
Affiliation or non-affiliation: the impact of family-owned business groups on the Bogotá stock market, 1950-1980

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ABSTRACT

This paper examines the impact of group affiliation on the development of Bogotá's stock market between 1950 and 1980. While the literature on business groups has discussed how they respond to market failures, little attention has been paid to the specific ways in which group affiliation affects stock market development in emerging economies. This study aims to fill this gap by analyzing panel data from Bogotá's stock market and implementing a series of correlated random effects panel regressions. The findings of this study demonstrate that group affiliation had a significant impact on the weighted market capitalization of stocks issued by listed companies. Specifically, high trading volumes were concentrated on a small subset of firms, suggesting that group-affiliated companies were able to capture the stock market as a means of financing their investments and increasing their product and geographic diversification. While the literature on business groups suggests that they typically arise in the absence of a developed capital market, our study reveals a different dynamic in the case of Colombia, where these groups advocated for the creation of the stock exchange. Hence, our findings challenge the misconception of inefficient and illiquid financial markets in emerging economies and shed new light on the role of business groups in driving financial market development.

KEYWORDS: business groups, financial development, stock market, Colombia.

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1. Introduction

In 1982, a few years after the release of the first and only official report on Colombian business groups (SuperSociedades 1975/1978), the economic and business news were inundated with reports on both the Latin American debt crisis and the government's intervention in the financial system. Specifically, there were discussions about the closure of a recently established financial business group (Agudelo, 1983; Echavarría, 1983). This period, spanning from 1950 to 1980, witnessed the emergence of numerous business groups and the establishment of a robust ownership network (Kogut, 2012) that continues to thrive. The surge in business groups can be attributed to factors such as the booming coffee industry (The Coffee Bonanza), urban expansion, and financial reforms.

Business groups typically consist of a set of legally independent firms, operating in multiple (often unrelated) industries. These firms are connected by persistent formal ties, such as equity, as well as informal ties, such as family relationships. They are not limited to short-term strategic alliances nor legally consolidated into a single entity. Instead, they are owned and often controlled by the same owner(s), whether individuals, families, or regional entrepreneurs (Barbero 2021, Buchuck et al. 2014, Carney et al. 2011, Colpan and Hikino 2010, Cuervo-Cazurra 2006). While a few studies on Colombian business groups have revealed some patterns in the development of the country's business system during the twentieth century (see for example, Acosta et al. 2003; Dávila et al. 2011, 2014; Dávila et al., 2010; Fernández, 1995; Rodríguez-Satizabal, 2020b, 2021a, 2021b), the relationship between business groups and Bogotá's stock exchange has largely been overlooked.

This paper aims to explore the influence of group affiliation on the development of Bogotá's stock market between 1950 and 1980. It addresses a long-standing question raised in prior research by Rodríguez-Satizabal (2020, 2021), which delves into the characteristics and consolidation of 25 business groups following financial reforms yet leaves room for further investigation into their engagement with the stock exchange. The literature on business groups has examined their responses to market failures. While the absence of a developed capital market has been cited as a factor contributing to their existence, Colombian business groups during this period captured the stock market as an additional avenue to finance their investments and increase their product and geographical diversification.

The research examines the relation between the ownership network represented by group and non-group affiliated firms in Colombia and the performance of the stock exchange. It employs panel data collected from the Bogotá Stock Exchange (Banrep, 1950-1980) and the dataset on group-affiliation (Rodríguez-Satizabal, 2020, 2021) to study the uses and misuses of the stock

markets during the period. The study shows how group-affiliated firms ‘colonised the capital market’ and provides a general understanding of the impact of ownership concentration in an underdeveloped capital market.

One point of agreement in the literature is that business groups are structurally different from, and an alternative to, other organisational forms. While discussing the “markets and hierarchies’ paradigm” which form the basis of transaction cost economics), Williamson (1985) introduces business groups as a hybrid form that intermediates between markets and firms. Business groups consist of legally independent companies, not necessarily corporations as in the conglomerates, that utilise collaborative arrangements to enhance their economic welfare. In that sense, Fruin (2008) highlight the obvious: business groups along with cartels and industrial districts are significant examples of organised cooperation in business and firm growth. What distinguishes the business groups are, “first, they are composed of legally distinct firms and, second, they seem to persist for long periods of time” (Fruin 2008, p. 244). Each group-affiliated firm has a separate and distinct legal, and it may or may not have limited liability. Moreover, these firms vary in size from small to large. Each separate legal entity within the group is empowered to own assets, incur debts, enter contracts, and may be taxed or sued. Hence, coordination in business groups relies on a complex web of mechanisms rather than unified internal control of a portfolio of firms or divisions (Davis et al. 1994). These mechanisms include multiple and reciprocated equity, debt, and commercial ties, as well as performance in the capital markets.

