

**Corporate governance, valuation and performance:**

**Evidence from a voluntary market reform in Brazil**

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March 2008

**Abstract**

In December 2000, the São Paulo Stock Exchange (Bovespa) launched a new premium market segment, Novo Mercado, for companies that voluntarily commit to what the exchange calls “good practices of corporate governance”. We construct a composite index (NM6) that combines six proxies for the main governance practices targeted by Bovespa’s reform and find that higher scores for our index are related to higher market value. This relation is statistically and economically significant and robust to alternative specifications. On the other hand, our index is not significantly related to operating performance when we control for the endogenous nature of this relation. In addition, an investment strategy that bought stocks of firms with high NM6 and sold stocks of firms with low NM6 would have earned abnormal returns of 10.4 percent per year between 2001 and 2005.

JEL code: G34.

Keywords: Corporate governance, firm valuation, operating performance, emerging markets.

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Funding was provided by the International Business Center of Katz School of Business.

## 1. Introduction

In response to increasing capital markets competition and demand for superior shareholder rights, the São Paulo Stock Exchange (Bovespa) launched in December 2000 a new premium segment, Novo Mercado, for companies that voluntarily subscribe to what the exchange calls “good practices of corporate governance”. Companies listed on this premium segment are required to follow a “one-share, one-vote” policy, keep a minimum free-float of 25 percent of the outstanding shares, grant minority shareholders the same rights given to controlling shareholders in the event of control transfer and have a board with at least 5 directors, who are elected to serve concurrent terms of one or two years. In addition, companies in Novo Mercado have to commit to higher standards of information disclosure, including the preparation of financial statements according to the International Accounting Standards (IAS) or the US Generally Accepted Accounting Principles (US GAAP).<sup>1</sup> If a firm chooses to delist from Novo Mercado, the controlling shareholder is required to make a tender offer for all outstanding shares at a price determined by a renowned appraiser. This appraiser is chosen by the minority shareholders from a three-nominee list submitted by the company’s board of directors.

Bovespa has also created two additional segments, Nível (Level) 2 and Nível 1, for companies that do not commit to the “one-share, one vote policy.” The corporate law in Brazil allows companies that went public before 2001 to issue up to two-thirds of their capital as non-voting shares. Companies that went public after 2001 are allowed to issue up to 50 percent of their capital as non-voting shares. Since a shareholder can retain control of a Brazilian dual-class firm by owning as little as 16.7 percent of its outstanding shares, the requirement that capital be

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<sup>1</sup> The International Accounting Standards (IAS) were issued by the International Accounting Standards Committee (IASC) between 1973 and 2000. After the International Accounting Standards Board (IASB) replaced the IASC in 2001, some IAS were amended or replaced with new International Financial Reporting Standards (IFRS). The IASB has also adopted or proposed new IFRSs on topics for which there was no previous IAS.

solely constituted by voting shares makes Novo Mercado less attractive for controlling shareholders. Nível 2 allows for non-voting stocks but requires compliance with all other Novo Mercado rules. Nível 1 requires only compliance with the 25-percent minimum free float and with more stringent disclosure rules that are common to the three “good governance” levels.

In this study, we combine six corporate governance practices that proxy for Novo Mercado rules into an objective index (NM6) and examine whether the practices targeted by this voluntary reform are significantly related to firm value and operating performance in Brazil, an important emerging market.<sup>2</sup> This examination is important since anecdotal and scholarly evidence have suggested that stronger investor protection has a positive effect in the development of emerging markets, which represent an important source of high returns and diversification. In a series of surveys conducted between 1999 and 2000, McKinsey & Co. found that institutional investors are willing to pay as much as 28 percent more for better governed companies in developing markets.<sup>3</sup> In addition, the International Finance Corporation (IFC), the Organization for Economic Co-Operation and Development (OECD), and the US Agency for International Development (USAID) argue that lower standards of corporate governance have been a major factor in economic instability across the globe and provide an overview of the issues to be addressed by firms in order to improve shareholder rights. This argument is supported by empirical evidence in Johnson et al. (2000) that low standards of corporate

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<sup>2</sup> Wilson and Purushothaman (2003) estimate GDP growth, income per capita, and currency movements for Brazil, Russia, India, and China and conclude that these countries may be among the eight largest economies in the world by 2050. They create the acronym BRIC as a reference to those four promising emerging markets.

<sup>3</sup> Coombes and Watson (2000) analyzed the results of the surveys conducted by McKinsey & Co. in cooperation with the World Bank. The surveys examined the attitude of institutional investors toward corporate governance in Asia, US, Europe, and Latin America. The authors argue that the 28 percent premium reflects the need for improved shareholder rights and disclosure in emerging markets. The surveys also show that investors are not willing to pay such high premium for companies in the US and Europe, where one can traditionally find higher levels of investor protection.

governance contributed more to poor market performance in emerging countries during the Asian Crisis than did macroeconomic factors.

More recently, other scholars have examined monitoring mechanisms and transparency standards across firms in less developed markets. For example, Klapper and Love (2004) show that better corporate governance practices are significantly related to higher firm valuation and operating performance in emerging markets. Bai et al. (2003), Black et al. (2005), Leal and Carvalhal-da-Silva (2005), Black et al. (2006), and Chong and Lopez-de-Silanes (2006) have documented a positive relation between corporate governance and firm value in China, Korea, Brazil, Russia, and Mexico respectively. Black et al. (2005) and Chong and Lopez-de-Silanes (2006) also examine the relation between governance and operating performance. While the former do not find a significant relation for Korean firms, the latter find that the relation is statistically and economically significant for Mexican firms.

Our paper contributes to this literature by examining the effectiveness of the restricted set of governance practices targeted by Bovespa in an effort to increase shareholder rights in Brazil, a country with large private benefits of control, weak investor protection and low disclosure standards.<sup>4</sup> In addition to determining whether the provisions required by Novo Mercado have a significant impact on firm value and operating performance, we examine the relation between our NM6 index and stock returns by testing whether an investment strategy that bought stocks of firms with high values for NM6 and sold stocks of firms with low values for NM6 would have resulted in abnormal returns relative to the predictions of Carhart's (1997) four-factor model.

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<sup>4</sup> Nenova (2001) ranks Brazil 24<sup>th</sup> in terms of investor rights, 43<sup>rd</sup> in terms of law enforcement, and 40<sup>th</sup> in terms of accounting standards among 49 countries. Nenova (2003) estimates that controlling shareholders appropriate, on average, 23 percent of shareholder value in Brazil. Dick and Zingales (2004) estimate that the average private benefits of control in Brazil correspond to 65 percent of equity value.

Our results show that the governance index used to proxy for the voluntary corporate governance reform promoted by Bovespa is statistically and economically associated with higher firm valuation. After controlling for firm characteristics, we find that a worst-to-best improvement in our NM6 index would result in a 0.35 increase in Tobin's  $q$ , which corresponds to a 30.2 percent increase for a company with Tobin's  $q$  equal to the sample mean. The positive relation between NM6 and valuation is robust to the use of 2SLS and fixed effects estimations to address problems with simultaneously determined regressor and omitted characteristics. This is an important result when we consider that previous studies of corporate governance in Brazil use indices that combine 20 or more governance attributes and find that worst-to-best improvements result in an increase in Tobin's  $q$  between 37 and 42 percent for the average company in their sample. Our results support Bebchuk et al. (2005) and Brown and Caylor (2006), who suggest that academic research that identifies and focuses on a more restricted number of governance practices are of great relevance since concentrating on an overly large set of provisions may lead firms to make unproductive and wasteful decisions.

On the other hand, the significance of the relation between the Brazilian voluntary reform and operating performance depend on whether we take the endogenous nature of this relation in consideration. Before controlling for endogeneity, we find a statistically and economically significant relation indicating that a company with ROA equal to the sample mean would have a 55.6 percent increase in ROA if it moved from the lowest to the highest score for our index by adopting the six practices required by Novo Mercado. But the relation between NM6 and ROA is not significant when we use 2SLS and fixed effects estimations, indicating that the governance practices targeted by Bovespa have no effect on operating performance when we control for endogeneity.

