Institutional environment and Business Groups' resilience in Brazil

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ABSTRACT

This article combines the institutional theory and political economy approaches to test hypotheses about how transitions in institutional environments affect the performance of Business Groups. Its primary hypothesis is that the different types of political connections established by Business Groups have moderating effects on this relationship. A sample of 1709 observations, from 317 distinct groups operating in Brazil between 2001 and 2009, was used in unobserved effects panel data models, which included the moderating effects of political connections. Our findings suggest that the institutional environment significantly affects Business Groups' performance and that this effect is moderated by political connections, when assessed in terms of the local or federal government as a minor shareholder of the Business Group. The moderating effects of political connections assessed through campaign donations were not conclusive.

1. Introduction

Business Groups (BGs) can be defined as a set of legally independent firms that come together through formal and informal associations and act coordinately (Khanna & Rivkin, 2001). BGs have a pivotal role in several developed and emerging economies (Ghemawat & Khanna, 1998; Khanna & Yafeh, 2007). Although they do not prevail in developed economies, countries like Sweden (Collin, 1998), Israel (Maman, 2002), and Japan (Aoki, 1990) host BGs that are economically relevant. BGs are responsible for a significant share of the Gross Domestic Product (GDP) and are often comprised by the country's largest private companies (Casanova, 2009; Ghosh, 2010). Several theories explain how BGs emerge: the institutional theory (Khanna & Palepu, 2000a; Leff, 1978), political economy (Schneider, 2008; Schneider & Soskice, 2009), Sociology (Granovetter, 1994) and the Resource-based View (Guillén, 2000). All of these theories use mechanisms, sometimes complementary, to explain the presence of BGs in emerging economies.

In emerging countries, the relevance of BGs is clear; their affiliates enjoy prestige and benefit from easier access to a wide range of limited resources, such as low interest credit and specialized work force. As large and diverse groups, BGs are also able to generate business in bulk, which enables them to reduce costs and boost revenue. On the other hand, in developed countries anti-trust legislation and other regulatory mechanisms limit BG expansion, and management

costs outweigh gains in scale and scope. Moreover, BG governance usually involves blockholding, family control and diversification (Schneider, 2008). Hence, while investors tend to dismiss BG affiliated firms' bonds in mature markets, these firms usually trade at a premium in some emerging countries (Khanna & Yafeh, 2007).

During the past three decades, several emerging economies have conducted pro-market reforms aimed at further integration with other nations. The consequences of this movement include opening of domestic markets and introduction of common financial intermediation mechanisms. This economic liberalization limited protectionist governments' actions and exposed domestic firms to international competition.

This article focuses on the behavior and performance of emerging markets BGs in this new institutional environment. Anecdotal data suggests that BGs took advantage of new market opportunities, instead of allowing smaller localized firms to dominate the industry. In the beginning of the 2000s, the Carso Group became the largest private group in Mexico and Latin America; the Tata Group, from India, consolidated a worldwide acquisition strategy that included Jaguar and Land Rover; the Brazilian oil Company PETROBRÁS expanded internationally and currently has over 200 subsidiaries in several industries. This resilient behavior in emerging economies is intriguing, for even when there is no longer a market failure—or any alleged reason for BGs to exist, the relevance of these groups endures. This article presents and tests a theoretical explanation for this, based on complementary theories, which may lead to further lines of research. This paper analyzes the effects of institutional environment changes on the performance of BGs in an emerging economy.

Our main contribution is proposing an alternative approach to BG evolution, which focuses both on the institutional theory and political economy. The first provides a better explanation for how these groups

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are established, their initial arrangements, and how they outperform other firms. The latter may explain BG resilience and the role played by governments.

2. Business Groups' theories

Several terms are used to refer to BGs: "chaebol" in Korea, "keiretsu" in Japan, "business houses" in India, and "grupos" in Latin America. Although widespread, BGs show different patterns in each country and their patterns and behavior cannot be generalized (Khanna & Rivkin, 2001).

The working definition of BG for the purpose of this article is based on ownership structure. The empirical approach of this study defines a BG as a set of legally independent and diverse firms operating coordinately under centralized control. A similar criterion was adopted by other empirical studies, such as Guillén (2000) and Khanna and Palepu (2000a). Though not comprehensive, this definition clearly states BGs' boundaries, which cannot be assessed when informal ties, such as family relationships, are included in the definition of BG affiliation. Our definition excludes diverse conglomerates that are controlled centrally by a corporation, as well as socially connected firms (such as Japanese keiretsu), which have no centralized control.

Nevertheless, there is no single definition for BGs; a general approach is to consider BG affiliation as an association granted by direct ownership or any informal tie, such as family relationships, ethnic or religious kinship, or any kind of affinity. Conglomerates are not regarded as BGs mainly because affiliate firms are legally independent in the latter.

A broad definition of BG that synthesizes several studies, proposed by Khanna and Rivkin (2001), defines it as 'a set of firms which, though legally independent, are bound together by a constellation of formal and informal ties and are accustomed to taking coordinated action'. This definition is so broad that it encompasses any alliances, joint ventures and oligopolies; thus, blurring the concept.

