscal year minus the founding year reported in the proxy statement
ROA	Net income to average total assets ratio
Leverage	The total debt to average total assets ratio
Sales growth (2-yr avg)	The yearly average of the two-year raw sales growth
Capital rationed?	Dummy set to one if the firm has above industry-year median net increase of capital. Net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales (FACCIO; LANG; YOUNG, 2001)
Net interest expenses/Assets	The net interest expense (interest expenses less interest revenues) divided by average total assets
Governance controls:	
Quantity directors	The number of board members
ADR listed	Dummy set to one if the firm is cross-listed in the US
Subject to Bovespa Arbitration	Dummy set to one if the firm is subject to Bovespa's market arbitration panel (voluntary adhered to differentiated governance level 2 or new market)
Shareholders agreement	Dummy set to one if the firm has a shareholders' agreement

continued

Variable	Definition
#Family execs-directors/#directors	The number of directors that are also family executives, divided by the number of directors
Only common shares	Dummy set to one if the firm only has common shares (zero preferred shares)

Source: author. Section 3.2 has more details on the definitions of all variables.

C.2 THE TAX BENEFITS OF INTEREST ON EQUITY

This section is an adaptation of the numerical example set forth by Boulton, Braga-Alves & Shastri (2012). It demonstrates the overall lower taxation of interest on equity when compared to dividends and I provide it for the comfort of the reader. The example considers tax rates effective on December 31, 2007: it assumes that the actual firm tax rate equals the maximum, 34%, personal taxation on dividends is zero, and personal tax rate on interest on equity is 15%. The firm's EBIT (Earnings Before Interest and Taxes) is $100 million. The numbers contrast a distribution of $15.675 million in dividends against distributing $\$18,441,175 = \frac{\$15{,}675{,}000}{0.85}$ as interest on equity, resulting in the same net payment to shareholders.

TABLE 32: A NUMERICAL EXAMPLE OF DIVIDENDS VS. INTEREST ON EQUITY

Item	Dividend payout (,000s)	Interest on equity (,000s)
EBIT	100,000	100,000
Interest on equity	0	18,441
Corporate taxes	$34,000 = 100,000 \cdot 0.34$	$27,730 = (100,000 - 18,441) \cdot 0.34$
Net income	$66,000 = 100,000 - 34,000$	$53,829 = 100,000 - 18,441 - 27,730$
Dividends paid	15,675	0
Dividend distribution	15,675	0
Personal tax on dividends	0	0
Interest distribution	0	18,441
Withholding tax on interest	0	$2,766 = 18,441 \cdot 0.15$
Net payment to shareholders	15,675	$15,675 = 18,441 - 2,766$
Total tax payments	34,000	$30,496 = 27,730 + 2,766$

Source: adapted from Boulton, Braga-Alves & Shastri (2012).

C.3 EXHIBITS

PETRÓLEO BRASILEIRO S.A. - PETROBRAS

Formulário de Referência - 2010 - V1

Você esta vendo: 3. Informações financ. selecionadas | 3.5 - Distribuição de dividendos

3.5 - Distribuição de dividendos e retenção de lucro líquido

Exercício social
01/01/2009 até 31/12/2009

Lucro líquido ajustado (Unidade)	27.303.234.000,00	Dividendo Distribuído em relação ao lucro líquido ajustado	30,530000
Taxa de retorno em relação ao patrimônio líquido do emissor	18,900000	Dividendo distribuído total (Unidade)	8.335.373.000,00
Lucro líquido retido (Unidade)	20.987.979.000,00	Data aprovação da retenção	22/04/2010

Espécie Ação	Classe Ação	Dividendo Distribuído	Montante (Unidade)	Pagamento Dividendo
Ordinária		Dividendo Obrigatório	659.535.000,00	
Ordinária		Juros Sobre Capital Próprio	4.160.145.000,00	
Preferencial	Preferencial Classe A	Dividendo Obrigatório	481.095.000,00	
Preferencial	Preferencial Classe A	Juros Sobre Capital Próprio	3.034.598.000,00	

01/01/2008 até 31/12/2008

01/01/2007 até 31/12/2007

Figure 10: Sample page of the dividends paid section of the Brazilian proxy statement.