Finally, we find that a zero-investment strategy that bought stocks of firms with NM6 greater than the median and sold stocks of firms with NM6 equal to or lower than the median would have provided a 10.4 percent annual abnormal return over our sample period. We also find a significant and negative abnormal return of 7.4 percent for the low NM6 portfolio and a positive but not significant abnormal return of 3.0 percent for the high NM6 portfolio, indicating that the difference between the stock performances of better governed and poorly governed companies is driven by the underperformance of stocks with NM6 equal to or lower than the sample median. These results are robust when we add illiquidity as a fifth-factor in the factor model. As Klapper and Love (2004) argue, if investors required additional compensation for considering poor governance as a source of risk, we should observe higher, not lower, returns for poorly governed companies. Therefore, the authors rely on market inefficiency arguments to explain a positive relation between governance and stock returns and suggest that investors may underestimate the agency costs associated with weaker shareholder rights.

This study has important policy implications for the development of capital markets in emerging countries. With lower expropriation by insiders, investors are more willing to pay higher prices for securities since they expect higher returns on their investment. And with higher market valuation, more firms seek public financing to expand their business. Shleifer and Wolfenzon (2002) present a theoretical model of an entrepreneur going public in a market with a poor legal environment, which provides substantial opportunity for corporate profits diversion. The model predicts that firms tend to be larger, more valuable and more plentiful in countries with better investor protection. Consistent with that model, La Porta et al. (1997, 1998, 2000 and 2002) show that firms have greater access to external financing in countries with more effective legal protection for minority shareholders, resulting in broader and more valuable capital

markets. La Porta et al. interpret their results as an indication that countries may promote entrepreneurship by limiting expropriation by insiders.

But while these studies posit that a stronger regulatory environment is beneficial to the development of capital markets, an increasing number of papers suggest that excessive country regulation may be too costly to implement and may limit investment initiatives. Zhang (2007), for example, finds negative abnormal returns for US and foreign firms around legislative events that led to the passage of the Sarbanes-Oxley Act (SOX) in 2002. In another empirical analysis, Litvak (2007) reports a negative reaction around events related to the enactment of SOX for cross-listed companies relative to non-cross-listed companies from countries with high disclosure standards. In contrast, Black and Khanna (2007) examine the market reaction to a major mandatory governance reform in India (Clause 49) that applied first to large firms. The authors find that returns for large firms were on average 4 percent higher than those for small firms over a 2-day window around the reform announcement. They suggest that the positive reaction to Clause 49 in India and the negative reaction to SOX in the US may be explained by greater benefits of market reforms in countries with weaker legal environments.

A possible alternative explanation for these apparently contradictory results may be that, although mandatory, Clause 49 was sponsored and strongly supported by the Confederation of Indian Industry while SOX faced great opposition among market participants who believed that SOX would impose significant regulatory burdens on public companies. Since mandatory reforms without the support of market participants are usually associated with difficult and lengthy processes, our study of a voluntary market reform in Brazil provides valuable evidence to market institutions and policy-makers engaged in the current debate regarding the role and design of corporate governance in emerging economies.

The remainder of this paper is organized as follows: Section 2 provides a literature review of the impact of corporate governance on firm valuation and operating performance; Section 3 contains a discussion of the governance practices and the composite index analyzed in this study; Section 4 describes our sample selection procedure and provides descriptive statistics; Section 5 explains the methodological approach used to test the importance of corporate governance in explaining firm value and performance and presents our empirical results; and Section 6 summarizes and concludes.

## **2. Literature review**

Although previous studies have examined the effect of corporate governance mechanisms on firm value and performance, most have concentrated on the US stock market, which is characterized by dispersed ownership and strong investor protection. Using a broad index based on 24 provisions that limit shareholder rights and are monitored by the Investor Responsibility Research Center (IRRC), Gompers et al. (2003) find that corporate governance is significantly related to firm valuation and operating performance in the US. The authors also show that an investment strategy that purchased stocks of better governed companies and sold stocks of poorly governed companies earned an abnormal return of 8.5 percent per year.

In a related study, Bebchuk et al. (2005) investigate the same 24 IRRC provisions and identify six attributes that fully drive the effect of governance on valuation and performance. Four of these six provisions limit shareholder voting power (staggered boards, limits of bylaws amendments, supermajority requirements for charter amendments and mergers) while the remaining two are anti-takeover defenses (poison pills and golden parachutes). Brown and Caylor (2006) create an index based on 51 provisions monitored by the Institutional Shareholder

Services (ISS), including both internal and external mechanisms of control, and demonstrate a significant link between their index and valuation. Moreover, they find that an index with only seven of those provisions fully explains the effect of governance on valuation and conclude that only a small number of governance attributes are related to firm value.

The enactment of the Sarbanes-Oxley Act (SOX) in 2002 and the approval of new governance rules by the Securities and Exchange Commission (SEC) in 2003 motivated a number of recent studies that examine the importance of corporate governance in the US. For example, Aggarwal and Williamson (2006) construct an index of six governance practices that captures new provisions targeted by SOX and the SEC and test the relation between their index and market valuation. Their index is based on characteristics monitored by the ISS and represents the following new mandatory regulations: a board with a majority of independent directors, an independent nominating committee, an independent compensation committee, an independent audit committee with at least three members, executive sessions with only non-executive directors and, finally, the adoption of corporate governance guidelines. The authors find that these regulations are statistically and economically associated with firm value. Specifically, they report that if the median company in their sample improved their index from zero to six by adopting all the new regulations, Tobin's  $q$  would improve by 32 percent. Their results also show a significant and positive relation between the index and firm value for the two-year period that preceded the regulation, suggesting that the market was already rewarding firms that had voluntarily adopted higher standards of corporate governance.

Gompers et al. (2003), Bebchuk et al. (2005), and Aggarwal and Williamson (2006) do not make strong claims about a causal role of governance on valuation and performance and observe that these variables may be, at least in part, endogenously determined. This concern is

shared by a growing literature that provides evidence that corporate governance and firm value (or corporate governance and performance) may be simultaneously determined. Another frequent criticism of studies that test the effect of governance on valuation and performance is that these relations may be spurious. In that case, if the model specification adequately captures the effect of all relevant exogenous variables on valuation and performance, we should not find any remaining effect due to corporate governance. For these reasons, endogeneity is always an important factor to be considered in empirical studies of corporate governance and is addressed by us in Section 5.

More recently, financial economists have provided evidence of a significant relation between corporate governance and firm value in countries where poor investor protection makes expropriation by controlling shareholders a considerably greater problem. Klapper and Love (2004), for example, examine this relation in a cross-section of firms from 14 emerging markets using a governance score compiled by Credit Lyonnais Securities Asia (CLSA). The CSLA score is a composite of 57 binary (yes/no) questions covering seven different categories: management discipline, transparency and disclosure, board independency, board accountability, management accountability, investor protection and social awareness. Their empirical tests indicate that companies with higher governance standards have higher market valuation and operating performance and that these relations are stronger in countries with weaker legal systems. The authors conclude that voluntary corporate governance reforms may improve investor rights even though they are not a perfect substitute for an effective judicial system.

Durnev and Kim (2005) use the CLSA and a disclosure practices score prepared by Standard & Poor's (S&P) to test the association between corporate governance and valuation for a sample of firms from 27 countries. The S&P score consists of information regarding whether a

firm discloses information on 91 items that are divided into three subgroups: ownership and investor relations, transparency and disclosure, and board structure. Their empirical results also suggest that firms can increase shareholders value by adopting higher levels of corporate governance and disclosure standards especially in countries with weaker legal regimes. However, Durnev and Kim (2005) and Klapper and Love (2004) emphasize that, as these are cross-sectional studies, a time-series analysis would be required to address the endogeneity problem.

Baker et al. (2007) use monthly governance ratings compiled by AllianceBernstein for firms in 22 emerging countries to examine the impact of firm-level and country-level governance on market valuation and operating performance. Using fixed effects analysis to control for omitted firm characteristics, the authors find that improvements in governance have little effect on market valuation in countries with strong investor protection, positive and significant effect in countries with intermediate level of investor protection, and a negative and significant effect in countries with weak investor protection. These results suggest that higher standards of corporate governance may actually decrease company value if its implementation costs are not compensated by its benefits to shareholders.

