

The effects of institutional changes on business landscapes: evidence from Brazil

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Summary

Business landscapes are a way of describing how clustered firm performance varies across industries in a country (Ghemawat, 2000). Despite the fact that the importance of industry effects has been empirically examined (Rumelt, 1991; McGahan and Porter, 1997), there is still an empirical gap concerning how institutional changes affect the configuration of business landscapes. Institutional changes are typical to emerging markets. From the hyperinflation era in the 1980s to monetary stabilization and liberalization in the 1990's, institutional change is an important part of business life. We propose to fill this empirical gap using evidence from Brazil. In this country, the analysis focusing on the importance of industry on performance has had a rapid development since the first half of the 2000's (Brito and Vasconcelos 2004, 2005). As an example, Bandeira-de-Mello and Marcon (2004) built business landscapes for Brazil and proposed a metric based on observed return variance to capture industry effects on the effectiveness of the positioning strategy. Carvalho et al. (2009) analyzed performance variance in Latin American countries and found evidences that the institutional setting played a role in producing observed country differences. We elaborate several business landscapes and test differences in industry performance averages among different institutional settings. We use the Brazilian environment as a "natural experiment" to show how institutional changes affect the distribution of industry performance averages.

The effects of institutional changes on business landscapes: evidence from Brazil

Introduction

Business landscapes are a way of describing how clustered firm performance varies across industries in a country (Ghemawat, 2000). Despite the fact that the importance of industry effects has been empirically examined (Rumelt, 1991; McGahan and Porter, 1997), there is still an empirical gap concerning how institutional changes affect the configuration of business landscapes. Institutional changes are typical to emerging markets. From the hyperinflation era in the 1980s to monetary stabilization and liberalization in the 1990's, institutional change is an important part of business life.

We propose to fill this empirical gap using evidence from Brazil. In this country, the analysis focusing on the importance of industry on performance has had a rapid development since the first half of the 2000's (Brito and Vasconcelos 2004, 2005). As an example, Bandeira-de-Mello and Marcon (2004) built business landscapes for Brazil and proposed a metric based on observed return variance to capture industry effects on the effectiveness of the positioning strategy. Carvalho et al. (2009) analyzed performance variance in Latin American countries and found evidences that the institutional setting played a role in producing observed country differences.

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Literature Background

This paper relies on the IO Economics (Bain, 1959, Mason, 1939, Caves & Porter, 1977, Porter, 1979, 1981, 1986, 2008) tradition to explore the relationship between industry, as a unit of analysis and performance variation.

The line of studies focusing performance decomposition was initiated with Schmalense (1984), that, using cross sectional data, tried to explain effect on variation for industry, corporate-parent, firm and market share effects. Rumelt (1991) further developed the studies of variance decomposition, using the effect related to industry factors, time factors, factors associated with the corporate parent, and business specific factors. McGahan and Porter (1997) explored the importance of year, industry corporate parent and business-specific effects on profitability.

Brito and Vasconcelos have further developed the decomposition of variance further, including the application of the studies to the Brazilian market. In their 2004 study (Brito and Vasconcelos, 2004) the authors have decomposed the variance among Brazilian companies utilizing the following effects: year, line of business, Individual company. A summary of comparative statistics of the effects found on some of these studies in show on Table 1.

The effects of institutional changes on business landscapes: evidence from Brazil

Table 1: performance decomposition studies

	Schmalasse (1984)	Rumelt (1991)	McGahan & Porter (1997) with Rumelt Model	McGahan & Porter (1997)	Brito & Vasconcelos (2004)
Year	NA	0%	0.40%	2.34%	0.30%
Line of Business vs. year	NA	7.84%	4.44%	NA	NA
Fixed Line of Business (industry)	NA	8.32%	7.20%	10.81%	NA
Line of Business Total (industry)	19.59%	16.16%	11.64%	10.81%	8.30%
Corporation	NA	0.80%	2.05%	NA	NA
Co-Variance - line of business	-0.62%	0.00%	-1.42%	-2.27%	NA
Market Share	0.62%	NA	NA	NA	NA
Business Unit	NA	46.37%	33.79%	35.45%	60.00%
Model	19.59%	63.33%	46.46%	46.33%	68.60%
Unaccounted Variance	80.41%	36.67%	53.54%	53.67%	31.40%