Other definitions of BG can be found in countries' legislations. In the 1990s a financial crisis in Chile led to specific laws on BGs, for their influence was regarded not only as significant, but also as harmful. The Chilean legislator defined the concept of BG based on ownership structure, debit structure and responsibilities, and interlocking (among shareholders, managers or board members). Chilean law also included informal ties, such as family relations or any other kind of kinship in the definition of BGs.

The Chinese legislator, on the other hand, limits BGs to associations with clearly defined ownership structures. There is also a size limitation, for the group must have annual sales over 100 million Yuan (about 15.6 million US dollars). This narrow definition aims to pinpoint a few companies to benefit from government incentives. Indeed, Chinese BGs flourished over time, whereas the Chilean ones have experienced limited or no growth.

The reasons for BG creation are disputed in the literature; the institutional theory, sociology, the Resource Based View and political economy try to explain it from different perspectives. Each perspective also explains why BG relevance varies from country to country. This section reviews the assumptions and logic of these approaches.

The institutional theory is based on the concept of Transaction Cost Economy (Coase, 1937; Williamson, 1979, 1998). According to Leff (1978), market imperfections and entrepreneurship, to some extent, are the drivers of BG creation. This line of thinking views BGs as markets' response or alternatives to misallocated production (Leff, 1978), as well as to imperfections that are not limited to capital markets, but also include labor and product markets (Khanna & Palepu, 2000a). Capital market limitations are central to this line of research, since one of the main features of BGs is their ability to create efficient internal capital markets for its affiliates. As a result, such firms may be less affected by imperfections faced by all other competitors, securing attractive positions, from an Organizational Industry perspective.

In this approach, BGs act as market failures internalization mechanisms. BGs' affiliate firms are able to obtain resources that are otherwise not available, scarce or highly priced in the market—e.g. capital, labor, raw materials, knowledge and technology. Furthermore, affiliate firms may use their BG's reputation to access new markets and to even internationalize their activities (Guillén, 2000).

Another line of thought, i.e. political economy, portrays BGs as rent seekers that eventually may be even socially harmful (Ghemawat & Khanna, 1998). The government uses power structures, such as legislation and fiscal policy to accomplish its objectives, and these measures can affect business performance unevenly in an industry. Particularly in late economic development countries, policy-makers foster new industries by encouraging some firms to lead the process, and their incentives include resource and capital allocation. In this context, BGs emerge as the chosen tools for economic development, that is, they function as governments' private sector agents, whose compensation include tax benefits, low interest capital and protectionist legislation that grants them privileged access to the internal market and raw materials. An example of protectionist legislation is seen in Sweden, where the parliament imposed severe restrictions on foreign ownership of its national BGs (Högfeldt, 2004). The main underlying aspect of the political economy perspective is State activity.

Schneider (2009) suggests a typology that includes portfolio, organic and policy-induced BGs. The political economy approach focuses on policy-induced groups, which are led by government incentives and directives. Such category also includes BGs that arise in dictatorship scenarios, where political leaders determine the structure of groups by directly distributing concessions to family, friends and political supporters. Government-created rents are the determining factor for this type of BG, in spite of market logic.

Such government generosity may also derive from direct political activity. Hillman and Hitt (1999) mention relational (long-term) and transactional (short-term) approaches as general means of influencing governmental behavior towards firms. Proactive initiatives include informing government officials of the impact of their decisions on the market, lobbying and campaign contributions. Strong political connections may induce the government to opportunistically amend policies in order to favor allies, sometimes at the expense of society. The work of Fisman (2001) describes this phenomenon in Indonesia, where groups benefit from political liaisons and are granted State-approved monopolies.

There are trade-offs to be analyzed in these theories—i.e. risks and costs coexist, as better performance is pursued through BG affiliation. One of these costs is related to coordinating mechanisms needed to manage diversified firms, but also to enforce a common behavior and secure the ties that sustain the BG. Country context plays an important role, as competitiveness varies between countries, so do the failures of their markets. As a result, economy dynamics may lead to important conclusions and be more elucidative than a steady state analysis.

3. Market reforms

According to all above-mentioned theories, BG ought not to endure as relevant economic players. As time passes, emergent countries tend to mitigate market failures and mimic developed countries institutions, where BG affiliation benefits are not so relevant. In fact, since the 1990's market oriented reforms occurred in several emerging economies, which also created pressure for reforms in corporate governance and presumably lead to the stabilization of institutions (Carney & Gedajlovic, 2002). Nevertheless, anecdotal data show resilience of BG in spite of decline (Granovetter, 1994; Schneider, 2009).

In this paper we consider institutions as the rules of the game that shape economic transactions in an economy (North, 1990), and we

follow Peng (2003) and define institutional transitions as fundamental and comprehensive changes introduced to the formal and informal rules of the game that affect organizations as players. Therefore, market oriented reforms as seen as relevant institutional transitions.

BG value creating mechanisms seem to evolve in order to fit in the changed institutional environment. As these changes generally occur progressively, and others need at least one generation to be implemented, firms have time to make strategic choices in response to any threat. On the other hand, immediate changes such as free trade agreements or legislation-based privileges may occur instantaneously. Mexico entrance in the North American Free Trade Agreement (NAFTA) did not diminish Mexican BG relevance in the economy (Casanova, 2009), although there were severe changes in many industries, and many firms bankrupted.