An increasing number of country-level studies have provided comparable empirical evidence of the importance of corporate governance in emerging markets. Bai et al. (2003) use eight variables that proxy for internal and external mechanisms of control and find that investors pay a premium of up to 63 percent for the best-governed publicly-traded firms over the worst-governed firms in China. Black et al. (2005) show that a worst-to-best improvement in their Korean governance index, which includes 30 governance attributes, is associated with a 0.30 increase in Tobin's q, representing a 35 percent increase relative to the average Tobin's q of

0.86. On the other hand, the authors find no evidence that better governed Korean companies are more profitable. In looking at Russian firms, Black et al. (2006) combine six different indices and document a statistically and economically significant relation between this combined index and firm value. Chong and Lopez-de-Silanes (2006) construct an index with 55 governance practices that Mexican firms can voluntarily commit to and show a significant impact of corporate governance on valuation and operating performance in that emerging economy.

For a sample of Brazilian firms, Leal and Carvalhal-da-Silva (2005) construct a corporate governance index with 24 binary (yes/no) questions for the years of 1998, 2000, and 2002. The questions can be classified into four groups: disclosure, board composition, conflicts of interest, and shareholder rights. A worst-to-best improvement in their index is associated with a 0.38 increase in Tobin's  $q$ , representing a 42 percent increase for the average Tobin's  $q$  of 0.91. Silveira and Barros (2007) show that a worst-to-best change in a 20-question based governance index resulted in a 0.25 rise in Tobin's  $q$ , representing a 37 percent increase for the average Tobin's  $q$  in their sample. The results on these two studies are robust to the use of simultaneous equations to take into account the endogenous nature of the relation between governance and valuation. Carvalho and Pennacchi (2005) examine the market reaction to voluntary migrations to Bovespa's "good governance" market segments and find a significant decrease in the price differential between voting and non-voting stocks. This voting premium represents the price shareholders are willing to pay for voting rights and is considered to be the lower bound for private benefits of control by many authors. Carvalho and Pennacchi also find positive abnormal returns for non-voting stocks around the migration date. Carvalhal-da-Silva and Subrahmanyam (2007) find a negative relation between a 15-question governance index and the premium paid for voting shares.

Although these four studies have provided evidence illustrating the importance of corporate governance in Brazil, our paper adds to this literature by specifically examining the effectiveness of the set of governance practices targeted by Bovespa. As argued by Bebchuk et al. (2005) and Brown and Caylor (2006), not all governance provisions are significantly related to valuation and concentrating in an overly large set of provisions may lead firms to make unproductive and potentially value-destroying decisions. Consequently, assessing the effect of these corporate governance practices on firm value and operating performance provides valuable information regarding the success or failure of this voluntary reform in Brazil.

### **3. Corporate Governance practices and Novo Mercado**

Novo Mercado listing rules consist of provisions related to the separation of ownership and control, ownership dispersion, mandatory bid rule, board monitoring and reporting standards. We concentrate our analysis on six practices that we believe serve as good proxies for the set of rules that are targeted by the corporate governance reform promoted by Bovespa:

- 1) Ratio of cash-flow to voting rights owned by controlling shareholders greater than or equal to 1;
- 2) Minimum free-float of 25 percent of outstanding shares;
- 3) Tag-along rights granted to minority shareholders beyond what is required by law;
- 4) Board of directors with 5 or more effective members;
- 5) Directors elected for concurrent terms of one or two years;
- 6) Financial statements reconciled in accordance with IAS or US GAAP.

The definition of the variables used to represent these practices closely follows the definitions we find in Novo Mercado listing rules. Our first governance variable is based on the ratio of cash-flow to voting rights held by controlling shareholders as a proxy for the “one-share, one-vote policy.” Cash-flow rights are defined as the percentage of the outstanding shares held

by the controlling shareholder.<sup>5</sup> Voting rights are defined as the percentage of the voting shares held by the controlling shareholder. For the purpose of constructing our governance index, this variable (Cash-Flow to Voting Rights) takes on a value of one if the ratio is greater than or equal to 1 and zero otherwise. Our second governance variable is based on the stock free-float, which refers to the shares of the company that are not directly or indirectly owned by the controlling shareholder. Therefore, a minimum free-float of 25 percent means that the percentage of outstanding shares controlled by the main shareholder and related entities is less than 75 percent. The Minimum Free-Float variable in NM6 takes on a value of one if free-float is greater than or equal to 25 percent and zero otherwise.

Law 10303/01 requires that all minority holders of voting stocks receive at least 80 percent of the stock price paid to controlling shareholders when there is transference of control. Therefore, a company provides tag-along rights beyond what is required by law if it grants voting shareholders the right to receive more than 80 percent of the price paid to the controlling shareholder. We also include in this group those companies that grant tag-along rights to non-voting shareholders since Carvalhal-da-Silva and Subrahmanyam (2007) show that the price differential between voting and non-voting stocks is significantly lower in companies that voluntarily grant tag-along rights to non-voting shares. Our third governance variable (Superior Tag-Along Rights) takes on a value of one if the company's bylaws grant minority shareholders tag-along rights beyond the minimum legal requirement and zero otherwise.

Boards of directors in Novo Mercado firms must have at least five effective members elected by the General Meeting. Our fourth governance (Minimum Board Size) variable is based on this requirement. Specifically, companies with five or more directors are assigned a value of

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<sup>5</sup> A controlling shareholder is defined as an individual investor or group of investors who owns the largest percentage of voting shares. A group of investors is defined by shareholder agreements, business or family relations.

one whereas companies with less than five directors are assigned a value of zero for this variable. Novo Mercado firms cannot have staggered boards or directors elected for terms that exceed two years. Thus our fifth governance variable (Term of Directors) takes on a value of one if directors are elected for concurrent one- or two-year terms and zero otherwise. Finally, our sixth governance variable is based on whether a company reconciles its financial statements according to IAS or US GAAP and makes the reconciled statements available to all shareholders. Specifically, this variable (Superior Disclosure) takes on a value of one if the firm satisfies this disclosure requirement and zero otherwise.

As stated above, each of the six provisions considered in this study correspond to a binary question - a 'yes' answer is assigned a value of one and a 'no' answer is assigned a value of zero. The value of our composite index (NM6) is calculated by simply adding the values corresponding to the answers for those questions. Therefore, the NM6 for a Novo Mercado firm or any other firm that meets all six rules is six. It is important to note that Bovespa may allow Novo Mercado firms additional time for compliance with more onerous practices such as reconciliation of financial statements to IAS or GAAP and minimum free-float of 25 percent. For this reason, some firms listed on that premium segment may have a NM6 lower than six. The maximum value of NM6 for firms listed on Nível 2 is also six, but these firms are less likely to obtain this score because they have two classes of stocks (voting and non-voting) and controlling shareholders usually hold a majority of voting stocks without a matching percentage of non-voting stocks. Therefore, the ratio of cash-flow to voting rights owned by the controlling shareholder is very likely to be lower than one unless the firm is listed on Novo Mercado.<sup>6</sup> Since firms listed on Nível 1 commit only to one of the governance rules analyzed in our study

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<sup>6</sup> None of the Nível 2 firms in our sample has the ratio of cash-flow to voting rights greater than or equal to 1. Consequently, the maximum NM6 for these firms is 5.

(minimum free-float of 25 percent), their NM6 value is expected to be one like any other firm that meets only one of the six rules. But Nível 1 firms that commit to more than one rule have an NM6 greater than one. In any year that a firm does not meet any of the six rules, its NM6 is assigned a value of zero.

In Brazil, companies' bylaws may require that any corporate dispute between controlling and minority shareholders be resolved by a market arbitration panel whose members are distinguished experts in capital markets. By the end of 2005, Petrobras was the only firm that used market arbitration for dispute resolution and was not listed on Novo Mercado or Nível 2.<sup>7</sup> Consequently, a binary variable that equals one when the company settles corporate disputes through arbitration procedures will mainly be identifying companies listed on one of these two “good governance” segments. For this reason, we don't include the alternative to lengthy and costly legal processes in Brazilian courts when calculating our NM6 index.