Source: Brito & Vasconcelos (2004)

While Brito & Vasconcelos (2004) findings are somewhat similar to other studies, specifically to the Brazilian data shows that the effect for business unit (firm) seems to be of more importance when compared to American studies.

Bandeira-de-Mello and Marcon (2004) engaged in the industry and return analysis of Brazilian firms. They have studied the Brazilian listed companies from the period from 1986 to 2001. The authors have developed two-dimensional landscapes (Ghemawat, 2000) for selected industries in Brazil and have analyzed the difference in variance of returns among industries for the same period. They proposed that the variance of return could be an indication of room for maneuverability for the strategist to elaborate a “good” strategy and therefore achieve abnormal results.

Bandeira-de-Mello and Marcon also found that all the industries analyzed for the period had negative value generation for the shareholder (measure as return on equity minus a proxy for cost of capital). They suggested that institutional factors could be an explanation for such returns. Hermelo & Vassolo (2007) have addressed the question of sustainability of abnormal return in emerging economies and its relationship to institutional factors. On one hand, they proposed that external shocks, common to such economies, could alter the business landscape and negatively affect advantages and returns. On the other hand, the lack of some institutional framework could allow for non-market strategies to have a higher role in affecting competitive advantage and consequent abnormal returns. Results were mixed but seem to indicate the existence of abnormal returns in emerging markets.

Method and results

We have collected the data for listed companies in Bovespa, from 1986 to 2009. We have considered only listed companies for two main reasons: (1) data reliability (2) data availability.

The source of data was the Economatica database. We have respected the categories from Economatica in classifying firms into industries, which is based on product revenues. A firm is assigned to the industry from where a large part of its revenue comes. We have considered:

The effects of institutional changes on business landscapes: evidence from Brazil

food and beverage, retail, civil construction electronics, energy (electric), banking and insurance, industrial machinery, mining, non metallic mining, pulp and paper, oil & gas, chemical, steel, telecommunications, textiles, transportation services and auto.

We have collect or calculated data for net income, return on equity and equity value. We have cleared the base for outliers and have converted net income and equity for US\$, using exchange rate for each year provided by Economatca.

For the analysis we have choose to divide the periods in three institutional eras: Period 1: 1986 to 1993, representing the pre-stabilization period; period 2: 1994 to 2001, representing the Real plan and economic stabilization; and period 3: 2002 to 2009, representing the electoral year in which Lula was elected and the seven years of Lula administration. A rough reading of selected economic indicators used as a proxy of institutional robustness seems to indicate that the landscape is in fact moving to an environment with less turbulence.

Table 2: Selected Economic Variables

Economic Variables	Institutional Periods		
	1986-1993	1994-2001	2002-2009
Average GDP Growth (US\$) (p. a.)	8.3%	1.9%	13.9%
Average Interest Rate (SELIC Over) (p. a.)	888%	69%	16%
Average implied import duty	22%	9%	5%

Source: IMF (2010). Ipeadata (2010). Secretaria da Receita Federal (2010).

Table 3 summarizes the data by industry, presenting return on equity, standard deviation of returns and equity value. There were numerous cases where companies had not presented results for the entire 24 years period. This is due to movements as mergers, acquisitions, bankruptcies and IPOs.