The relation between business groups in emerging markets and trading volume in financial markets has received more attention in recent years, following studies by La Porta et al. (1999) and Almeida and Wolfenzon (2006) on diversified business groups (type 1) and pyramidal business groups (type 2). According to Khanna and Palepu (2000), the financial markets in emerging countries are characterised by inadequate disclosure, weak corporate governance, evolving intermediaries, and erratic enforcement of regulations in the capital market. Moreover, the group structures have the capacity to reduce the costs and mitigate the external market failures (Castaneda 2007, Khanna and Rivkin 2001, Lamont 1997). As a result, the group-affiliated firms use their track record and reputation to gain credibility in the stock market and increase their transaction volume.

Although various studies have attempted to establish the empirical structure of this relationship, a consensus on the impact of business groups in the capital markets is yet to be reached (Khanna and Yafeh 2007, pp. 343-348). For example, conclusions have ranged from the expropriation of small shareholders by family-owned business groups (Morck et al. 2005) to group-affiliated firms reducing intermediation problems and facilitating the modernisation of the stock market (Kali 2003). The question of how groups interact

with financial development remains open in the case of Colombia, especially for the years between 1950 and 1980 when a second stock exchange was created on top of the financial system reforms (Caballero and Urrutia, 2006).

The Colombian business groups tend to have larger family stakes, like the case of Samsung (Lim and Kim 2005). Group-affiliated firms derive benefits from their membership in the ownership network, which involves affiliating with financial institutions and sharing financial resources, like the Korean case (Chang and Hong, 2000). In the context of Colombia, only Fernández (1995) has explored the links between the business groups and the stock market. He concluded that during the 1980s, the impact of the groups on the capital market was limited due to the financial crisis and subsequent mergers and acquisitions. However, it should be noted that Colombian business groups consist of a combination of listed and non-listed group-affiliated firms, which allows them to utilize their internal capital markets while also accessing funding through transactions in the nascent capital market.

Using Colombia's group and non-group affiliated firms listed in the Bogotá Stock Exchange as a sample is of considerable relevance for wider debates about economic development. As highlighted by Leff (1978, p. 665) in his seminal study of business groups, "entrepreneurship is likely to be more necessary for output expansion and structural change" in emerging countries. However, it is important to recognize that productive entrepreneurship cannot be taken for granted (Manolova and Yan, 2002), as emphasized by Baumol's (1990) categorization of productive, unproductive, and destructive entrepreneurial activities. Therefore, understanding the factors behind the creation of a specific business system and the (often unintended) consequences of policy decisions to modernise entrepreneurship (Gerschenkron 1966) through an increased access to capital sources is crucial. Assuming changes in the firm structure are innovations (Schumpeter 1934), the creation of business groups represents an entrepreneurial activity that can have significant effects in emerging economies, as demonstrated in the case of Colombia.

This paper is organized as follows. Section 2 introduces the theoretical framework that situates the contribution of this article within the current debate surrounding the efficiency of financial systems (whether bank-based or market-based), business groups, and economic growth in emerging economies. Then section 3 presents the characteristics of the Colombian stock market during the period of analysis. Section 4 describes the data and methodology used in this study. , Section 5 reports the empirical results. Finally, section 6 presents the concluding remarks.

2. Business-group affiliation, financial systems, development, and growth

This paper makes a significant contribution to the debate on how firms, particularly those with a business-group affiliation, secure resources to fund their investments and activities, focusing specifically on the Colombian case between 1950 and 1975. Furthermore, we aim to stimulate the discussion around the comprehension of efficiency in financial markets, whether they are bank-based or market-based, particularly in emerging economies. As we argue in this paper, the strategies employed by Colombian firms did not align with the market efficiency theories, as the returns of the Bogotá Stock Exchange were below investors expectations (Vélez-Pareja 2000), while the banking system witnessed systematic increases in the credit spreads. This implied that market participants had to perceive non-pecuniary benefits from participating in the stock market, which, in turn, had significant effects on the evolution of the financial system and, consequently, on economic growth.

On the one hand, the debate between bank-based and market-based financial systems has been ongoing for several decades. In a bank-based system, banks play a central role in the economy, providing credit and financing to businesses and households. In contrast, in a market-based system, financial markets such as stock and bond markets play a more prominent role in allocating capital. In the case of Colombia, the country predominantly experienced the development of a bank-based system due to the recommendations of the Kemmerer mission that took place in 1923 (Dalgaard 1980, Seidel 1972), which proposed specialized banking activities with significant government intervention (Caballero and Urrutia 2006, Salazar 1996).

Several studies have examined the relative merits of these two systems. One argument in favor of bank-based systems is that they are better at providing financing to small and medium-sized enterprises (SMEs). For example, Beck et al., (2008) found that bank-based systems were associated with higher levels of SME financing than market-based systems. This may be because banks have closer relationships with SMEs and can better assess their creditworthiness. In our sample, this would, a priori, favor the development of a market-based system.

Subsequently, market-based systems may be better at allocating capital to more productive firms. Rajan and Zingales (1998) argue that market-based systems are more effective at disciplining poorly performing firms, which ultimately leads to a more efficient allocation of capital. In addition, market-based systems may be more resilient to financial crises as they provide a wider range of financing options and are less reliant on a small number of large banks (La Porta et al. 2002). Nonetheless, the lack of depth and maturity of the Bogotá Stock Exchange would indicate that firms could access funds more efficiently through formal financial institutions.