#### **4. Sample selection and summary statistics**

Our sample consists of non-financial firms listed on the São Paulo Stock Exchange (Bovespa) with trading volume greater than 0.01 percent of the total volume traded in any of the years between 2001 and 2005. We do not include firms with negative book value of equity to avoid effects related to severe financial distress. The final sample of 178 firms (741 firm-year observations) is large enough to be considered as representative of the Brazilian-listed companies since it accounts for 81 percent of the stock market capitalization (excluding financial firms) over our sample period. Data on the six governance attributes is obtained from annual reports

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<sup>7</sup> Petrobras, a state-owned giant in the oil sector, also complies with all the other Nível 2 rules except for the tag-along rights beyond the legal requirement.

filed at the Comissão de Valores Mobiliários (CVM) and available through INFOinvest, and data on firm characteristics and stock prices is obtained from Economatica.<sup>8</sup>

The frequency distribution by year for our sample, shown in Table 1, Panel A, indicates no clustering in any specific year. Panel B shows the frequency distribution by industry. We use Bovespa's classification system, which divides industries into 9 non-financial categories according to the contribution of each industry to the firm's net sales. We observe a large number of firms in our sample classified as Basic Materials and Utilities and a relatively small number of firms in the Oil and Gas and Information Technology sectors. This high (low) representation of industries with assets that are very easily (difficult to be) monitored is to be expected in markets where expropriation by insiders is very common. And the low representation of companies in the Oil and Gas industry is explained by the government monopoly on exploration and distribution.

[Insert Table 1 here]

Table 2 provides summary statistics for Tobin's q, Return on Assets (ROA), the NM6 index, binary variables that identify the components of NM6, and binary variables that identify firms owned by foreign companies, families, and financial institutions. It also provides summary statistics for the following firm characteristics: book value of assets, two-year average of annual sales growth, inventory plus net PPE to assets ratio, capital expenditures to assets ratio, and the number of years the company is listed on Bovespa. Except for the NM6 and the binary variables, all variables are winsorized at the 1 and 99 percent levels to mitigate the effect of outliers. The mean (median) Tobin's q in our sample is 1.1446 (0.9946), that is, the market value of the average (median) firm is slightly greater than (almost equal to) the book value of its assets. The

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<sup>8</sup> CVM is the Brazilian equivalent of the Securities and Exchange Commission.

mean (median) score for NM6 is 2.52 (2.00), indicating a low level of shareholder rights especially for a period of a voluntary governance reform. Only 17.00 percent of our sample have a cash-flow to voting rights ratio greater than or equal to 1, confirming the widespread notion in the Brazilian academic literature and specialized press that most controlling shareholders in that country concentrate voting power without a matching share of cash-flow rights.

We also find that 72.33 percent of the observations meet the minimum free-float rule. Tag-along rights are granted beyond the legal requirement in 12.55 percent of our sample. Boards of directors have 5 or more members in 84.75 percent and these members are elected for concurrent one- or two-year terms in 46.42 percent of the observations. Financial statements are reconciled according to IAS or US GAAP in 18.89 percent of the firm-years. A foreign investor is the controlling shareholder in 28.48 percent of our sample. The corresponding figures for families or individual investors and financial institutions or pension funds are 40.22 and 5.40 percent respectively.

[Insert Table 2 here]

As we see in Table 3, Panel A, there was no firm with NM6 equal to six in the first two years of our sample period and less than three percent of the firms in our sample had achieved this highest possible score for NM6 after five years of the voluntary reform. This is explained by the fact that the first listing on Novo Mercado happened only in 2002, by the fact that Bovespa grants additional time for compliance with more onerous governance practices, and by the fact that we consider that a firm reconciles its financial statements according to IAS or US GAAP

only after the firm makes these statements available to all shareholders.<sup>9</sup> Panel B shows the percentage (number) of companies in our sample that adopted each of the practices used to construct our index through time. There was a large increase in the percentage (number) of companies that grant superior tag-along rights to minority shareholders, whereas there was noticeable improvement in four other governance practices: Cash-Flow to Voting Rights Ratio, Minimum Board Size, Term of Directors, and Superior Disclosure. There is no evidence that the voluntary reform led to any increase in the percentage (number) of firms that met the minimum free-float requirement.

[Insert Table 3 here]

Table 4 presents the correlation coefficients between pairs of variables of main interest. Both Tobin's q and ROA are positively correlated with NM6 and these correlations are significant at the 0.00 level. Tobin's q is significantly correlated with four of the governance practices in NM6, with the exceptions being the Minimum Free-Float and the Minimum Board Size variable. ROA is also positively and significantly correlated with four of the governance practices in NM6. ROA is not significantly correlated with Cash-Flow to Voting Rights and Minimum Free-Float. It is interesting to observe that Cash-Flow to Voting Rights and Minimum

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<sup>9</sup> Coffee (2002) suggests that the initially weak response to listing on Bovespa's "good governance" segments implied that a new listing segment would face tough competition with the stronger "reputation brand" of the NYSE. At the end of 2005, 18 companies were listed on Novo Mercado: two of these firms were not included in our sample because they are financial firms, five firms were IPOs that are not included in our sample because they did not have trading volume greater than 0.01 percent of the total volume traded in that year or because they had missing data for the variables used in our study, seven firms made financial statements according to IAS or US GAAP only in 2006 or later, and four firms had NM6 equal to six. By the end of 2006, the 40 companies listed on Novo Mercado represented 14 percent of the stock market capitalization and 17 percent of the trading volume. Other 50 companies were listed on Nível 1 and Nível 2.

Free-Float are negatively correlated, what shows that controlling shareholders who issue non-voting stocks are more likely to meet the minimum free-float requirement.

The square of the correlation coefficient gives us the proportion of the variation in one variable that is accounted for by a linear fit of another. While we observe that 6.82 percent of the variation in Tobin's q can be explained by the variation in NM6, only 3.59 percent of the variation of ROA can be explained by our governance index. Between 1.16 and 4.71 (0.39 and 2.83) percent of the variation of Tobin's q (ROA) can be explained by the individual governance practices that constitute our index. In the next section, we combine our NM6 and the individual governance practices with a set of control variables in multiple regression analyses for a more accurate assessment of the impact of these variables on firm value and performance.

[Insert Table 4 here]

## **5. Methodology and empirical results**

We start our analysis using panel data models to test the association of our NM6 index with firm valuation and operating performance. Similar to previous work in the emerging markets literature (e.g. Klapper and Love, 2004 and Chong and Lopez-de-Silanes, 2006), we use Tobin's q as our measure of firm valuation and ROA as our measure of operating performance. Tobin's q is defined as  $((\text{book value of assets} + \text{market value of equity} - \text{total shareholders' equity} - \text{deferred taxes}) / \text{book value of assets})$ . We define ROA as earnings before interest and taxes divided by assets. Our explanatory variables of main interest are NM6 and the six governance practices used to construct NM6. The natural logarithm of book value of assets and the natural logarithm of the number of years that the firm is listed on Bovespa are initially

included as control variables but later are used only as instrumental variables in the 2sls estimation of valuation and performance respectively..

In Table 5, Models (1) and (2) present the results for pooled OLS regressions in which the dependent variable is Tobin's q. The main explanatory variables are NM6 and the binary variables that identify each of our proxies for Novo Mercado provisions. We include industry and year dummies and estimate clustered (Rogers) standard errors, which are White standard errors that account for within firm correlation. According to Petersen (2007), clustered standard errors are unbiased whether the firm effect is permanent or temporary, while fixed effects and random effects produce unbiased standard errors only when the firm effect is permanent. In Model (1), the coefficient on NM6 is positive and significant at the 0.03 level and indicates that a worst-to-best change in our governance index predicts a 0.3462 increase in Tobin's q, which corresponds to a 30.25 (34.81) percent increase for a company with Tobin's q equal to the sample mean (median).

In Model (2), which has the binary variables that identify the six Novo Mercado proxies as the main regressors, we observe positive and significant coefficients only for Superior Tag-Along Rights and for Superior Disclosure. The binary variables for Minimum Free-Float and Term of Directors have negative coefficients that are not significant. According to Model (2), a company that grants tag-along rights to minority shareholders beyond what is required by law has Tobin's q that is 0.1568 higher. This represents a 13.70 (15.77) percent increase for a company with Tobin's q equal to the sample mean (median). And a company that prepares financial statements according to IAS or US GAAP has Tobin's q that is 0.2187 higher than a company that doesn't. This represents a 19.11 (21.99) percent increase for a company with Tobin's q equal to the sample mean (median).

Models (3) and (4) present the results for pooled OLS regressions in which the dependent variable is ROA and the main explanatory variables are NM6 and the binary variables that proxy for Novo Mercado rules. We include industry and year dummies in all regressions and estimate clustered (Rogers) standard errors. In model (4), the coefficient on NM6 is positive, significant at the 0.02 level and indicates that a worst-to-best change in our governance index predicts a 0.0576 increase in ROA, which corresponds to a 55.60 (58.60) percent increase for the average (median) ROA in our sample. In model (4), which has binary variables that identify the Novo Mercado governance practices as the main regressors, only the coefficient on the binary variable for Term of Directors is positive and significant. A company with ROA equal to the sample mean (median) would have an 18.73 (19.74) percent increase in ROA if directors are elected for concurrent one- or two-year terms.