Another line of thought that may explain resilience based on the capacity that BG have to refocus their activities through several mechanisms, as divestiture, for example. Hoskisson, Johnson, and White (2005) argue that in emergent economies, refocus is a tradeoff between transaction and organization costs. A historical approach is necessary to understand how these groups were formed and their role in the economy.

Many institutional transitions were conducted in Brazil's recent history. Nevertheless we focus our attention to the most recent ones, occurred in the 1990's, after a new federal constitution was proclaimed in 1988. This period was rather turbulent; hyperinflation, economy crisis and high external debt coexisted with a democratization process and the first presidential election by direct vote after decades of military dictatorship. The size and role of the state were a common debate, as inefficiencies and government-sponsored companies controlled main economic activities.

The new constitution per se started some changes, as it strictly reduced government interference in the economy. The constitution also made evident the neo-liberalization ideals as several government-owned industries were privatized, such as petrochemicals, steel, utilities, and telecommunications. Trade barriers were lowered in a sharp way, and as a result, Brazilian companies were exposed to global competition without proper adaptation time. Several national industries as textile and toys were reshaped at the expense of several firms that went bankrupt. Reforms did not meet expected results, and inflation among other problems persisted.

Other market reforms were conducted under the assumption that the public sector reform was the key point to achieve state modernization and efficiency. Over time, inflation was controlled and the Brazilian state started leaving the role of a bureaucratic universal provider to become a regulator. The main goals were economic stability and fiscal responsible behavior, instead of mere economic growth. A free trade agreement was signed by Brazil and other three South American countries in 1991 (MERCOSUR), but trade barriers are still high and unevenly distributed, some sectors benefit from extremely high tariffs (automobiles), while other industries allegedly suffer dumping from external markets (textiles). Capital markets were open to foreign direct investments, and several country indicators were improved: credit rating, foreign currency reserves, and central bank policy. Nevertheless, some other key indicators remain not favorable: legal and regulatory framework, interest rate spread, bribing and corruption (IMD, 2010).

Labor market is one of the key market failures sources that Brazilian reforms were not able to address. Schneider and Karcher (2010) list five core features that labor markets have in Latin America: low skill levels, high labor regulation, short job tenure, large informal sector, and politicized unions without proper legit representation. All five features are present in Brazil, and although recent center-left governments aimed at wealth redistribution, no effective results have been noticed in skill levels increase. Basic education system for lower-income children has not improved either, what suggests the maintenance of the status quo.

As a whole, those institutional transitions have yield market concentration and the consolidation of groups and conglomerates, a recurrent strategy to face external competition (Lazzarini, 2011). Some market imperfections, though, remain a substantial obstacle for economic development and an opportunity for BG (Miller & Holmes, 2011).

Some Brazilian BGs were formed during the first efforts of industrialization in the beginning of the twentieth century. Family owned and government sponsored Brazilian BG control key industries. Among several emergent economies surveyed by Khanna and Yafeh (2007), Brazilian BGs are the less diversified ones, and relatively vertically integrated. Family based ownership structure is also ubiquitous (Laporta, Lopez-de-Silanes, & Shleifer, 1999).

Before the reforms that led to the privatization of several industries, the government (federal, state and municipal) represented the biggest and most wealthy consumer in the economy. Except for a handful of industries, such as apparel retail, no large firm could prosper without government contracts. As a result, every BG developed a specialized sales force to deal with this peculiar client. Over time, companies with better capacity to win government bids realized that this relationship was a political one, not a trade one. A political complementary relationship is defined by Schneider and Karcher (2010) as one intermediated by the state or political system, or if such a relationship affects the ability of actors to mobilize for political goals.

Several authors reference the BG-state relationship, which are most often linked to corruption. According to the IMD (2010), Brazil's bribing and corruption index has decreased from 3.09 in 1995 to 1.10 in 2010, in a 0–10 scale in which 10 means no corruption at all. Notwithstanding the accuracy of this index, as it is based on a survey, a comparison with indexes from other BRICs is revealing. The perception of bribing and corruption in Brazil is better – i.e. there is less corruption – than Russia's (0.51 in 2010) and worse than India's (1.53 in 2010) and China's (1.61 in 2010).

As resource allocation is not easily observable within BG (Cestone & Fumagalli, 2005), it is extremely difficult to track nontrade financial moves, such as tunneling and bribery. Nevertheless, corruption related firm-state connections are a plausible line of research in Brazilian BG that is worth analyzing (Vaaler, 2008). Anecdotal evidence reinforces this stream of research: Brazilian BG growth during and after the liberalization process (Schneider, 2008). institutional theory predictions fail in Brazil as they envision refocused smaller groups as a response to the new environment (Hoskisson et al., 2005). In the beginning of the 2000's, Brazilian BG managed to increase their activities in regulated industries and they did not get smaller (Schneider, 2009).

Another notable anecdotal evidence is that non-Brazilian multinational enterprises, despite the availability of business resources, have not had the same market penetration in those regulated sectors, unless through joint ventures with Brazilian enterprises (Lazzarini, 2011). A comparative investigation between national BG and multinational companies in regulated sectors would also shed light into this effect. In the same way, performance behavior of BG in nongovernment sponsored or controlled markets would also provide further evidence.