Table 3 – Industry characteristics by period

Sectors	1986-1993			Sectors	1994-2001			Sectors	2002-2009		
	ROE	StdDev ROE	Equity		ROE	StdDev ROE	Equity		ROE	StdDev ROE	Equity
Banking and Insurance	12.1%	6.2%	378,973	Oil & Gas	13.2%	10.8%	318,973	Oil & Gas	21.2%	11.6%	658,473
Mining	10.7%	5.9%	147,876	Banking and Insurance	10.0%	7.8%	442,274	Auto	16.8%	9.9%	106,287
Retail	9.3%	3.9%	81,587	Mining	6.6%	7.4%	235,164	Transportation	15.5%	11.2%	333,535
Oil & Gas	9.2%	6.0%	179,386	Retail	4.4%	10.7%	145,156	Steel	14.5%	12.5%	433,329
Telecom	7.9%	3.3%	629,099	Ind. Machinery	4.2%	13.9%	115,009	Banking and Insurance	14.3%	9.4%	721,376
Auto	6.2%	9.2%	70,207	Auto	2.7%	12.0%	87,968	Retail	12.6%	15.9%	117,738
Construction	6.0%	2.0%	31,402	Pulp and Paper	2.4%	5.0%	735,237	Energy (elet.)	11.0%	13.1%	691,836
Ind. Machinery	5.9%	6.9%	61,894	Chemical	2.4%	10.0%	244,614	Ind. Machinery	10.7%	12.0%	218,391
Clothing	5.0%	5.3%	58,763	Food	2.3%	8.8%	163,825	Chemical	9.6%	10.9%	228,729
Pulp and Paper	4.3%	3.7%	559,818	Construction	1.4%	4.7%	47,239	Mining	8.8%	15.7%	245,117
Food	3.7%	5.1%	105,175	Electronics	1.3%	15.5%	147,120	Construction	7.7%	7.1%	241,533
Chemical	2.5%	4.4%	159,496	Energy (elet.)	0.9%	6.8%	1,208,703	Pulp and Paper	7.0%	11.4%	779,908
Electronics	1.2%	10.6%	73,526	Steel	0.0%	11.2%	284,795	Electronics	6.8%	7.8%	126,620
Steel	0.1%	5.8%	205,910	Clothing	-0.4%	7.3%	90,326	Food	5.0%	10.2%	374,928
Energy (elet.)	-4.7%	4.0%	1,659,361	Telecom	-2.2%	19.4%	679,975	Telecom	4.0%	6.3%	1,158,977
Transportation	-34.5%	13.4%	192,693	Transportation	-8.5%	11.4%	84,702	Clothing	-2.3%	17.2%	104,346

Analysis

It is not possible to state that ROE variances are equal, either for industry group (p-value < 0.0001, Levene's test) and for period group (p-value < 0.0001). Besides ANOVA, the non-

The effects of institutional changes on business landscapes: evidence from Brazil

parametric Kruskal-Wallis test showed similar results. ROE averages across different institutional settings are different for Industries (p-value < 0,0001) and periods (p-value < 0,0001).