However, other studies have challenged these arguments. For example, Demirguc-Kunt and Levine (1999) found that bank-based systems were associated with slower economic growth and lower levels of financial development. They argue that this is because bank-based systems may be less efficient at allocating capital, as banks may have less incentive to carefully assess risk and allocate capital to the most productive firms.

On the other hand, the literature on financial development versus growth models suggests that the relationship between financial development and economic growth is a topic of significant debate. Levine (1997) argues that financial development has a positive impact on economic growth as it promotes investment, productivity, and technological progress. Rajan (1992) disputes this idea by stating that financial development has a non-linear relationship with economic growth and needs to be controlled to avoid negative effects on growth. McKinnon (1973) suggests that financial repression limits economic growth, while Benhabib and Spiegel (1994) argue that financial development promotes growth by increasing human capital accumulation.

Although these theories offer insights into the relationship between financial development and economic growth, it is essential to consider the unique context of Colombia during the second half of the twentieth century. For example, the reform of Banco de la República (central bank) in 1951 (Rodríguez-Satizabal, 2021) and the banking crisis of 1982 suggest that financial development can have negative consequences if not adequately controlled. Similarly, McKinnon's argument on financial repression may have been relevant during the period when the government regulated interest rates and credit access (Ocampo 2015).

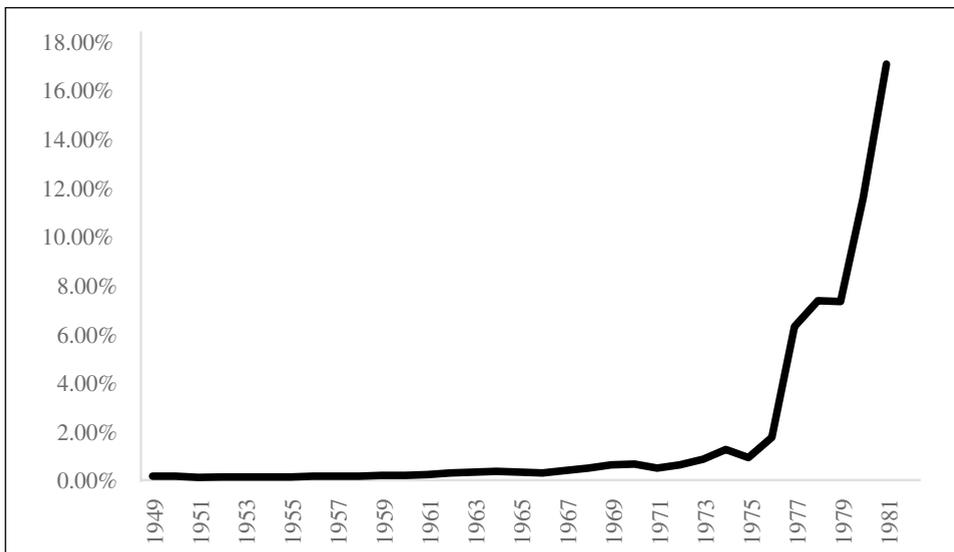
Overall, the literature suggests that a well-regulated and efficient financial system that promotes investment, reduces information asymmetry, and increases capital accumulation can lead to economic growth. However, there is evidence of potential negative effects of financial development, such as instability and economic crises. Furthermore, Valickova et. al. (2015) provide evidence of a positive and statistically significant relationship between financial development and economic growth. However, the effect of finance on growth appears to be weaker in less developed countries and has decreased globally since the 1980s. Additionally, stock markets are found to have a stronger association with economic growth compared to other financial intermediaries. The following section provides a more detailed overview of the Colombian stock market to inform the subsequent empirical analysis of these phenomena.

3. The Colombian stock market

Unlike developed countries where it is very common to own stocks as a long-term investment and to increase savings (Smith 2004, Sobel 1968), it was, and still is, unusual in Colombia to buy shares in the stock market. Between 1950 and 1975, the Colombian stock market was slowly evolving, partially explained by the fact that “the situation of some industries tends to improve, thanks to the help of the commercial banks credit and the support of the central bank” (BanRep 1952, p. 36). Until 1961 there was only one stock exchange in Colombia, located in Bogotá, which after its foundation in 1929, experienced steady growth in both the number of listed companies and the value of the transactions. In 1961, a second stock market was founded in Medellín because of an agreement between a group of business owners interested in expanding their national presence and strengthening their regional ownership network. However, more than 80 per cent of the transactions took place in the Bogotá stock exchange.