[Insert Table 5 here]

Table 6 presents the pooled OLS estimates with clustered standard errors for regressions in which we include one individual governance practice in each model. All models include the control variables reported in Table 5 but we suppress the coefficients in Table 6 for the sake of brevity. In Panel A, in which the dependent variable is Tobin's q, the coefficients on the binary variables are positive and significant for Cash-Flow to Voting Rights ratio, Superior Tag-Along Rights, and Superior Disclosure. The estimated coefficients represent, respectively, an 11.81, 15.35, and 18.42 (13.59, 17.67, and 21.19) percent increase for a company that has Tobin's q equal to the sample mean (median) and meets these requirements. In Panel B, which has ROA as the dependent variable, the only binary variable that has a significant coefficient is the one that

identifies companies with concurrent one or two-year terms for directors. A company with ROA equal to the sample mean (median) would have a 0.1757 (0.1851) percent increase in ROA if it had directors elected for concurrent one- or two-year terms.

[Insert Table 6 here]

### 5.1 Taking endogeneity in consideration

Corporate governance studies are always very cautious in claiming a causal relation between corporate governance and valuation or corporate governance and performance because these relations may be endogenous and, therefore, OLS estimators may be biased and suggest a casual relation that does not exist. In this section, we make use of estimation techniques that consider the possibility that governance and our dependent variables are simultaneously determined or affected by omitted firm characteristics.

For example, at the same time that stronger governance practices may lower expropriation by insiders and increase firm value, poor valuation perspectives may lead companies to adopt governance practices that weaken shareholders rights and insulate controlling shareholders from internal and external disciplinary forces. Also, we may observe a spurious correlation between NM6 and valuation if some firm specific characteristic that affect both governance and firm value are not present in the specification. In the pooled OLS regressions discussed above, we addressed this omitted variable issue by including relevant control variables to prevent them from driving the relation between NM6 and our dependent variables. We also control for potential endogeneity problems arising from differences across industries by including dummy variables for industry classification.

We first conduct a two-stage least squares (2SLS) analysis in which the structural model has Tobin's q as the dependent variable and the first-stage model has our governance index (NM6) as the regressand. The 2SLS estimation requires that we identify an exogenous instrument that is highly correlated with corporate governance but uncorrelated with firm value (or performance).<sup>10</sup> In their study of the link between ownership and valuation, Himmelberg et al. (1999) suggest that the inclusion of proxies for future growth opportunities eliminates a priori the need for including the size variable as a determinant of firm value. Since we include the two-year average of annual sales growth and the capital expenditures to assets ratio in our regressions, we exclude the natural logarithm of assets from the valuation model and use it as an instrument to predict the NM6 index used in the Tobin's q regression. In first-stage model, we also include the binary variables that identify the controlling shareholder, the two-year average of annual sales growth, the ratio of tangible assets to total assets, the ratio of capital expenditures to assets, the lag of ROA, the natural logarithm of listing years, and industry and year dummies as controls. Table 7 presents the 2SLS coefficient estimate on the predicted NM6, which indicates a positive and significant relation between our governance index and firm value.<sup>11</sup>

When the structural model has ROA as the dependent variable, we exclude the natural logarithm of the number of years that the company is listed on Bovespa from the performance model and use it as an instrument to predict the NM6 index used in the ROA regression. In first-stage model, we also include the binary variables that identify the controlling shareholder, the

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<sup>10</sup> A good instrumental variable is highly correlated with the endogenous variable but it is not correlated with the error in the structural model. If this is not the case, 2SLS estimates may be more biased and more likely to provide the wrong inferences than OLS estimates, as suggested by Larcker and Rusticus (2007). Identifying a good instrumental variable is a difficult task and, therefore, the results presented in Table 7 must be interpreted with caution.

<sup>11</sup> The coefficient estimates for NM6 in the second stage regressions represent the relation between the predicted NM6 and the dependent variable. They do not represent the relation between our Novo Mercado index and Tobin's q or ROA.

natural logarithm of total assets, the two-year average of annual sales growth, the ratio of tangible assets to total assets, the ratio of capital expenditures to assets, and industry and year dummies as controls. In Table 7, we see that the coefficient estimate on the predicted NM6 is not significantly related to ROA, indicating that the relation between these variables is endogenous. Therefore, we cannot conclude that the governance practices analyzed in this paper have a significant impact in improving operating performance.

[Insert Table 7 here]

We also estimate the relation between the governance practices targeted by Bovespa and valuation (and performance) using fixed effects estimation. If the source of endogeneity is a firm-specific time-invariant characteristic that is omitted from our model specification, fixed effects help us to control for this unobserved heterogeneity. Table 8 shows that the coefficient on NM6 is still significantly related to valuation in fixed effects regressions with robust standard errors. This coefficient indicates that Tobin's q is 0.5010 higher for a firm that commits to all six governance provisions than for a firm that does not. That is, a worst-to-best change in the NM6 score would represent a 43.77 (50.37) percent increase for a company with Tobin's q equal to the sample mean (median) after controlling for omitted time-invariant characteristics. The coefficient estimate on NM6 is not significant in the performance (ROA) fixed effects regression, indicating that relation between NM6 and operating performance is spurious and not significant if we control for omitted variables.

[Insert Table 8 here]

## 5.2 Corporate Governance and Stock Returns

In Figure 1, we observe that a stock index that mimics a theoretical portfolio with stocks listed on Bovespa's "good governance" segments (Novo Mercado, Nível 2 and Nível 1) persistently outperforms the two most important Brazilian market indices. As argued by Gompers et al. (2003), we should not observe any effect of corporate governance on stock returns beyond the announcement date of the commitment to higher standards of investor protection unless this relation is not fully incorporated by the market. In this section, we follow those authors and examine the relation between our corporate governance index and returns by estimating Carhart's (1997) four-factor model, which combines Fama and French's (1993) three-factor model and Jegadeesh and Titman's (1993) momentum factor. The model is:

$$R_t = \alpha + \beta_1 RMRF_t + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 Momentum_t + \varepsilon_t$$

where  $R_t$  is the monthly risk premium to a portfolio associated with a particular trading strategy and  $RMRF_t$  is the monthly market risk premium in month ' $t$ '.<sup>12</sup>  $SMB_t$ ,  $HML_t$ , and  $Momentum_t$  are monthly returns on value-weighted, zero-investment factor-mimicking portfolios created based on market capitalization, book-to-market ratio, and 11-month momentum in stock returns. The intercept or alpha represents the return of the trading strategy in excess of passive investment in the four factors. We consider companies with more than one class of stocks as a single portfolio weighted by the proportion that each class represents in the total number of outstanding shares. Stock returns are winsorized at the 1 and 99 percent levels to mitigate the effect of outliers.

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<sup>12</sup> We follow Leal and Rodrigues (2003) and use CDI as a proxy for the risk-free rate and Ibovespa as a proxy for the market portfolio. CDI (Interbank Deposit Certificate) is a Brazilian interest reference rate published on a daily basis by the Brazilian Securities Custody and Settlement Center. Ibovespa is the main indicator for the São Paulo stock market and reflects the performance of the most liquid stocks.

The construction of the SMB (small minus big) and HML (high minus low) factors follows Fama and French (1993). At the end of June, we allocate stocks to two size (small or big) portfolios according to whether their market capitalization is below or above the median. We then allocate the stocks to three portfolios based on their book-to-market ratio at the end of the previous fiscal-year using the 30 and 70 percentiles as breakpoints. The final portfolios are the intersections of the two portfolios formed on size and the three portfolios formed on the ratio of book to market value of equity. Value-weighted monthly returns on these portfolios are calculated from July to the following June. SMB is the difference between the average returns on the three small-cap portfolios and the average returns on the three big-cap portfolios. HML is the difference between the average returns on the two high book-to-market portfolios and the average returns on the two low book-to-market portfolios. The construction of the Momentum factor follows Carhart (1997) and represents the difference between the value-weighted average returns on companies with the highest 30 percent eleven-month returns and the value-weighted average returns on companies with the lowest 30 percent eleven-month returns.