Hoskisson, Johnson, Yiu, and Wan (2001) assert that whenever the government has an equity position in a BG through one of its leading companies, it is likely to observe a diversification effect. Limited monitoring procedures from the government may lead also to the growth of BG, as controlling shareholders leverage advantages such a partner may offer, one of them is access to low cost and abundant capital. Similar investigations (Ramaswamy, Li, & Veliyath, 2002) suggest that limited government monitoring may not be a general rule, for in India, the government has a relevant role in companies it holds equity. The work of Lazzarini (2011) portraits the government as the mythical Leviathan whose minority investments lead public companies to superior performance.

Guillén (2000) considers that valuable political capabilities may also lead to diversification and growth when foreign capital flow asymmetries exist. Brazilian BG may acquire and sustain institutional power through superior political contacts (Dieleman & Sachs, 2006) not only when the government is a minor shareholder but also when connections are developed with campaign donations.

In order to test these relationships we posit two sets of hypotheses: the first one is based on institutional theory only and relates BG performance and market failures. The second includes the effect of political connections on this relationship, based on a political economy approach.

Hypothesis 1a. In the context of institutional transitions in Brazil, the increase in capital market failures has a positive effect on the performance of private Business Groups.

Hypothesis 1b. In the context of institutional transitions in Brazil, the increase in labor market failures has a positive effect on the performance of private Business Groups.

Hypothesis 1c. In the context of institutional transitions in Brazil, the increase in legal and regulatory market failures has a positive effect on the performance of private Business Groups.

Hypothesis 1d. In the context of institutional transitions in Brazil, the increase in product market failures has a positive effect on the performance of Business Groups.

Hypothesis 2a. In the context of institutional transitions in Brazil, Business Groups' political connections positively moderate the effect of increased capital market failures on the performance of Business Groups.

Hypothesis 2b. In the context of institutional transitions in Brazil, Business Groups' political connections positively moderate the effect of increased labor market failures on the performance of Business Groups.

Hypothesis 2c. In the context of institutional transitions in Brazil, Business Groups' political connections positively moderate the effect of increased legal and regulatory market failures on the performance of Business Groups.

Hypothesis 2d. In the context of institutional transitions in Brazil, Business Groups' political connections positively moderate the effect of increased product market failures on the performance of Business Groups.

4. Research design

The unit of analysis is the BG. Hypotheses were tested in the Brazilian economy from 2001 to 2009. This period is adequate because it is after the main market reforms, which included inflation control and privatization programs. The country selection does not mean that the proposed causal mechanisms are restricted to Brazil; the same study could be conducted in another emerging market, but time and resource constraints limit empirical testing to one country.

Consolidated BG data are available in Valor Grandes Grupos magazine, published by Valor Econômico Journal. The final sample was formed by 1709 observations from 317 distinct groups from 2001 to 2009. This sample is unbalanced because this publication gathers the biggest 200 groups in each year, and furthermore, mergers occurred during the research period. In order to assess market reform effects on the institutional environment we used two sources: International Monetary Fund's structural reforms index published by The Heritage Foundation and The Wall Street Journal and several indicators from the World Competitiveness Yearbook, published by IMD (International Institute for Management Development). In order to

assess political connections, a proxy that considers discretionary donations was used. Brazilian legislation requires that political parties register all personal or firm donations to election campaigns, so this publicly available information was used to reflect the firm's will to establish implicit contracts with government stakeholders.

Our research setting is limited to Brazilian BG. According to Guillén (2000), the dependent variable is the annual BG revenue (in 2010 US Dollars). This choice is in line Carney, Gedajlovic, Huegens, Van Essen, and Van Oosterhout's (2011) view that larger groups enjoy performance enhancing advantages, such as low cost value creating intermediating functions, better reputation (Morck, Wolfenzon, & Yeung, 2005), superior access to foreign capital and technological resources (Khanna & Palepu, 2000b), and political power (Claessens, Djankov, & Lang, 2000a, 2000b). Nonetheless, this paper does not unpack scale and scope effects in this study as recommended by Carney et al. (2011). Although scale benefits and scope costs may be affected in different ways by the institutional environment, this aspect is not covered in the model (Fig. 1).

Diversification measures, such as the ones used by Lee, Peng, and Lee (2008) and previously suggested by Hoskisson et al. (2005) were not feasible due to lack of data. Likewise, market value could not be used, for most of affiliated firms are not public. Lack of reliable data also prevented the use of a "chop shop" approach (Berger & Ofek, 1995; Ferris, Kim, & Kitsabunnarat, 2003). This method would allow the estimation of the BG's value by adding up the value of its affiliated firms. Any financial performance ratio such as ROE (return on equity) and ROA (return on assets) was not used because diversification among BGs would failure any comparison among them.