As a result, it is highly unlikely that the stock market is very unlikely to have played an important role in accelerating Colombia’s evolution of the business system or economic growth. As shown in Figure 1, between 1950 and 1975, the significance of the stock market in the Colombian economy was very small. The average total market capitalization as a percentage of the Colombian GDP remained below 2 per cent for most of the period. In compari-

FIGURE 1 • Stock market average total capitalization as a percentage of Colombian GDP, 1949–1981



Source: Compiled by the authors from BanRep (1950-1980).

son to Brazil, the largest stock exchange in Latin America, the Colombian stock market remained highly underdeveloped. Between 1890 and 1930, the Rio de Janeiro Stock Exchange average total capitalization as a percentage of Brazil's GDP was 56.6 per cent (Musacchio 2009, p. 71, Table 3.4). The total capitalization in the Colombian stock market only increased after 1977, when the value of the transactions as a percentage of the GDP rose from 1.75 per cent the previous years to 6.27 per cent. Companies rarely issued stock to raise funds and business owners tended to support this arrangement. However, the creation of the second stock exchange increased the market activity and the number of listed companies increased from 122 in 1961 to 370 in 1979, but only half of the listed companies actively traded.

The transformation of Colombia's economy from primarily agricultural to one with a larger share of manufacturing and services was not driven by stock exchange arrangements. As Table 1 shows, the evolution of the number of companies traded by sector was led by companies in traditional economic

TABLE 1 • *Total number of traded companies by sector, 1955, 1965, 1975*

	1955	1965	1975
Other manufacture	14	22	45
Food and beverage	22	28	28
Textiles	23	22	21
Bank	12	15	21
Construction materials	4	8	30
Investment fund	3	3	18
Cement	5	10	8
Insurance	4	5	8
Real estate	3	7	13
Agriculture, cattle, and fishing	1	0	21
Services	2	6	7
Trade	2	1	7
Mining	2	3	10
Transport	3	5	4
Hotels	1	2	4
Utilities supply	2	3	4
Pharmaceutical	1	0	4
Oil	2	0	0
Total number of traded companies	106	140	253

Sources and notes: Compiled by the authors based on BanRep (1950-1980). The years 1955, 1965 and 1975 correspond to reference points every 10 years.

activities such as manufacturing, food and beverage, and textiles. However, changes in the 1970s were notable, with an increase in the number of companies producing construction materials and cement, indicating the rise in urbanization resulting from the creation of mortgage banks to finance house purchase and increased government expenditure in infrastructure. Additionally, investment funds, all group-affiliated firms, increased their presence in the stock exchange, showing the use of investment funds as channels for capital sources into the internal capital market of each business group. It is also worth noting the rise in agriculture, cattle, and fishing firms, which jumped to 21 after being almost zero in the previous two decades. In contrast, the sample shows no shares of oil companies after 1960.

Despite the institutional arrangements, three significant patterns characterised the period. First, the dominant role of group-affiliated firms was a consistent theme in the stock market. Since the early 1950s, the Central Bank reported that “it is becoming more noticeable every day that investors seek only a small group of stocks, leaving aside a large proportion of shares, many of which end up inactive, or with very low activity” (Banrep 1952, p. 34). There was a concentrated equity ownership which was almost constant throughout the years. As Table 2 presents, two-thirds of the total listed companies were group-affiliated firms. More than 80 per cent of the group-affiliated companies during the period were in manufacture, mainly in textile and cement. In the finance sector, the group-affiliated firms that were listed had insurance, commercial banks, and investment funds as their main activities. Grupo Santo Domingo, Organización Ardila Lulle, Organización Sarmiento Ángulo, Grupo Empresarial Antioqueño, Grupo Gilinski, Cementos Samper, Fabricato and Grupo Grancolombiano accounted for most of the listed companies. These groups held an average market capitalization share of 64 per cent during the period 1955–1975.

During the relevant period, the number of listed companies in Colombia increased. However, only a small number of these companies traded actively on a regular basis. As highlighted by Rodríguez-Satizabal (2021b), group-affiliated firms did not frequently issue new stocks to raise funds. Instead, they used the internal capital market to allocate their own funds for reinvestment in oth-

TABLE 2 - *Percentage of listed companies by group-affiliation, 1955, 1965, 1975*

Year	Group-affiliated firms	Non-group affiliated firms
1955	63%	37%
1965	68%	32%
1975	69%	31%

Source: Compiled by the authors based on BanRep (1950-1980).

er affiliated firms. External sources of funding were employed for new investments in other industries or fixed capital. It was only in 1970, that the average value of transactions started to increase. This rise was mainly driven by an increase in the number of manufacturing companies, particularly those related to metal industries, cement, and breweries. This growth was fueled by the rise in disposable income of coffee growers and the subsequent increase in liquidity. Additionally, the growing demand for beer and soft drinks contributed to the trend by boosting the consumption of food and beverages. Furthermore, changes in the legislation for construction and increased investment in urban housing across the country followed the new access to mortgage credit.