In the first row of Table 9, Panel A, the dependent variable is the monthly risk-premium for a value-weighted portfolio of firms with NM6 greater than the median. In the second row, the dependent variable is the monthly risk-premium for a value-weighted portfolio of firms with NM6 lower than or equal to the median. The third row presents the results when we estimate the model with the dependent variable equal to the difference between the monthly return on the high NM6 portfolio and the monthly return on the low NM6 portfolio. The alpha in this case is 0.87 percent per month (10.44 percent per year) and is significant at the 0.05 level. The low NM6 portfolio earned a negative and significant alpha of 0.62 percent (7.44 percent per year), whereas the high NM6 portfolio earned a positive but not statistically significant alpha of 0.25

percent (3.00 percent per year). In summary, the significant difference between the performances is driven by the underperformance of stocks with NM6 lower than or equal to the sample median.

[Insert Table 9 here]

These results are consistent with Gompers et al. (2003), who show that an investment strategy that purchased shares of firms with less entrenched managers and sold shares in firms with more entrenched managers earned an 8.5 percent abnormal return per year in the US. But in the case of the American firms the result is driven by overperformance of better governed firms and underperformance of poorly governed firms. Our result is also consistent with the Credit Lyonnais Securities Asia's (CLSA) report of lower returns for poorly governed companies in emerging markets.<sup>13</sup> Since additional compensation for higher risk in poorly governed firms should result in higher, not lower, returns, Klapper and Love (2004) rely on market inefficiency arguments to interpret the CLSA report finding. The authors suggest that, for example, investors may underestimate the costs related to the conflict of interest between insiders and minority shareholders, resulting in a positive relation between governance and returns (i.e. weaker shareholder rights leading to lower returns).

Since Amihud and Mendelson (1986), the finance literature has discussed whether liquidity significantly affects expected rate of returns. According to those in favor of the hypothesis that there is a significant relation between portfolio returns and liquidity, illiquid stocks demand higher required rates of return than liquid stocks do. Therefore, we examine the

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<sup>13</sup> Credit Lyonnais Securities Asia (CLSA), 2001, *Saints & sinners: Who's got religion?*

possibility that the expected excess return found in this section is in fact a premium for illiquidity by adding an illiquidity factor to the model. This fifth factor represents the difference between the value-weighted average returns on the 30 percent less liquid stocks and the value-weighted average returns on the 30 percent more liquid stocks. Illiquidity is calculated as in Amihud (2002) but using an eleven-month instead of a daily period, that is, we use the ratio of absolute return to financial trading volume for an eleven-month period as proxy for illiquidity. The results on Panel B show that we still find a positive and significant excess return for our investment strategy (alpha equals 0.85 percent per month, that is, 10.20 percent per year) and this result is still driven by underperformance of poorly governed company (alpha equals negative 0.61 percent per month, that is, negative 7.32 percent per year).

## **6. Summary and conclusions**

In December 2000, the São Paulo Stock Exchange (Bovespa) launched a new premium segment, Novo Mercado, for companies that voluntarily subscribe to what the exchange calls “good practices of corporate governance”. We combine six governance practices common to all firms listed on Novo Mercado into a new index, NM6, and test whether these practices targeted by Bovespa are significantly related to firm value and operating performance. The six practices proxy for the following Novo Mercado rules: “one-share, one vote”, ownership dispersion, mandatory bid rule, boards with at least 5 directors, concurrent one- or two-year terms for directors, and financial statements reconciled in accordance with IAS or US GAAP.

We find that a worst-to-best improvement in our NM6 index results in an increase of 30.2 (34.8) percent for the mean (median) Tobin’s q in our sample. The positive relation between NM6 and Tobin’s q is robust when we take in consideration simultaneously determined regressor

and omitted characteristics. When we replace our composite index with binary variables that identify the individual governance practices, the following three practices have positive and significant coefficients: cash-flow to voting rights ratio greater than or equal to 1, tag-along rights beyond the legal requirement, and financial statements reconciled to IAS and US GAAP. The estimated coefficients for minimum free-float, boards with five or more directors and concurrent one- or two-year terms for directors are not statistically significant. NM6 is not significantly related to operating performance in 2SLS or fixed effects estimations. Finally, we find that a zero-investment strategy that bought stocks of firms with high NM6 and sold stocks of firms with low NM6 would have resulted in a 10.4 percent abnormal return per year over our sample period, a result that is driven by the underperformance of stocks with low NM6. As suggested by Klapper and Love (2004), this finding is consistent with investors underestimating the agency costs associated with weaker shareholder rights, but other interpretations that rely on market inefficiency are also possible.

This paper adds to the existing literature by providing empirical evidence of the success of a voluntary corporate governance reform in an emerging market often characterized as having weak legal environment and poor shareholder rights. Our findings have important policy implications with respect to the development of stock markets in countries with high ownership concentration and large private benefits of control, where instituting mandatory reforms is likely to be a difficult and lengthy process. Our work should provide valuable information to market participants, institutions and policy-makers who are engaged in the current debate regarding the role and design of corporate governance in less developed stock markets.

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## Appendix

### Variables definitions:

**Tobin's q** - ((book value of assets + market value of equity – total shareholders' equity – deferred taxes)/ book value of assets).

**ROA** - earnings before interest and taxes divided by book value of assets.

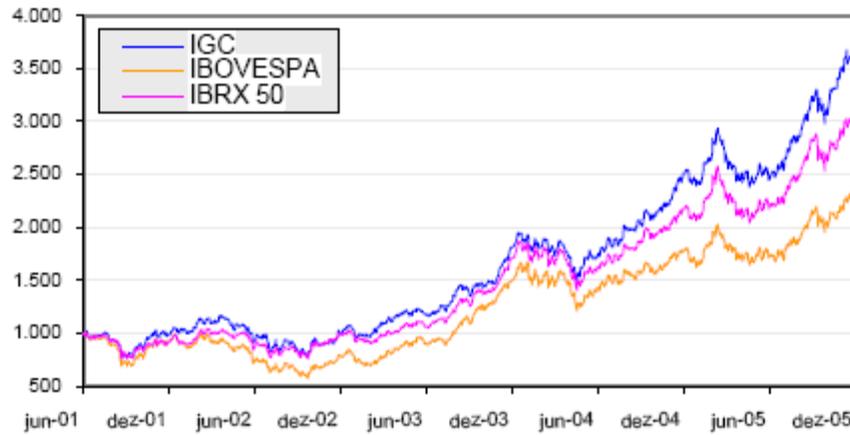
**NM6** – a composite index calculated by adding the following binary variables:

1. *Cash-Flow to Voting Rights:*  
a binary variable that equals one if the ratio of cash-flow rights to voting rights owned by the controlling shareholder is greater than or equal to 1 and zero otherwise.
2. *Minimum Free Float:*  
a binary variable that equals one if the percentage of outstanding shares owned by the controlling shareholder and related entities is less than 75 percent and zero otherwise.
3. *Superior Tag-Along Rights:*  
a binary variable that equals one if the company's bylaws grants minority shareholders tag along rights beyond the legal requirement and zero otherwise.
4. *Minimum Board Size:*  
a binary variable that equals one if the board has 5 or more directors and zero otherwise.
5. *Term of Directors:*  
a binary variable that equals one if directors are elected for concurrent, 1- or 2-year terms and zero otherwise.
6. *Superior Disclosure:*  
a binary variable that equals one if the company prepares financial statements according to IAS or US GAAP (and makes the statement available to all shareholders) and zero otherwise.

**Figure 1**

**Performance of Bovespa main indices between Jun 01 and Dec 05**

The IGC measures the return of a theoretical portfolio constituted by all shares traded on the three “good governance” markets. IBovespa is the main index for the Brazilian stock market and measures the returns of stocks representing more than 80 percent of that exchange trading volume. IBrX-50 measures the total return of a theoretical portfolio constituted by the 50 most traded stocks. Source: Novo Mercado (Bovespa) informative report n. 76, January 2006.



**Table 1**  
**Frequency Distribution**

Our sample consists of 178 firms and 741 firm-year observations with the most liquid stocks traded on BOVESPA between 2001 and 2005. This represents 81 percent of the stock market capitalization in that sample period. Panel A shows the distribution of firms by year. Panel B shows the distribution of firms by industry as defined by Bovespa, which classifies firms according to the contribution of each industry to net sales.