The institutional environment was assessed through several variables aiming at capturing some aspects of institution changes due to pro-market reforms. Proxies for these changes are capital market failures, product and labor markets (Khanna & Palepu, 1997, 2000b). For the capital market three different indexes were used in order to capture distinct aspects: exchange rate stability; country credit rating; and interest rate spread. Following Cuervo-Cazurra and Dau (2009) we measured the product market failure with the International Monetary Fund reforms index, as initially compiled by Sahay and Goyal (2006) and further updated by the Heritage Foundation. This index captures several aspects such as economic liberalization, national governance, government intervention and internal market protectionism.
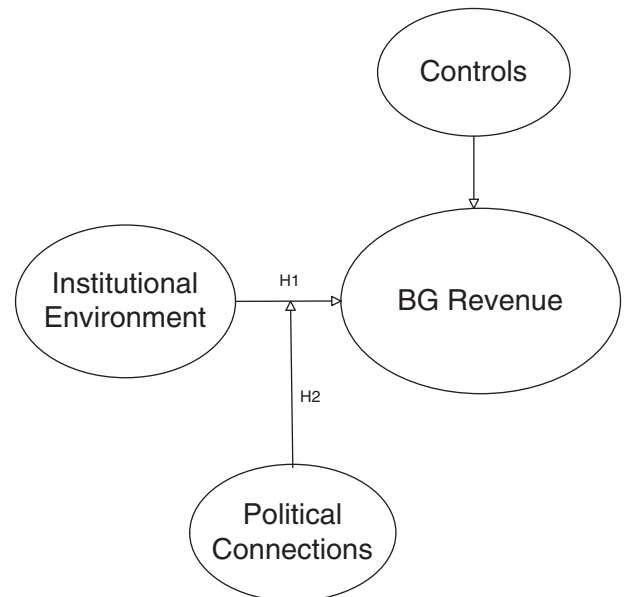

Fig. 1. Conceptual model.

The labor market failure proxy was obtained from IMD's Labor relations index, which is a survey among executives from several countries that assess labor regulations effect on business activities such as firing and hiring practices and minimum wage constraints. Another IMD's index that we used relates to the legal and regulatory framework. This index is obtained from a survey that focuses on the influence of the rule of law on the competitiveness of the enterprises. All indexes that measure market failures are in a 0–10 scale in which 0 means no market failure.

Political connections were assessed through two indicators: BG donation for the previous presidential and congress campaign (in 2010 US Dollars), and the presence of the federal or local government as a minor BG shareholder (dummy). Control variables were included to account for potential heterogeneity at BG, and include: lagged Brazilian's GDP, and temporal effects. Research design did not allow controls for industry and diversification. Table 1 shows variable definitions.

5. Estimation procedures

We tested the hypotheses using an unobserved effects panel data model. Such a choice aims at controlling for unobservable variables and unobserved heterogeneity (Allison, 2009), which are accomplished by both fixed effects and random effects' methods. Univariate and multivariate normality tests were performed and no restrictions were noted. We also applied the Hausman specification test and results showed systematic variation between the random-effects and fixed effects' estimations.

Model 1 is the base model, which reflects market failures direct effects only. Models 2 through 4 include interaction effects between campaign donations and failures in the product market, labor market, and in the legal and regulatory framework. Since capital market failures are described in three different indicators, each interaction is showed in models 5 through 7. Model 8 simultaneously considers all market failure indicators and their interactions with campaign donations. Models 2A through 7A include interaction effects between government presence as minor shareholder and all market failure indicators. Likewise, model 8A simultaneously considers all market failure indicators and their interactions with government's presence as a minor shareholder. Descriptive statistics are shown in Table 2.

Residual analysis and robustness checks show that the base model is adequate. We first used the Huber–White or sandwich estimator, as suggested in Wooldridge (2003). Robustness tests included Arellano–Bond GMM estimator (linear dynamic panel-data estimation), an augmented version outlined in Arellano and Bover (1995) and residual analysis through GLLAMM (Generalized Linear Latent and Mixed Models) according to Rabe-Hesketh and Skrondal (2008). Those reports indicate that the results are robust, but omitted for the sake of brevity. Fig. 2 shows residual analysis for model 1, other models yielded similar results.

6. Results and discussion

Firstly, we estimated the direct effects of the institutional environment on BG performance (model 1), and then we included the interaction effects of political connections, one at a time (models 2 through 7 for campaign donation and models 2A through 7A for government as a minor shareholder). A model with all possible interactions was assessed, but there were no significant coefficients. Table 3 shows regression results for the base model and interaction effects for the government as a minor shareholder. The proxy for the political connections measured by campaign donation amounts was not conclusive. We omitted the interaction effects of the campaign donation variable in Table 3, because there were no significant coefficients. All groups are campaign donors, and the accuracy of the donation amount is not certifiable, despite Brazilian legislation requiring all donations to be registered and publicly available.

Fixed-effects regression coefficients show high intra-class correlation. Correlation between residual and predictor variables is reduced, which is in line with one of the model's assumptions. The Hausman test, confirmed by the Breusch–Pagan estimator, indicates that random effects coefficients cannot be used. Hence, we were unable to include transient variables (Allison, 2009). Results indicate that variables that proxy for market failures are relevant, except for the Legal & Regulatory market failure indicator.

Hypotheses 1a through 1d state that institutional transitions that increase market failures have a positive effect on BG performance. We found support for Hypotheses 1a and 1b. Hypothesis 1c led to inconclusive results and Hypothesis 1d was not supported. Model 1 indicates statistically significant coefficients for four market failure proxies, and three of them confirm the positive effect of market failures – i.e., labor market failure and capital market failure (exchange rate and interest rate spread) – on BG performance. The product market failure coefficient is significant, but it was negative (−). This result indicates that this market failure has a negative effect on BG performance.