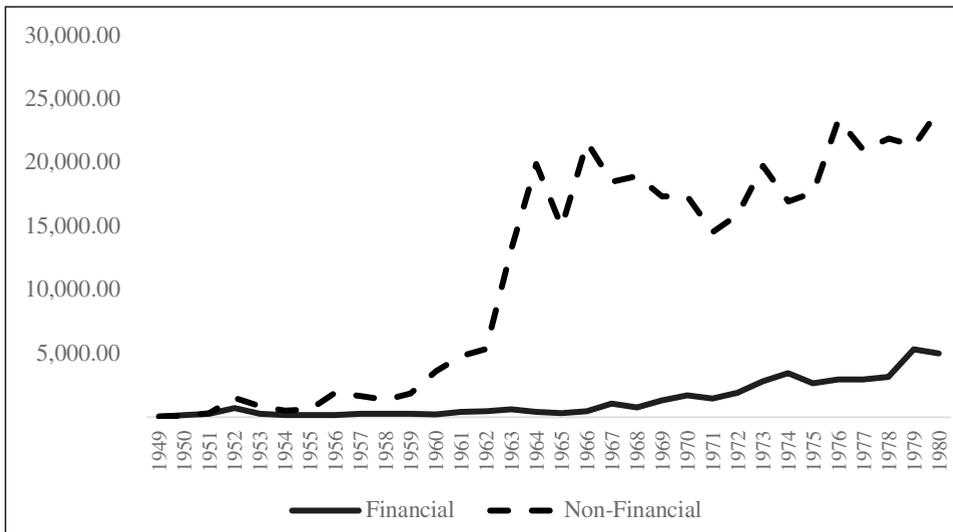
Another factor that could potentially explain both the increasing transactions and the creation of a second stock exchange was the growing illegal drugs markets (see for example, Britto, 2020; Saenz Rovner, 2021). However, this connection has yet to be substantiated. In the mid-1970s, the government implemented the *Ventanilla Sinistra* (sinister window), which established a special office at the Banco de la República for free dollar exchange transactions. Through the “sinister window”, individuals could exchange amounts ranging from USD 100 to 1,000 per day without any questions asked. This practice ceased with the economic opening and liberalisation of exchanges implemented in 1990. According to data provided by Banco de la República, transactions via the “sinister window” amounted to USD 465.3 million in 1975 and rose to USD 1,734.3 million in 1981, surpassing the income generated by coffee exports, which amounted to 1,200 million.

The value of the transactions increased from COP 3,218 million in 1950 to COP 10,701 million in 1975 (see Table 3, last column), with an increase of 71 per cent in the number of shares sold. However, as Figure 2 reveals, the sharp increase in the number of shares came before 1970. After the creation of Medellín’s stock exchange there was a steady growth trend in the number of shares in the following years.

TABLE 3 • Average yearly stock transactions in millions of constant COP, 1950–1975

Year	Listed financial companies	Listed non-financial companies	Total
1950	1,965.82	1,252.53	3,218.35
1955	1,772.44	2,665.98	4,438.42
1960	4,007.71	21,362.68	25,370.39
1965	1,540.95	16,648.20	18,189.15
1970	4,602.97	13,667.37	18,270.34
1975	3,105.36	7,595.79	10,701.15

Source: Compiled by the authors based on BanRep (1950–1980). Millions of constant COP, base year 1949 = 100.

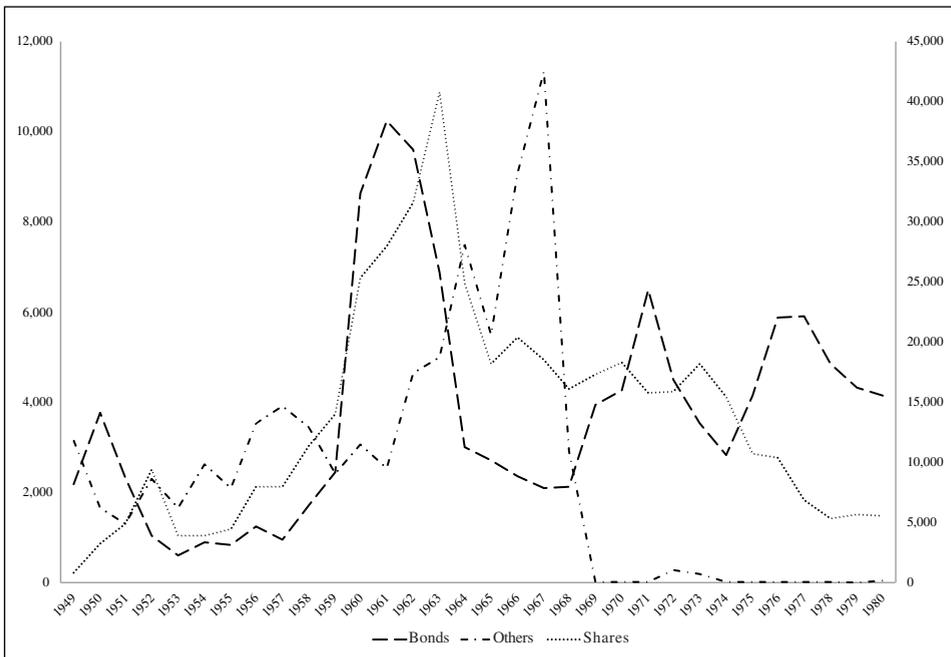
FIGURE 2 • Average yearly transactions in number of shares, 1949-1980

Source: Compiled by the authors based on BanRep (1950-1980).