Source: CVM website.

CSU CARDSYSTEM S/A

Formulário de Referência - 2010 - V1

Você esta vendo: 19. Planos de recompra/tesouraria | 19.2 - Movimentação v.m. em tesouraria

19.2 - Movimentação dos valores mobiliários mantidos em tesouraria

Exercício social
01/01/2009 até 31/12/2009

Valor mobiliário	Ações	Espécie de ação	Ordinária
Classe ação preferêncial		Descrição dos valores mobiliários	

	Quantidade (Unidade)	Valor total (Unidade)	Preço médio ponderado (Unidade)
Saldo inicial	0	0,00	0,00
Aquisição	803.600	4.678.608,00	5,82
Alienação	5.100	39.833,00	7,81
Cancelamento	0	0,00	0,00
Saldo final	798.500	4.638.775,00	5,81

Figure 11: Sample page of the repurchases section of the Brazilian proxy statement.

Source: CVM website.

C.4 ADDITIONAL ESTIMATES

C.4.1 Industry-adjusted independent variables

TABLE 33: EFFECTS OF FAMILY ON INDUSTRY-ADJUSTED INTEREST ON EQUITY PAYOUT RATIOS

	Industry-adjusted interest on equity			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	85.239***	69.723***	-2.509	6.297***
	(6.454)	(5.406)	(-1.189)	(5.016)
F-Index within directors	-631.112***	-751.462***	-8.096**	-53.712***
	(-9.707)	(-11.597)	(-2.029)	(-9.406)
Family proportion common shares	99.709***	43.228**	-1.242	7.582***
	(4.889)	(2.099)	(-0.430)	(4.006)
Family proportion pref shares	1.955	159.480***	26.712***	12.420***
	(0.057)	(4.907)	(5.772)	(3.921)
Firm controls:				
ln(Avg total assets)	11.480***	29.139***	5.623***	3.358***
	(12.609)	(31.394)	(41.834)	(40.643)
ln(Firm age)	95.569***	108.298***	9.497***	10.070***
	(27.031)	(29.593)	(18.212)	(30.749)
Sales growth (2-yr avg)	-39.947***	-55.962***	4.789***	-7.370***
	(-3.358)	(-4.346)	(3.774)	(-5.319)
Capital-rationed?	-98.200***	-61.621***	-19.992***	-8.277***
	(-10.310)	(-6.345)	(-13.723)	(-9.449)
Leverage	-97.798***	-114.548***	-31.119***	-15.231***
	(-3.294)	(-3.712)	(-6.632)	(-5.479)
Net interest expenses/Assets	-1681.088***	-1393.305***	-360.674***	-121.369***
	(-18.321)	(-13.270)	(-23.770)	(-13.450)
Governance controls				
Quantity directors	6.054***	4.303***	0.995***	0.396***
	(6.133)	(4.140)	(6.732)	(4.327)
ADR listed	-5.709	-10.989	0.106	-2.360**
	(-0.555)	(-1.038)	(0.070)	(-2.506)
Subject to Bovespa Arbitration	23.570**	12.426	2.904*	1.448*
	(2.117)	(1.215)	(1.682)	(1.708)
Shareholders agreement	-61.555***	-39.037***	-9.755***	-4.001***
	(-6.182)	(-3.716)	(-6.367)	(-4.289)
Pseudo R^2	0.116	0.114	0.149	0.162
Log likelihood	-1103.608	-1193.636	-737.207	-737.303
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Alternative estimates for model (3.1). The dependent variable is the industry-adjusted interest on equity payout ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). Industry-adjusted means the level minus de industry-year average of the variable. Industry is defined as the first level NAICS. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares

held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.