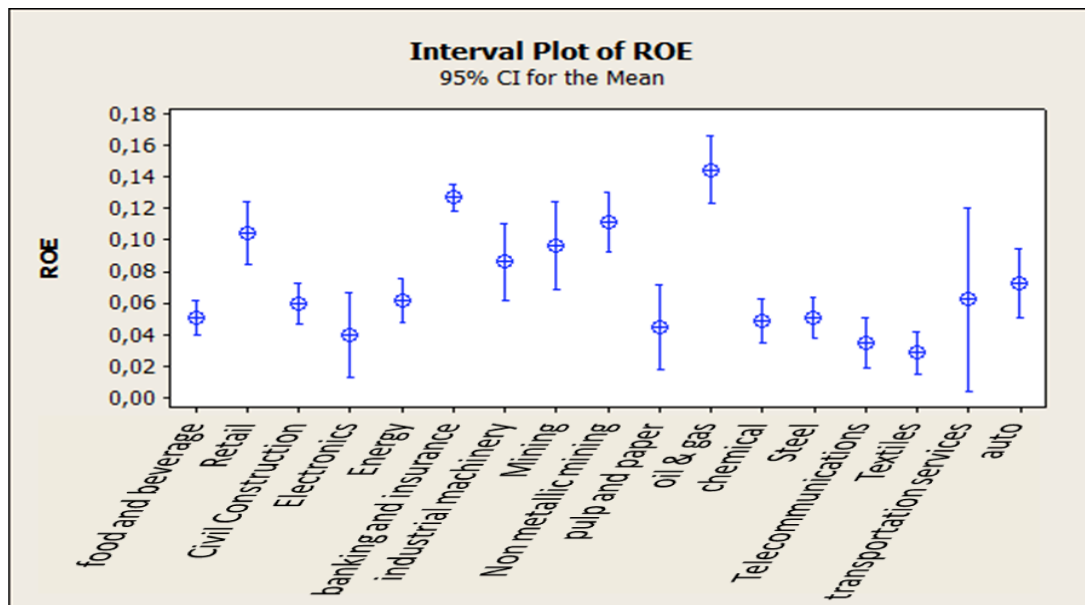


Figure 1 – Interval plot for ROE x Sector

Figure 1 depicts the different mean value for each industry. Notably, the oil & gas and finance sectors are the ones with higher return on equity. On the other side, textiles, and telecom presented the lowest ROE. Transportation services, electronics, and bulk & paper are sectors with higher variance. It is important to note that the transportation services industry presented a relevant shift in terms of companies' composition, due to airlines bankruptcies and ground transportation IPOs.

In terms of value creation, it is not possible to conclude that any industry presented a positive return. This analyses were possible when the average ROE values are compared with the average Brazilian risk free interest rate (SELIC), that has been historically high (888%, 69% and 16% per year for periods 1, 2 and 3, respectively). Actually, only the oil & gas industry presented ROE average returns higher than the risk free interest rate for the period 3.

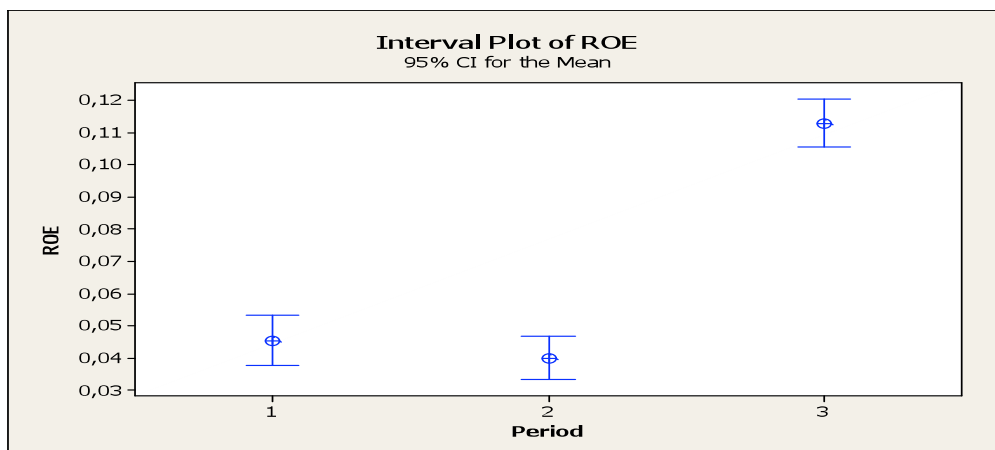


Figure 2 – Interval plot for ROE x Sector

The effects of institutional changes on business landscapes: evidence from Brazil

Figure 2 shows the ROE mean values for the three different periods. Clearly, the 2002-2009 period presented the higher values. These analyses confirm the influence of the institutional context on companies' performance. Business landscapes are provided below. In summary, the overall results indicate that ROE differences among industries and periods in Brazil are relevant, as proposed by McGahan & Porter (1997).