Finally, the primary transactions in the Colombian stock market were shares issued by listed companies, followed by bonds issued by the government or large firms in import-substituting sectors like textiles or metal industries. As shown in Figure 3, between 1955 and 1963 there was an increase in the value of the transactions in shares explained by the increase in the number of trading firms and the growing employment in the manufacturing sector, which led to an increase in wages. From the beginning of the 1960s the creation of development funds by Banco de la Republica became the leading force for the sharp increase of the bonds between 1960 and 1963. Moreover, the Tax Reform of 1960 encouraged the development of new export industries resulting in a reduction of the economic measures for industrialization by import substitution.

However, this boom was short lived and equity financing lost traction, even within the framework of the relaxation of Import Substitution Industrialization policies (Ocampo, 2002). The decrease in the value of both shares and bonds from 1963 to 1968 could be explained as a reaction to the measures taken by the government to reduce fiscal deficit and control over an increasing devaluation, which resulted in higher unemployment and an exports crisis. After 1968 the economy finally recovered showing again that equity financing became an attractive source of funding as companies sought to raise more funds from the stock market.

FIGURE 3 • Shares and bonds transactions in millions of constant COP, 1950-1980



Source: Compiled by the authors based on BanRep (1950-1980). Millions of constant COP, base year 1949 = 100. Bonds and others are depicted on the left axis, whereas shares is displayed on the right axis.

4. Data and methodology

4.1. Sample

The sample comprises group- and non-group affiliated firms listed on the Bogotá Stock Exchange (1950–1980). As the period witnessed the consolidation of both financial and non-financial groups, both financial and non-financial listed companies are included to identify the weight of the group-affiliated firms in the stock exchange. The data on the volume and value of the transactions, price, and volume of the shares per company is mainly collected from the statistics of the Colombian central bank, Banco de la República (BanRep). For each of the markets, the BanRep reports the average value and volume of the transactions at the end of the year. The data on the stock exchange were collected for the years between 1950 and 1980, focusing on 412 listed companies. The estimates are derived from a sample that includes transactions that took place in December of each year within the sample period. In future work, Castellanos-Gamboa and Rodríguez-Satizabal plan to expand the data availability by including a monthly sample covering the entire period from 1940 to 1980.

4.2. Variables

The market capitalisation (MCAP) is measured as the percentage of market capitalisation traded at the end of a given year. It employs the ratio of the value in million Colombian pesos of shares traded to total market capitalization at the end of the year, as the measure of volume of transactions per listed company, rather than the number of shares traded or the total value of the market capitalisation, following Saatcioglu and Starks (1998) and Samphantrak's (2002) advice on the need for control over changes in the regulation. This helps to consider stock splits, right issues, stock dividends and the government issue of bonds. As seen in Table 4, MCAP ranges from zero to 46 per cent for a single stock in a given year. The low values of the mean and particularly the median, suggest that there was a high market capitalization concentration in a few stocks, with many others having considerably lower values (which also increases the skewness of the variable).

TABLE 4 - Descriptive statistics. Years = 1950–1980

	Mean	Median	Min.	Max.	Std dev	Skew.	Kurtosis	Obs.	T-tests by affiliation	
Business Group	0.46	0	0	1	0.50	0.17	1.03	3830	Mean diff.	T stat.
Mkt. Cap.	1.22	0.10	0	46.12	3.20	5.79	50.88	2205	-1.74***	(-13.21)
Avg. Price	2.62	2.60	0.18	5.86	1.02	0.27	3.77	2179	-0.31***	(-7.19)
Volume	9.09	8.95	3.40	16.50	2.94	0.29	2.52	2316	-1.72***	(-14.63)
Avg. Trans.	8.04	7.47	0	25.55	4.76	1.37	5.93	2205	-2.74***	(-14.08)
Paid Capital	9.53	9.47	6.40	13.27	1.46	0.31	2.90	1197	-0.80***	(-9.85)
Legal Reserves	9.26	9.30	4.62	13.10	1.85	-0.16	2.52	1131	-1.36***	(-13.19)
Paid Dividend	0.25	0.14	0.02	2.30	0.40	3.80	17.51	1037	0.10***	(4.07)
Nominal Value	2.03	1.79	0.18	10.71	1.21	4.30	30.44	1200	0.30***	(4.34)

Note: T-tests are performed as mean value for non-affiliated firms minus mean value for affiliated firms.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Considering that the main objective of this article is to assess the impact of business-group affiliation on market capitalisation, we created the family-owned business group affiliation (BG) variable, which is assigned a value of one for companies affiliated to a group, and zero otherwise. As indicated in Table 4, 46 per cent of the stocks in the sample were issued by firms that had been part of a business group at some point in time. This distribution remains relatively stable over time. For the sample analysed, the mean value of MCAP is 2.15 for stocks issued by firms belonging to a business group, while taking an average of 0.42 for those firms that were not part of a family-owned

business group. The logarithm of the trading volume average is also higher (10.01) when BG is equal to one, than when it is equal to zero (8.29). Therefore, the last two columns of the table display the mean difference t-tests for all the variables, stratified by affiliation or non-affiliation with a family-owned business group. A significant difference exists between the two groups for the mean values of all the variables. Interestingly, for affiliated firms, the sample consistently displayed higher values for market capitalisation, average price, volume, transactions, paid capital, and legal reserves. Conversely, for non-affiliated firms, higher paid dividends and nominal values per share were reported, suggesting that companies belonging to business groups tended to withhold more of their dividends than other firms. This evidence further informs the econometric approach outlined in section 5.