TABLE 34: EFFECTS OF FAMILY ON INDUSTRY-ADJUSTED DIVIDEND PAYOUT RATIOS

	Industry-adjusted dividends			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	-153.049***	-52.450***	-172.827***	-21.980***
	(-5.457)	(-2.590)	(-6.312)	(-9.642)
F-Index within directors	217.977***	278.492***	272.110***	28.739***
	(5.072)	(8.066)	(11.917)	(9.677)
Family proportion common shares	314.536***	82.202***	-21.225	23.260***
	(10.109)	(3.177)	(-1.106)	(9.489)
Family proportion pref shares	80.768	-131.164***	144.607***	-7.455*
	(1.570)	(-2.981)	(4.645)	(-1.859)
Firm controls:				
ln(Avg total assets)	-27.183***	-12.183***	7.694***	0.123
	(-17.446)	(-9.160)	(9.783)	(0.889)
ln(Firm age)	-6.000	47.449***	-11.083***	5.450***
	(-0.967)	(8.876)	(-3.340)	(9.992)
Sales growth (2-yr avg)	63.810***	32.769**	28.182***	8.038***
	(3.828)	(2.450)	(4.176)	(5.844)
Capital-rationed?	-176.802***	-76.491***	-59.966***	-10.242***
	(-10.766)	(-5.281)	(-7.017)	(-6.834)
Leverage	-391.778***	-247.238***	-256.131***	-16.666***
	(-7.938)	(-5.613)	(-9.240)	(-3.664)
Net interest expenses/Assets	-2345.120***	-1124.585***	-1544.839***	-247.671***
	(-14.970)	(-7.280)	(-17.814)	(-16.096)
Governance controls				
Quantity directors	1.786	8.282***	1.936**	1.442***
	(1.009)	(5.455)	(2.184)	(9.184)
ADR listed	21.658	-16.850	-26.672***	-2.254
	(1.199)	(-1.073)	(-3.013)	(-1.386)
Subject to Bovespa Arbitration	0.473	25.809*	14.903*	1.377
	(0.028)	(1.862)	(1.718)	(1.026)
Shareholders agreement	6.177	-33.169**	-21.607**	-6.171***
	(0.352)	(-2.182)	(-2.457)	(-3.817)
Pseudo R^2	0.095	0.084	0.105	0.121
Log likelihood	-1312.893	-1489.973	-759.016	-941.108
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Alternative estimates for model (3.1). The dependent variable is the industry-adjusted dividend ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). Industry-adjusted means the level minus de industry-year average of the variable. Industry is defined as the first level NAICS. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.

TABLE 35: EFFECTS OF FAMILY ON INDUSTRY-ADJUSTED REPURCHASE PAYOUT RATIOS

	Industry-adjusted repurchases			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	-74.002***	-112.282***	-13.045***	-9.722***
	(-7.047)	(-6.221)	(-4.096)	(-6.098)
F-Index within directors	34.770***	81.274***	30.107***	6.969***
	(3.099)	(4.281)	(9.345)	(4.184)
Family proportion common shares	41.631***	63.946***	0.079	6.381***
	(6.355)	(5.546)	(0.034)	(6.310)
Family proportion pref shares	-44.863***	-102.907***	3.246	-9.865***
	(-4.407)	(-5.652)	(0.928)	(-6.093)
Firm controls:				
ln(Avg total assets)	8.663***	20.167***	0.981***	1.730***
	(27.552)	(36.136)	(9.090)	(35.133)
ln(Firm age)	7.330***	13.617***	2.938***	1.039***
	(5.639)	(5.880)	(6.776)	(5.089)
Sales growth (2-yr avg)	-57.078***	-84.566***	0.959	-7.676***
	(-7.508)	(-6.405)	(1.218)	(-6.589)
Capital-rationed?	-9.410**	-7.687	-3.952***	-0.577
	(-2.577)	(-1.169)	(-3.283)	(-0.992)
Leverage	24.746**	22.738	-5.678	2.114
	(2.248)	(1.141)	(-1.511)	(1.203)
Net interest expenses/Assets	105.813**	374.475***	31.567**	29.087***
	(2.409)	(4.507)	(2.323)	(3.977)
Governance controls				
Quantity directors	0.959***	1.009	0.556***	0.112**
	(2.771)	(1.615)	(4.635)	(2.035)
ADR listed	-3.139	-16.630**	-3.046**	-1.928***
	(-0.848)	(-2.469)	(-2.305)	(-3.220)
Subject to Bovespa Arbitration	45.863***	82.718***	12.187***	7.021***