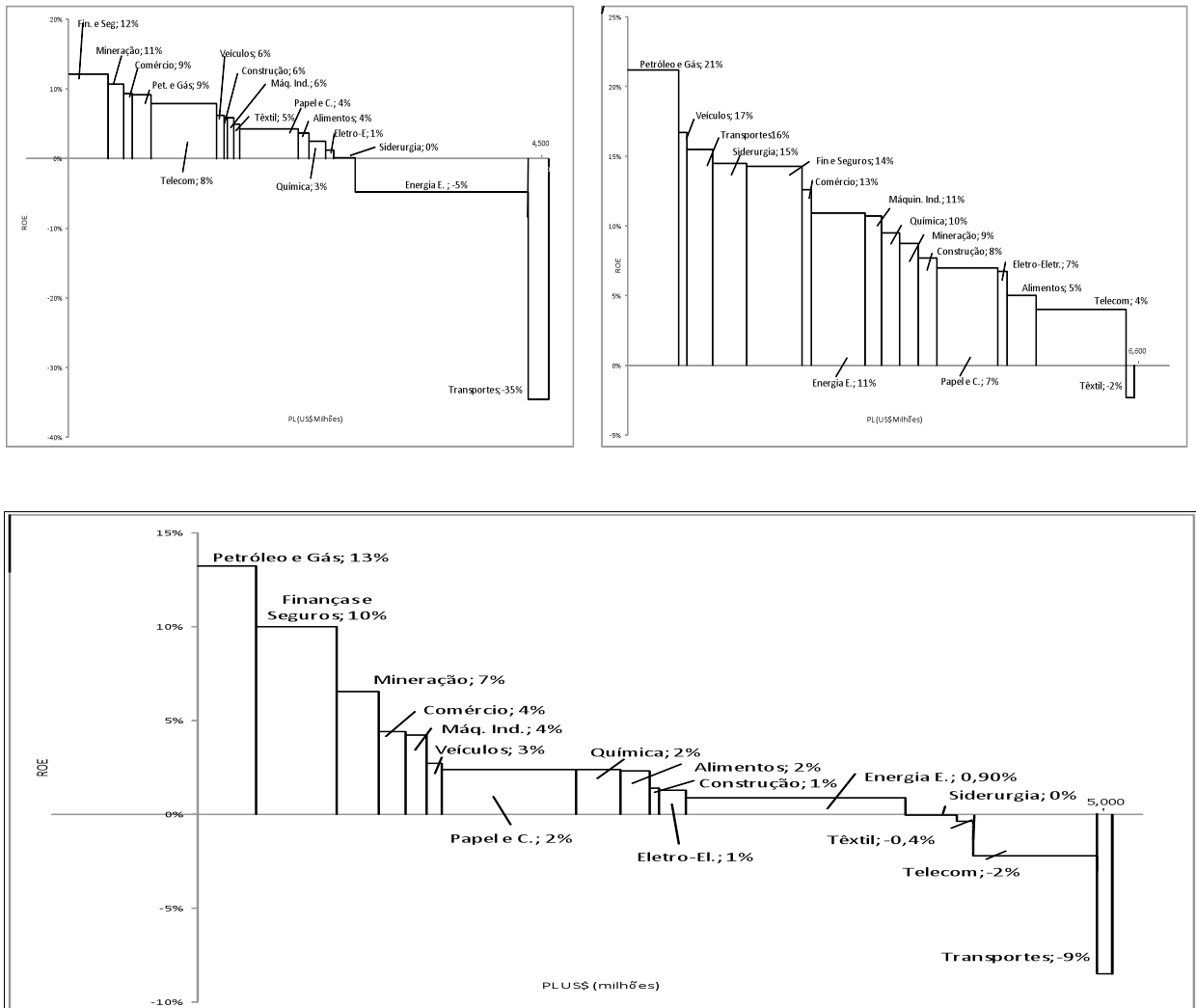


Figure 3 – Business landscapes for Period 1, 2, and 3 respectively

The effects of institutional changes on business landscapes: evidence from Brazil

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