The size of a company is a key determinant in the preference for shares of larger firms. This notion of perceived security aligns with the argument put forth by Batten and Vo (2015) regarding investors' preference for familiar securities. The authors suggest that investors are more likely to invest in firms with which they are familiar, which can be assumed to be a result of the perceived size of the firm. Hence, we incorporated variables that define the size of a company, namely the average price (logarithmic transformation) and total traded shares (logarithm of volume), into the econometric approach. These variables exhibit distributions that are close to normal, as indicated by their third and fourth moments (skewness close to zero and kurtosis close to three). Finally, a measure of the average transactions per year (Avg. Trans) is included. It is calculated as the total shares traded divided by the number of trading rounds during the year. This measure is important to discuss the point on the market concentration and the inactivity of some listed companies in the Colombian stock markets.

Table 5 reports the pairwise correlation (and its significance level) of the variables included in the econometric strategy. The table reports evidence of a high correlation level between the dependent variable MCAP, and the independent variables. Particularly, we are interested in the effect that BGS has on MCAP (0.33). In addition, there is no evidence of the presence of multicollinearity in the empirical exercise, because the correlation coefficient between any two variables is not worryingly high (correlation coefficient higher than 0.8). The next section presents in detail the empirical exercise that evaluates these relations in a more thorough and robust way.

TABLE 5 - *Correlation matrix*

	BGS	MCAP	Price	Volume	Tra Ons.	Capital	Reserves	Dividend	Value
BGS	1.00								
MCAP	0.33***	1.00							
Price	-0.05	-0.06	1.00						
Volume	0.39***	0.57***	-0.42***	1.00					
Trans.	0.27***	0.41***	0.00	0.39***	1.00				
Capital	0.29***	0.50***	-0.06	0.31***	0.53***	1.00			
Reserves	0.35***	0.36***	0.18***	0.11*	0.53***	0.74***	1.00		
Dividend	-0.13**	-0.12*	0.55***	-0.44***	-0.13**	0.05	0.19***	1.00	
Value	-0.14**	-0.05	0.23***	-0.17***	-0.06	0.16***	0.08	0.28***	1.00

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5. Empirical results

In this paper, we employed multivariate linear regression analysis to establish the relationship between the market capitalisation and the ownership network represented by the firms affiliated to business groups. The estimations were calculated using panel data techniques. We performed a Hausman test to determine whether there were significant differences in the coefficients estimated using random effects (RE) and fixed effects (FE) panel regressions. The test rejected the null hypothesis of no systematic differences in the coefficients, hence suggesting the use of FE.

Since the main variable of interest (BGS) is time invariant, we must rely on a panel technique that allows for the inclusion of time-invariant variables, while controlling for the unobservable characteristics associated with each stock. This technique is called correlated random effects (Wooldridge 2005, 2010). Following Schunck (2013), we calculated the cluster-specific mean of each one of the independent variables, to estimate the between and within effects in one model. These variables were added to the regressions with the rest of the uncentered variables of interest and control.

The estimated equation is a log-linear regression model that takes the following form:

$$\begin{aligned} \text{Market capitalization}_{it} = & \alpha + \beta_1 * \text{Share Average Price}_{it} \\ & + \beta_2 * \text{Number of Traded Shares}_{it} + \beta_3 * \text{Business Group Affiliation}_{it} \\ & + \beta_4 * \text{Average Transaction per Year}_{it} + \Gamma_k(\text{Means of variables}_{it})' + \varepsilon_{it} \end{aligned}$$

where i represents the stocks of firms, t represents the year of observation, k is the number of cluster-specific means of variables, and ε_{it} is an error term distributed $N(0, \theta^2_{\varepsilon})$. The results of the relationship between the market capitalization and the group-affiliated firms are presented in Table 6. Column (1) presents the results when estimating the model with FE, hence without the business group affiliation dummy. Column (2) adds time fixed effects to the estimation. Columns (3)-(6) present the results when estimating the equation with correlated random effects (Corr. RE). Column (4) introduces BGS, whereas column (5) presents the results from interacting BGS with the logarithm of the average price, and finally, column (6) shows the results when BGS is interacted with the logarithmic transformation of the trading volume.