continued

	Industry-adjusted repurchases			
Variables	CFO	OpInc	Sales	MktCap
	(13.204)	(13.172)	(9.510)	(12.616)
Shareholders agreement	-5.773	-1.382	-0.533	-0.215
	(-1.601)	(-0.213)	(-0.423)	(-0.375)
Pseudo R^2	0.134	0.128	0.133	0.171
Log likelihood	-286.204	-293.005	-235.774	-198.789
No. of clusters	314	314	314	314
Observations	697	697	697	697

Source: author. Alternative estimates for model (3.1). The dependent variable is the industry-adjusted cash disbursed in stock repurchases ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). Industry-adjusted means the level minus de industry-year average of the variable. Industry is defined as the first level NAICS. * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Subject to Bovespa Arbitration* is a dummy set to one if the firm is subject to Bovespa's market arbitration panel. *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.

C.4.2 Original models with different controls

The following estimates add ROA, a measure of profitability and the number of family executives with a seat on the board divided by the number of board members, and substitute a "Only common shares" dummy for the "Bovespa arbitration" dummy.

TABLE 36: EFFECTS OF FAMILY ON INTEREST ON EQUITY PAYOUT RATIOS - ALTERNATIVE SPECIFICATION

	Interest on equity			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	99.600***	85.642***	2.352	6.839***
	(6.871)	(5.732)	(1.000)	(4.827)
F-Index within directors	-697.592***	-811.008***	-24.133***	-62.397***
	(-9.959)	(-11.053)	(-5.477)	(-9.971)
Family proportion common shares	113.680***	53.256**	1.192	8.076***
	(5.345)	(2.305)	(0.383)	(3.921)
Family proportion pref shares	35.764	230.557***	29.986***	10.906***

continued

	Interest on equity			
Variables	CFO	OpInc	Sales	MktCap
	(1.021)	(6.537)	(5.944)	(3.172)
Firm controls:				
ln(Avg total assets)	25.141***	42.674***	7.732***	4.097***
	(27.592)	(41.233)	(55.171)	(46.236)
ln(Firm age)	107.643***	130.957***	15.663***	9.975***
	(29.765)	(31.762)	(28.615)	(28.067)
ROA	201.914***	156.771*	50.526***	16.090**
	(2.873)	(1.939)	(4.605)	(2.360)
Sales growth (2-yr avg)	-65.614***	-91.321***	1.439	-9.162***
	(-5.224)	(-5.736)	(0.997)	(-5.654)
Capital-rationed?	-88.858***	-78.500***	-18.336***	-8.925***
	(-9.413)	(-7.379)	(-12.870)	(-9.730)
Leverage	-164.822***	-205.096***	-41.795***	-21.110***
	(-5.511)	(-5.954)	(-8.882)	(-7.115)
Net interest expenses/Assets	-1406.860***	-1372.749***	-264.744***	-115.098***
	(-14.952)	(-11.623)	(-17.004)	(-12.008)
Governance controls				
Quantity directors	4.841***	3.409***	0.569***	0.256***
	(4.961)	(2.988)	(3.702)	(2.657)
#Family execs-directors/#directors	-260.938***	-310.532***	-61.496***	-18.605***
	(-5.024)	(-5.676)	(-8.240)	(-3.894)
ADR listed	-28.107***	-38.243***	-5.788***	-2.496**
	(-2.779)	(-3.269)	(-3.794)	(-2.533)
Only common shares	9.632	27.048**	0.644	-4.281***
	(0.911)	(2.345)	(0.393)	(-4.482)
Shareholders agreement	-78.155***	-58.485***	-12.324***	-5.360***
	(-7.767)	(-5.017)	(-7.857)	(-5.428)
Pseudo R^2	0.124	0.122	0.160	0.170
Log likelihood	-1306.129	-1343.636	-1014.536	-846.749
No. of clusters	314	314	314	314
Observations	696	696	696	696

Source: author. Alternative estimates for model (3.1). The dependent variable is the interest on equity payout ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *#Family execs-directors/#directors* is the number of directors that are also family executives, divided by the number of directors. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Only common shares* is a dummy set to one if the firm only has common shares (zero preferred shares). *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement.