The extant literature shows similar results for this set of hypotheses in other emerging economies. Carney et al. (2011) concludes in his 28-country meta-analysis paper that BG affiliate firms are in a better position than independent firms in contexts with underdeveloped institutions. The viewpoints of the majority of studies that investigate institution-level indicators are that BGs provide an alternative to coping with market failures (Fisman & Khanna, 2004; Khanna & Palepu, 1997), but the evidence is far from conclusive. Regarding our first

Table 1
Variable definitions.

Variable	Meaning
Revenue (logarithm)	Business Groups (BG) annual gross revenue (logarithm, 2010 US dollars, in millions)
Equity (logarithm)	BG equity (logarithm, 2010 US dollars, in millions)
Profit (logarithm)	BG annual net profit (logarithm, 2010 US dollars, in millions)
Government minor shareholder (dummy)	Dummy-1 indicates that the government is a minor stockholder of the BG through state owned companies or their pension funds.
Donation (logarithm)	Amount of money the BG has donated in electoral campaigns in the previous presidential elections (logarithm, 2010 US dollars, in thousands)
GDP (logarithm)	Brazilian gross domestic product (logarithm, lagged, 2010 US dollars, in billions)
Donation (dummy)	Dummy-1 indicates the BG has donated in electoral campaigns in the previous presidential elections.
Lagged GDP (logarithmic)	Brazilian gross domestic product (logarithm, lagged, 2010 US dollars, in billions)
Product market failure	Index of Economic Freedom, from the Heritage Foundation (mean centered)
Legal & regulatory framework market failure	Legal and regulatory framework hinders business activities—centered 0–10 scale assessed by the IMD WCY.
Labor market failure	Labor relations regulations hinder business activities-centered 0–10 scale assessed by the IMD WCY
Capital market failure—exchange rate	Exchange rate instability—parity change from national currency to Special Drawing Rights (SDR, mean centered)
Capital market failure—country credit rating	Country credit rating—scale of 0–100 assessed by the Institutional Investor Magazine (mean centered)
Capital market failure—interest rate spread	Interest rate spread—lending rate minus deposit rate (mean centered)

Table 2
Descriptive statistics.

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1. Revenue (logarithm)	7.96	1.16	1									
2. Government minor shareholder (dummy)	0.13	0.34*	0.12**	1								
3. Donation (logarithm)	0.16	0.37	0.15**	0.22	1							
4. GDP (logarithmic)	6.66	0.39	0.19**	0.00	−0.02	1						
5. Product market failure	−0.16	2.88	0.19**	0.00	0.03	0.91**	1					
6. Legal & regulatory framework market failure	0.01	0.51	0.19**	−0.00	0.13**	0.53**	0.66**	1				
7. Labor market failure	−0.03	0.58	0.05**	0.00	0.06**	0.05	0.25**	0.36**	1			
8. Capital market failure—exchange rate	−0.01	0.24	0.12**	0.00	0.05**	0.58**	0.65**	0.61**	0.01	1		
9. Capital market failure—country credit rating	0.61	10.40	−0.20**	0.00**	−0.02	−0.98**	−0.93**	−0.68**	−0.10**	−0.61**	1	
10. Capital market failure—interest rate spread	0.13	3.73	−0.17**	−0.00	−0.04	−0.83**	−0.86**	−0.83**	−0.11**	−0.75**	0.89**	1
11. Equity (logarithm)	6.88	1.43	0.82**	0.15**	0.15**	0.17**	0.17**	0.17**	0.04	0.11**	−0.18**	−0.16**

* p < 0.1.
** p < 0.01

set of hypotheses, Khanna and Rivkin's (2001) study in 14 countries (Brazil included) found that BG performance correlates positively with capital market failure, which is in line with our results in this paper. Another work from Khanna and Yafeh (2007) that analyzed diversification as a means of bypassing market failures, among other BG-related issues, concludes that there are significant differences between countries and periods of time.

Results regarding Hypotheses 2a through 2d were not conclusive, when political connections are analyzed through campaign donations. The campaign donation direct effects' coefficient is not significant in any model. All campaign donation interaction effects' coefficients were not significant either. On the other hand, results differ when the presence of the government as a minor shareholder is used as a proxy for political connections. In this case, all Hypotheses 2a through 2d are confirmed, as all interaction coefficients are significant. Regression results in models 2A through 7A fully support the second set of hypotheses. All political connection–institutional environment interactions have significant coefficients. In Model 3A, for instance, we notice that the effect of labor market failure on BG performance is almost two-fold more intense in groups that have the government as a minor shareholder.