<b>Panel A: Firms by year</b>		
Year	No.	(% )
2001	157	21.19
2002	151	20.38
2003	148	19.97
2004	145	19.57
2005	140	18.89
TOTAL	741	100.00

<b>Panel B: Firms by industry</b>		
Industry	No.	(% )
Oil and Gas	5	2.81
Basic Materials	46	25.84
Capital Goods	21	11.80
Construction and Transportation	14	7.87
Consumer Non Cyclical	17	9.55
Consumer Cyclical	20	11.24
Information Technology	3	1.69
Telecommunications	21	11.80
Utilities	31	17.42
TOTAL	178	100.00

**Table 2**  
**Descriptive Statistics**

Tobin's q is defined as ((book value of assets + market value of equity – total shareholders' equity – deferred taxes)/ book value of assets). ROA is the ratio of earnings before interest and taxes to book value of assets. NM6 is a composite index calculated by adding the following binary variables: (A) **Cash-Flow to Voting Rights**: a binary variable that equals one if the ratio of cash-flow rights to voting rights owned by the controlling shareholder is greater than or equal to 1 and zero otherwise. (B) **Minimum Free-Float**: a binary variable that equals one if the percentage of outstanding shares owned by the controlling shareholder and related entities is less than 75 percent and zero otherwise. (C) **Superior Tag-Along Rights**: a binary variable that equals one if the company's bylaws grant minority shareholders tag-along rights beyond the legal requirement and zero otherwise. (D) **Minimum Board Size**: a binary variable that equals one if the board has 5 or more directors and zero otherwise (E) **Term of Directors**: a binary variable that equals one if directors are elected for concurrent, 1- or 2-year terms and zero otherwise. (F) **Superior Disclosure**: a binary variable that equals one if the company prepares financial statements according to IAS or US GAAP (and makes the statement available to all shareholders) and zero otherwise. Except for NM6 and the binary variables, all the other variables are winsorized at the 1 and 99 percent levels to mitigate the effect of outliers.

Variable	Mean	Median	Std Dev	1 Pct	99 Pct	N
Tobin's q	1.1446	0.9946	0.6014	0.3997	6.1863	741
EBIT to assets	0.1036	0.0983	0.0832	-0.1891	0.3427	741
NM6 index	2.52	2.00	1.09	0.00	6.00	741
Cash-Flow to Voting Rights	0.1700	0.00	0.3759	0.00	1.00	741
Minimum Free-Float	0.7233	1.00	0.4476	0.00	1.00	741
Superior Tag-Along Rights	0.1255	0.00	0.3315	0.00	1.00	741
Minimum Board Size	0.8475	1.00	0.3597	0.00	1.00	741
Term of Directors	0.4642	0.00	0.4991	0.00	1.00	741
Superior Disclosure	0.1889	0.00	0.3917	0.00	1.00	741
Foreign controlling shareholder	0.2848	0.00	0.4516	0.00	1.00	741
Family controlling shareholder	0.4022	0.00	0.4907	0.00	1.00	741
Institutional controlling shareholder	0.0540	0.00	0.2261	0.00	1.00	741
Assets ('000)	4,913,463	1,647,885	8,820,592	19,431	56,652,644	741
Sales growth	0.1958	0.1655	0.2433	-0.4265	1.4585	741
(Inventory + PPE) to assets	0.4062	0.4070	0.2035	0.0004	0.8986	741
Capex to assets	0.1924	0.1714	0.1156	0.0007	0.7658	741
Listing years	13.52	11.00	10.08	1.00	56.00	741

**Table 3**  
**Firms meeting Novo Mercado rules**

Panel A provides the percentage (number) of firms in our sample that met Novo Mercado regulations over the years in our sample period. For example, 2.86 percent of the sample (4 firms) met 6 governance rules in 2005. Panel B presents the percentage (number) of firms in our sample that adopted each of the six individual corporate governance practices between 2001 and 2005. For example, 23.57 percent of the sample (33 firms) reconciled its statements according to IAS or GAAP in 2005 and made the statements available to all shareholders.

<b>Panel A: NM6 index</b>						
0	1	2	3	4	5	6
<b>2001</b>						
1.91 (3)	17.83 (28)	43.31 (68)	31.85 (50)	4.46 (7)	0.64 (1)	0.00 (0)
<b>2002</b>						
1.99 (3)	15.23 (23)	37.75 (57)	33.77 (51)	7.95 (12)	3.31 (5)	0.00 (0)
<b>2003</b>						
1.35 (2)	14.19 (21)	37.84 (56)	33.78 (50)	8.78 (13)	2.70 (4)	1.35 (2)
<b>2004</b>						
2.07 (3)	7.59 (11)	38.62 (56)	35.17 (51)	12.41 (18)	2.76 (4)	1.38 (2)
<b>2005</b>						
2.14 (3)	6.43 (9)	34.29 (48)	29.29 (41)	12.14 (17)	12.86 (18)	2.86 (4)

<b>Panel B: Index components</b>					
	2001	2002	2003	2004	2005
Cash-Flow to Voting Rights	10.83 (17)	13.25 (20)	14.86 (22)	21.38 (31)	25.71 (36)
Minimum Free-Float	73.89 (116)	71.52 (108)	70.95 (105)	70.34 (102)	75.00 (105)
Superior Tag-Along Rights	0.00 (0)	10.60 (16)	11.49 (17)	15.86 (23)	26.43 (37)
Minimum Board Size	80.89 (127)	82.12 (124)	86.49 (128)	86.90 (126)	87.86 (123)
Term of Directors	41.40 (65)	45.03 (68)	44.59 (66)	47.59 (69)	54.29 (76)
Superior Disclosure	14.01 (22)	17.88 (27)	19.59 (29)	20.00 (29)	23.57 (33)

**Table 4**  
**Correlation coefficient matrix**

This table shows the pair-wise correlation matrix for the following variables used in our study: (1) Tobin's q ratio, (2) EBIT to assets, (3) NM6 index, (4) Cash-Flow to Voting Rights, (5) Minimum Free Float, (6) Superior Tag-Along Rights, (7) Minimum Board Size, (8) Term of Directors, and (9) Superior Disclosure.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	1								
(2)	0.4413 (0.00)	1							
(3)	0.2612 (0.00)	0.1895 (0.00)	1						
(4)	0.1825 (0.00)	0.0078 (0.83)	0.2795 (0.00)	1					
(5)	-0.0078 (0.83)	0.0531 (0.15)	0.4539 (0.00)	-0.3224 (0.00)	1				
(6)	0.2170 (0.00)	0.0628 (0.09)	0.5236 (0.00)	0.1105 (0.00)	0.0886 (0.02)	1			
(7)	0.0520 (0.16)	0.1153 (0.00)	0.4377 (0.00)	0.0321 (0.38)	0.0901 (0.01)	0.1380 (0.00)	1		
(8)	0.1075 (0.00)	0.1682 (0.00)	0.5186 (0.00)	0.0685 (0.06)	0.0373 (0.31)	0.1619 (0.00)	-0.0492 (0.18)	1	
(9)	0.1906 (0.00)	0.0846 (0.02)	0.4831 (0.00)	-0.0258 (0.48)	0.2214 (0.00)	0.0669 (0.07)	0.1088 (0.00)	-0.0345 (0.35)	1

**Table 5**  
**Pooled OLS Regressions**

In models (1) and (2) the dependent variable is Tobin's q. In models (3) and (4) the dependent variable is ROA. All regressions include industry and year dummies and estimate clustered (Rogers) standard errors. Except for NM6 and the binary variables, all the other variables are winsorized at the 1 and 99 percent levels to mitigate the effect of outliers. P-values are shown in parentheses.