Table 31 has more details on the definitions of all variables.

TABLE 37: EFFECTS OF FAMILY ON DIVIDENDS PAYOUT RATIOS - ALTERNATIVE SPECIFICATION

	Dividends			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	-121.147***	-35.109	-93.131***	-22.486***
	(-4.657)	(-1.581)	(-5.838)	(-9.062)
F-Index within directors	299.624***	307.584***	203.589***	27.884***
	(7.873)	(8.529)	(15.441)	(8.879)
Family proportion common shares	294.061***	179.094***	41.636***	23.176***
	(11.625)	(7.034)	(4.162)	(9.810)
Family proportion pref shares	32.658	-141.266***	49.429***	-16.917***
	(0.734)	(-3.334)	(2.711)	(-4.419)
Firm controls:				
ln(Avg total assets)	7.414***	21.895***	6.163***	2.501***
	(6.368)	(16.701)	(14.892)	(19.250)
ln(Firm age)	9.812**	40.554***	-0.363	6.129***
	(2.082)	(7.718)	(-0.211)	(11.898)
ROA	2384.671***	1945.819***	781.311***	171.008***
	(25.817)	(19.498)	(22.816)	(17.072)
Sales growth (2-yr avg)	46.236***	14.376	-3.196	5.616***
	(3.593)	(1.056)	(-0.747)	(4.191)
Capital-rationed?	-73.440***	-25.515*	-19.434***	-7.937***
	(-6.094)	(-1.850)	(-4.466)	(-5.870)
Leverage	-341.460***	-239.697***	-114.245***	-16.621***
	(-9.502)	(-5.729)	(-9.279)	(-4.097)
Net interest expenses/Assets	314.679***	561.665***	-61.773	-35.857**
	(2.631)	(3.598)	(-1.544)	(-2.580)
Governance controls				
Quantity directors	1.889	8.974***	1.158***	1.432***
	(1.454)	(5.974)	(2.612)	(9.847)
#Family execs-directors/#directors	4.910	76.386	14.059	12.040**
	(0.085)	(1.247)	(0.669)	(2.028)
ADR listed	-18.717	-63.815***	-13.034***	-3.885***
	(-1.447)	(-4.147)	(-2.954)	(-2.644)
Only common shares	-25.116**	-41.077***	-4.000	-11.265***
	(-2.063)	(-2.973)	(-0.919)	(-8.316)
Shareholders agreement	-41.883***	-64.208***	-16.899***	-8.087***
	(-3.270)	(-4.315)	(-3.708)	(-5.383)
Pseudo R^2	0.116	0.101	0.114	0.140
Log likelihood	-1821.626	-1859.644	-1582.851	-1153.435
No. of clusters	314	314	314	314
Observations	696	696	696	696

Source: author. Alternative estimates for model (3.1). The dependent variable is the dividends payout ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref*

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TABLE 38: EFFECTS OF FAMILY ON REPURCHASES PAYOUT RATIOS - ALTERNATIVE SPECIFICATION