In order to understand how BGs leverage market failures, we have analyzed them separately. The product market failure coefficient is −0.03 (p < 0.01), and the negative value refutes Hypothesis 1d. We can see that the index that describes this failure has increased in the 2001–2009 period and BGs were not able to benefit from this failure. A closer look on this index reveals that, although it encompasses trade and tariff regulation among other market liberalization efforts, tax legislation and government expenditures are key factors. Analysis shows that

private BGs are not able to develop mechanisms to lessen the effects of certain government policies, such as overtaxation. According to the Secretariat of the Brazilian Federal Revenue Services, the tax burden increased from 23% of the GDP in 1988 to an estimated 35.31% of the GDP in 2012, these figures are similar to Great Britain's taxation of 37% of the GDP. The State's role in the Brazilian economy has increased, and overall quality of government services remains poor (Miller & Holmes, 2011).

The institutional environment faced by firms includes burdensome taxes, archaic and inefficient regulation, limited access to long-term financing, and a rigid and controlled job market. Our research shows that private BGs are doing the best of all of them, except for restrictions on taxes and tariffs. The only market failure that private BGs could not overcome was the one related to quality of government spending and tax policy. Nevertheless, regression results show that when the government is a minor shareholder, the moderating effect offsets part of this shortcoming. In model 2A the direct effect coefficient is −0.04, p < .001, whereas the moderating effect coefficient is +0.02, p < .01. These results support Hypothesis 2d.

BGs excel at financing and our results confirm that internal capital market failures do not jeopardize their performance. BGs in Brazil own or control banks and financial institutions, so they can easily hedge fluctuations in both exchange and interest rates. Furthermore, most of the affiliate firms rely on intra-group loans instead of external credit. There is a further benefit from minority government ownership, which is low-rate long-term financing from federal banks. So, the minor government moderating effect is positive (+0.23, p < 0.1) on exchange rate fluctuations and negative (−0.02, p < .01) on interest rate
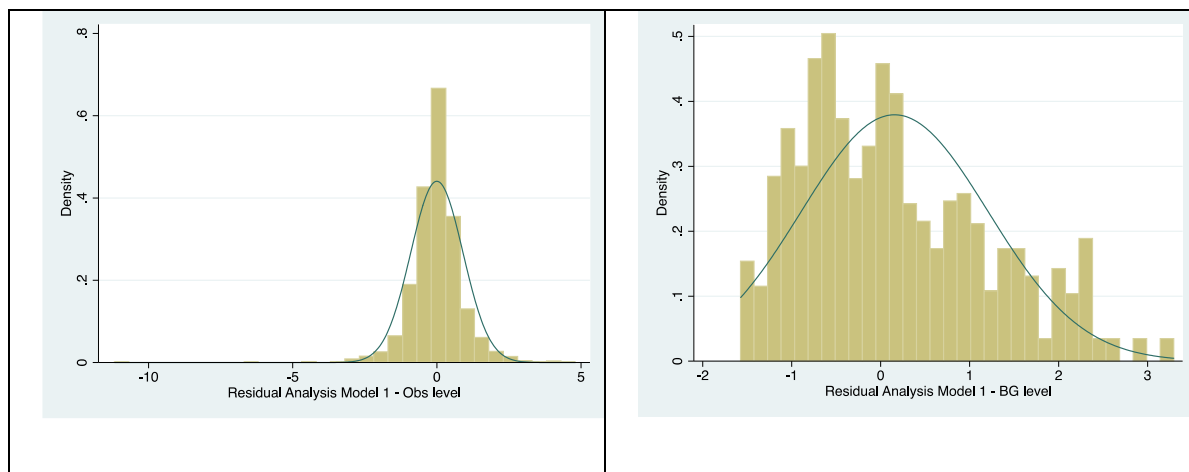

Fig. 2. Residual analysis.

Table 3
Regression results—direct effects and interactions.

Variables	Model 1	Model 2A	Model 3A	Model 4A	Model 5A	Model 6A	Model 7A
Donation	−0.03	−0.023	−0.02	−0.02	−0.03	−0.03	−0.03
Government minor shareholder	0.05	−0.93**	−8.65*	−18.91***	−22.99*	0.32**	0.77**
Lagged GDP	0.16	0.16	0.14	0.20	0.16	0.17	0.18
Product market failure	−0.03**	−0.04***	−0.03**	−0.03**	−0.03**	−0.03**	−0.03**
Legal & regulatory market failure	0.27	0.27	0.27	0.25	0.27	0.27	0.27
Labor market failure	0.12***	0.12***	0.11***	0.12***	0.12***	0.12***	0.12***
Capital market failure—exchange rate	0.31***	0.31***	0.32***	0.31***	0.29***	0.31***	0.31***
Capital market failure—country credit rating	−0.04	−0.04	−0.04	−0.04	−0.04	−0.04	−0.04
Capital market failure—interest rate spread	0.07***	0.07***	0.07***	0.07***	0.07***	0.07***	0.07***
Government × Product market failure		0.02**					
Government × Labor market failure			0.09*				
Government × Legal & regulatory market failure				0.20***			
Government × Exchange rate					0.23*		
Government × Country credit rating						−0.01*	
Government × Interest rate spread							−0.02**
Observations	1709	1709	1709	1709	1709	1709	1709
Number of Business Groups	317	317	317	317	317	317	317

* $p < 0.1$.
** $p < 0.01$.
*** $p < 0.001$.

fluctuations. The government, as a shareholder, offers attractive loans in local currency, protected from exchange rate variations, but subject to internal interest rates. In this way, Hypothesis 2a is confirmed.