	Tobin's q		ROA	
	(1)	(2)	(3)	(4)
intercept	0.3796 (0.23)	0.9116 (0.01)	0.0075 (0.89)	-0.0162 (0.78)
NM6 index	0.0577 (0.03)		0.0096 (0.02)	
Cash-Flow to Voting Rights		0.1276 (0.14)		-0.0013 (0.90)
Minimum Free-Float		-0.0230 (0.69)		0.0071 (0.45)
Superior Tag-Along Rights		0.1568 (0.06)		0.0064 (0.58)
Minimum Board Size		0.0096 (0.87)		0.0187 (0.16)
Term of Directors		-0.0512 (0.31)		0.0194 (0.06)
Superior Disclosure		0.2187 (0.03)		0.0021 (0.86)
Foreign controlling shareholder	0.0958 (0.18)	0.0721 (0.32)	0.0389 (0.00)	0.0409 (0.00)
Family controlling shareholder	-0.0337 (0.62)	-0.0383 (0.56)	-0.0045 (0.69)	-0.0051 (0.67)
Institutional controlling shareholder	-0.0598 (0.69)	-0.1080 (0.44)	0.0111 (0.61)	0.0144 (0.51)
Natural log (assets)	0.0272 (0.16)	0.0009 (0.97)	0.0030 (0.41)	0.0041 (0.28)
Sales growth	0.3095 (0.00)	0.3175 (0.00)	0.0579 (0.00)	0.0575 (0.00)
(Inventory + PPE) to assets	-0.4507 (0.00)	-0.4398 (0.00)	0.0269 (0.29)	0.0248 (0.33)
Capex to assets ratio	0.9635 (0.00)	0.9784 (0.00)	0.1474 (0.00)	0.1407 (0.00)
Lag(EBIT to assets ratio)	2.3024 (0.00)	2.3595 (0.00)		
Natural log (listing years)	-0.1407 (0.03)	-0.1353 (0.03)	0.0016 (0.84)	0.0014 (0.86)
total sample	741	741	741	741
Adjusted R-square	0.3692	0.3824	0.2731	0.2740

**Table 6****Pooled OLS Regressions with Individual Governance Practices**

In Panel A, the dependent variable is Tobin's q, whereas in Panel B the dependent variable is ROA. All models contain the control variables reported in Table 5, including industry and year dummies, but we suppress the coefficients for sake of brevity. P-values are shown in parentheses.

<b>Panel A:</b> The dependent variable is Tobin's q						
	(1)	(2)	(3)	(4)	(5)	(6)
Cash-Flow to Voting Rights	0.1352 (0.10)					
Minimum Free-Float		0.0028 (0.96)				
Superior Tag-Along Rights			0.1757 (0.04)			
Minimum Board Size				0.0250 (0.70)		
Term of Directors					-0.0213 (0.69)	
Superior Disclosure						0.2108 (0.03)
total sample	741	741	741	741	741	741
Adjusted R-square	0.3670	0.3608	0.3686	0.3610	0.3610	0.3727

<b>Panel B:</b> The dependent variable is ROA						
	(1)	(2)	(3)	(4)	(5)	(6)
Cash-Flow to Voting Rights	-0.0013 (0.90)					
Minimum Free-Float		0.0093 (0.32)				
Superior Tag-Along Rights			0.0120 (0.31)			
Minimum Board Size				0.0177 (0.19)		
Term of Directors					0.0182 (0.07)	
Superior Disclosure						0.0071 (0.54)
total sample	741	741	741	741	741	741
Adjusted R-square	0.2610	0.2632	0.2628	0.2658	0.2703	0.2616

**Table 7**  
**Two-Stage Least Squares Regressions**

In the first stage, we use an exogenous instrument and control variables to predict NM6. In the second stage, we regress our dependent variable on the predicted NM6 and control variables. All models include industry and year dummies and estimate clustered (Rogers) standard errors. Except for NM6, all the variables are winsorized at the 1 and 99 percent levels to mitigate the effect of outliers. P-values are shown in parentheses.

	Tobin's q		ROA	
	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage
<b>Dependent Variable</b>	<b>NM6</b>	<b>Tobin's q</b>	<b>NM6</b>	<b>Tobin's q</b>
intercept	0.1062 (0.91)	0.3620 (0.33)	0.1010 (0.91)	0.0082 (0.88)
Predicted value for NM6 index		0.2242 (0.10)		0.0035 (0.90)
Foreign controlling shareholder	-0.4918 (0.01)	0.1777 (0.06)	-0.4478 (0.02)	0.0362 (0.03)
Family controlling shareholder	0.1065 (0.59)	-0.0515 (0.51)	0.1107 (0.58)	-0.0038 (0.75)
Institutional controlling shareholder	0.0019 (1.00)	-0.0601 (0.74)	0.0429 (0.89)	0.0114 (0.62)
Natural log (assets)	0.1636 (0.01)		0.1724 (0.00)	0.0041 (0.47)
Sales growth	-0.0598 (0.82)	0.3195 (0.00)	-0.0478 (0.87)	0.0576 (0.00)
(Inventory + PPE) to assets	0.1224 (0.80)	-0.4711 (0.01)	0.1587 (0.75)	0.0279 (0.29)
Capex to assets ratio	0.9148 (0.04)	0.8112 (0.01)	1.1350 (0.02)	0.1542 (0.00)
Lag(EBIT to assets ratio)	1.5340 (0.06)	2.0470 (0.00)		
Natural log (listing years)	-0.2670 (0.01)	-0.0962 (0.22)	-0.2690 (0.01)	
total sample	741	741	741	741

**Table 8**  
**Fixed Effects Regressions**

This table shows the estimates for panel data fixed effects regressions with robust standard errors. Except for NM6, all the other variables are winsorized at the 1 and 99 percent levels to mitigate the effect of outliers. P-values are shown in parentheses.

	Tobin's q	ROA
NM6 index	0.0835 (0.05)	0.0020 (0.62)
Foreign controlling shareholder	-0.0514 (0.62)	0.0341 (0.04)
Family controlling shareholder	0.0416 (0.73)	0.1036 (0.00)
Institutional controlling shareholder	-0.0231 (0.90)	0.0509 (0.03)
Natural log (assets)		-0.0530 (0.00)
Sales growth	0.1825 (0.03)	0.0734 (0.00)
(Inventory + PPE) to assets	0.6433 (0.05)	-0.0976 (0.03)
Capex to assets ratio	0.5263 (0.00)	0.0497 (0.06)
Lag(EBIT to assets ratio)	0.6506 (0.10)	
Natural log (listing years)	0.0739 (0.66)	

Total sample	741	741
P > F (test for joint significance)	(0.00)	(0.00)
P > F (test that all firm fixed effects are jointly '0')	(0.00)	(0.00)
Adjusted R-square	0.7741	0.7077

**Table 9****Stock performance and Novo Mercado**

Panel A presents the results of estimating the four-factor model of Carhart (1997). Panel B also includes an illiquidity factor (ILLIQ) mimicking portfolios created based on Amihud's (2002) illiquidity measure. The first row (high NM6) presents the results when we estimate the model with the dependent variable equal to the monthly risk-premium for a value-weighted portfolio of firms with NM6 greater than the median. The second row (low NM6) presents the results when we estimate the model with the dependent variable equal to the monthly risk-premium for a value-weighted portfolio of firms with NM6 lower than or equal to the median. The third row (high minus low) presents the results when we estimate the model with the dependent variable equal to the difference between the monthly value-weighted return on the high NM6 portfolio and the monthly value-weighted return on the low NM6 portfolio. P-values are shown in parentheses.

Panel A: Four-factor model of Carhart (1997)								
	Intercept	RMRF	SMB	HML	MOM	R-square	Adjusted R-square	
High NM6	0.0025 (0.36)	0.7795 (0.00)	-0.1820 (0.02)	-0.1589 (0.01)	0.1188 (0.00)	0.9146	0.9084	
Low NM6	-0.0062 (0.10)	0.8118 (0.00)	0.1550 (0.13)	0.3867 (0.00)	0.0096 (0.86)	0.8634	0.8535	
High - Low	0.0087 (0.05)	-0.0322 (0.67)	-0.3370 (0.01)	-0.5456 (0.00)	0.1091 (0.09)	0.4240	0.3821	
Panel B: Model including an illiquidity factor								
	Intercept	RMRF	SMB	HML	MOM	ILLIQ	R-square	Adjusted R-square
High NM6	0.0024 (0.39)	0.7808 (0.00)	-0.1334 (0.22)	-0.1333 (0.08)	0.1233 (0.00)	-0.0442 (0.54)	0.9152	0.9074
Low NM6	-0.0061 (0.11)	0.8115 (0.00)	0.1457 (0.32)	0.3818 (0.00)	0.0087 (0.88)	0.0085 (0.93)	0.8635	0.8508
High - Low	0.0085 (0.06)	-0.0307 (0.69)	-0.2791 (0.11)	-0.5152 (0.00)	0.1146 (0.08)	-0.0527 (0.65)	0.4263	0.3732