	Repurchases			
Variables	CFO	OpInc	Sales	MktCap
Main effects:				
F-Index within execs	-76.849***	-126.684***	-20.030***	-10.399***
	(-6.416)	(-6.620)	(-5.372)	(-6.388)
F-Index within directors	29.910**	57.690***	28.135***	4.854***
	(2.440)	(2.999)	(7.689)	(2.963)
Family proportion common shares	31.191***	46.375***	-3.452	4.609***
	(4.149)	(3.810)	(-1.316)	(4.480)
Family proportion pref shares	-67.418***	-106.920***	2.282	-9.808***
	(-5.340)	(-5.225)	(0.578)	(-5.601)
Firm controls:				
ln(Avg total assets)	9.321***	15.777***	2.005***	1.334***
	(25.648)	(26.688)	(16.583)	(26.516)
ln(Firm age)	0.662	0.405	1.285***	0.051
	(0.440)	(0.166)	(2.627)	(0.247)
ROA	-42.645	-78.743	-39.716***	-7.298
	(-1.280)	(-1.444)	(-3.393)	(-1.555)
Sales growth (2-yr avg)	-35.899***	-53.742***	3.569***	-5.002***
	(-4.225)	(-3.937)	(3.841)	(-4.276)
Capital-rationed?	-9.680**	-12.352*	-6.326***	-1.065*
	(-2.356)	(-1.837)	(-4.760)	(-1.854)
Leverage	15.656	24.386	-8.439**	2.217
	(1.243)	(1.180)	(-2.005)	(1.262)
Net interest expenses/Assets	150.729***	327.645***	-6.250	27.242***
	(2.830)	(3.675)	(-0.393)	(3.570)
Governance controls				
Quantity directors	0.574	1.480**	0.397***	0.128**
	(1.440)	(2.288)	(2.941)	(2.311)
#Family execs-directors/#directors	20.057	57.643*	15.243**	3.739
	(1.080)	(1.930)	(2.488)	(1.465)
ADR listed	-0.353	-7.770	1.091	-0.880
	(-0.082)	(-1.098)	(0.726)	(-1.459)
Only common shares	-0.436	0.763	-2.941**	0.193
	(-0.104)	(0.112)	(-2.113)	(0.337)
Shareholders agreement	2.261	4.982	1.622	0.234
	(0.549)	(0.742)	(1.169)	(0.410)
Pseudo R^2	0.123	0.116	0.135	0.159

continued

	Repurchases			
Variables	CFO	OpInc	Sales	MktCap
Log likelihood	-301.293	-320.250	-290.234	-221.256
No. of clusters	314	314	314	314
Observations	696	696	696	696

Source: author. Alternative estimates for model (3.1). The dependent variable is the cash disbursed in stock repurchases payout ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *#Family execs-directors/#directors* is the number of directors that are also family executives, divided by the number of directors. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Only common shares* is a dummy set to one if the firm only has common shares (zero preferred shares). *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.

Source: author. The dependent variable is the cash disbursed in stock repurchases payout ratio as specified on the table header. The denominators are *CFO* (cash flow from operations), *OpInc* (operating income), *Sales* (sales revenues) and *MktCap* (market capitalization). * p < 10%, ** p < 5%, *** p < 1%. t-stats in parentheses. All models are pooled left-censored at zero Tobit regressions with year and industry dummies and clustered by firm standard errors. *F-Index within execs* is the ratio of family relationships (weighted by number of executive positions held) within executive officers to number of possible executive officers relationships. *F-Index within directors* is same as *F-Index within execs*, but for board members. *Family proportion common shares* is the proportion of common (voting) shares held by family members. *Family proportion pref shares* is the proportion of preferred (non-voting) shares held by family members. *ln(Avg total assets)* is the natural logarithm of the average total assets. *ln(Firm age)* is the natural logarithm of the fiscal year minus the founding year reported in the proxy statement. *ROA* is the net income to average total assets ratio. *Leverage* is the total debt to average total assets ratio. *Sales growth (2-yr avg)* is the yearly average of the two-year raw sales growth. *Capital rationed?* is a dummy set to one if the firm has above industry-year median net increase of capital; net increase of capital is Economatica's net increase of capital, minus the variations in retained earnings, earnings reserves and capital reserves, scaled by sales. *Net interest expenses/Assets* is the net interest expense (interest expenses less interest revenues) divided by average total assets. *Quantity directors* is the number of board members. *#Family execs-directors/#directors* is the number of directors that are also family executives, divided by the number of directors. *ADR listed* is a dummy set to one if the firm is cross-listed in the US. *Only common shares* is a dummy set to one if the firm only has common shares (zero preferred shares). *Shareholders agreement* is a dummy set to one if the firm has a shareholders' agreement. Table 31 has more details on the definitions of all variables.