Since BGs have access to international financing through underwriting or international loans, they benefit from a lower country risk. During the 2001–2009 period, Brazil's investment rating and reduced country risk led to lower interest rates. According to this rationale, the country credit rating regression coefficient should be negative, as a smaller market failure (lower country risk) leads to better performance. Nevertheless, Hypothesis 1a is inconclusive for this capital market failure proxy, because the country credit rating regression coefficient is not significant. The legal and regulatory framework market failure coefficients are not significant either, which prevents any conclusions about Hypotheses 1c and 2c.

The labor market failure regression coefficient is positive and significant (0.11, p < 0.001) in the base model, which supports Hypothesis 1b. The more substantial the market failure, the better the performance of the BG. The moderating effect of the government as a shareholder is also positive and significant (0.09, p < 0.1), so Hypothesis 2b is also supported.

There is noticeable evidence that, when the government is a minor shareholder of a BG, the effect of the tax burden is considerably reduced, both labor and product market failure coefficients support this conclusion. An interpretation for this result is that the government joins such groups in order to leverage specific industries or activities. As complementary measure, taxes and tariffs in such industries are reduced. If this is the case, these groups are just fortunate enough to be in the right place at the right time to benefit from this situation. Chance favors them.

There is a second interpretation of our results that is equally riveting. In an opposite line of interpretation, some BGs may have developed the ability to attract the government through its official banks or (indirectly controlled) pension funds and this peculiar liaison may lead to an effective corporate political activity that influences tariffs and taxes for some affiliate firms. Some important evidence regarding BG political connections, campaign donations, could not be used to further this line of thought. We believe that further political connection proxies are necessary to enlighten this phenomenon.

Other applicable theoretical approaches are the resource based view (RBV) and sociology. The main assumption of the RBV perspective is that BGs are created whenever the environment allows firms to acquire and maintain resources that enable them to repeatedly launch into new industries (Guillén, 2000). A startup firm in an industry needs resources: inputs (labor, capital and raw materials), knowledge (technology and expertise) and markets (distribution channels, contracts). A BG may be created if these resources are effectively gathered and combined. The ability to do so is a generic and non-tradable one, but also rare, valuable and inimitable (Barney, 1991). Indeed, causal ambiguity surrounds the new industries' repeated entries and limits competition.

Another line of research draws from sociology concepts to explain BG creation and evolution. Shared norms and common behaviors—i.e. constructs widely used to describe social group aggregation, were also regarded as relevant in BG association (Granovetter, 1994). The main assumption of this approach is the isomorphic behavior of firms that share the same social structure. Indeed, economic sociologists have compared patterns of authority in BGs in several countries and groups led by a single leader are found in countries with vertical social relationships, such as India. This approach is congruent to some definitions of BGs, in which non-ownership kinships prevail. Country culture plays an important role in this approach and it may be responsible for ownership structuring. Since our working definition in this article is based on ownership structure, our approach towards BG resilience cannot encompass the sociological approach.

BG-related literature is not conclusive about the ability of BGs to use political connections to shape the business environment or institutions to their own benefit. BGs can foster market liberalization, as suggested by Kim (1997), whose paper described South Korean BG lobbying activities in 1980s. On the other hand, BGs can use their influence to prevent reforms, such as minority shareholder protection or antitrust legislation (Chang, 2003). Although the influence in exception regimes is noticeable, like the Indonesian Suharto period described by Mursitama (2006), there is no evidence that Brazilian BGs are capable of changing institutions nationwide.

This article has several limitations; some of them are related to data gathering. Private companies have clear legal boundaries (Williamson, 2000), but BGs' boundaries are not so well defined (Peng & Heath, 1996). The lack of a clear definition of BGs' boundaries makes it very difficult to establish valid constructs for empirical studies.

Albeit potentially very insightful (George & Kabir, 2012; Hoskisson et al., 2005; Singh, Nejadmalayeri, & Mathur, 2007), diversification could not be measured due to limitations in the data collection

processes. An entropy measure, as proposed by Jacquemin and Berry (1979), or even simpler metrics (e.g. number of industries a BG operates in) were also not measurable due to research resource limitations.

Institutional transitions are complex and multifaceted phenomena. The coefficients under-represent and over-simplify market failures. Future research may seek more accurate institutional transition indicators in order to uncover distinct effects and more specific dimensions.

7. Conclusion

The analysis of private Brazilian BGs for a decade confirms that the institutional environment has a significant effect and that the institutional theory explains these changes. The resilience of BGs in Brazil was evidenced as suggested by Schneider (2008) and Lazzarini (2011). The results of this investigation provide significant evidence that market failure fluctuations affect private BGs' revenue in Brazil, even after pro-market reforms. This result is in line with prior research in several countries (Carney et al., 2011). Consistent with Transaction Cost Economics, BGs in Brazil seem to be able to develop internal markets to bypass inefficiencies in the labor market, the capital market and in the legal and regulatory framework.

The contribution of this paper to BG literature is two-fold: the testing of the effect of market failures on BG revenue after pro-market reforms and the *proposition* and testing of a new variable, i.e. government as a minor shareholder. We believe that the government's influence in BG through indirect equity control appears to be a promising line of research.

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