The findings are as follows. The average price of the stocks did not determine the market capitalization in any of the specifications. However, market capitalization was consistently positively and significantly related to the trading volume. A one-unit increase in the logarithm of the trading volume increased market capitalization (as percentage of total market capitalization) in between 0.3 and 0.5 percentage points. In general, the movements in the weighted market capitalization were explained via higher volumes of trading, rather than the prices (and returns) of the stocks. This is indicative of market concentration and “colonisation”, as there were only few stocks heavily traded in the sample. Nonetheless, the intensity of trading, captured by the logarithm of the average transactions per round, was positive and significant only at the 10 percent level in column (1) and not significant in the rest of the specifications.

As has been suggested by the literature, this could be a consequence of the tunnelling resulting from the structure of the business groups (Buchuck et al. 2014, Khanna and Rivkin 2001; Lin et al. 2011). However, in the case of Colombia, it seems also to be an indicator of the trust of the population in only large, well-known firms. This also implies the “colonisation” of the stock market by a small group of firms that traded very often. Most of these firms were manufacturing companies affiliated to business groups located in Bogotá and Medellín. As a result, the development of the stock market was very slow, and the two regions continued to grow faster than the other departmental capital cities.

The following variables reported in Table 6 are BGS and its interaction with the share prices and the trading volumes. When added on its own, as in column (4), the affiliation to a business group did not seem to have any effect on the weighted market capitalization (despite the results reported in the t-tests of the descriptive statistics). The same was true when BGS was interacted with the average price, in column (5), showing no evidence of differences in the market capitalization via prices for firms that were members of business groups. Nonetheless, when the family-owned business group affiliation was interacted with the logarithmic transformation of the trading volumes,

TABLE 6 ▪ *Regressions results. Business Groups on Market Capitalization*

	Dependent Variable Market Capitalization					
	(1)	(2)	(3)	(4)	(5)	(6)
	F.E.	F.E.	Corr. R.E.	Corr. R.E.	Corr. R.E.	Corr. R.E.
Avg. Price	-0.109	0.187	0.0561	0.0547	0.254	0.140
	(0.183)	(0.122)	(0.127)	(0.127)	(0.181)	(0.114)
Volume	0.314***	0.513***	0.379***	0.379***	0.373***	0.305**
	(0.039)	(0.150)	(0.123)	(0.123)	(0.121)	(0.124)
Avg. Trans.	0.0345*	-0.0470	0.0846	0.0845	0.0836	0.0470
	(0.020)	(0.108)	(0.087)	(0.087)	(0.089)	(0.089)
Business Group				0.104	-0.00449	-5.218***
				(0.106)	(0.414)	(1.211)
BG * Avg. Price					-0.405	
					(0.380)	
BG * Volume						0.261***
						(0.084)
Year Fixed Effects	NO	YES	YES	YES	YES	YES
Constant	YES	YES	YES	YES	YES	YES
Mean of Variables	NO	NO	YES	YES	YES	YES
Observations	2159	2159	2159	2159	2159	2159
Within R2	0.08	0.12	0.13	0.13	0.13	0.14
Between R2	0.26	0.34	0.38	0.38	0.38	0.44
Overall R2	0.26	0.33	0.35	0.35	0.35	0.44

Robust standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

the results were rather different. Being part of a business group reduced the weighted market capitalization by 5.22 percentage points. However, for higher volumes of trading, such as those observed for specific shares of member firms, the effect was mitigated in 0.26 percentage points by an increase in one unit of the logarithm of the trading volume. Understanding that the market capitalization is equal to the share price multiplied by the number of shares outstanding, this reduction of the market capitalization could be related to changes in the dividends and the use of equity to finance further investments as presented in Rodriguez-Satizabal (2021).

Furthermore, companies were issuing shares and repurchasing during the same year, which allowed the increase of the number of shares in the market, but negatively affected other investors. This could explain the focus of the business groups on finding external sources for their investments, instead of

the issuing of shares. This can also be related with the fact that as an emerging country, with a very small stock market, the Colombian stock prices tended to increase at discrete irregular jumps unrelated to market forces. Therefore, the investors were never expecting an increase in the value of their dividends. However, there were three companies in which the average price of the shares and the number of shares increased sharply during the period: Bavaria (brewery), Avianca (airline) and Suramericana (insurance). The three represent flagship companies of two of the largest business groups in the sample. This increase could be explained by the consolidation of these flagship companies as leaders in their industry and the strategy of transferring capital from the other group-affiliated firms to the core business.

To sum up, the empirical exercise investigated the role of business groups in the stock market in Colombia between 1950 and 1975 through a series of correlated random effects panel regressions. The results suggested that the ownership network colonisation of the stock market was linked to the weighted market capitalization of stocks issued by listed companies, via the trading volumes of family-owned business groups' shares. Group-affiliated firms mainly in manufacture, food and beverages, textiles and cement were the ones that led the participation in the inefficient and illiquid Colombian stock market.

6. Concluding remarks

Business groups are a commonly observed business organisation in emerging countries characterised by a very underdeveloped capital market. Although the number of stock markets increased in Colombia, the increase in the number and value of transactions only happened in the mid-1970s when there was an increase in the number of business groups with financial institutions.

This paper explored the nature of the role of business groups in the development of the stock market in Colombia. To achieve this, a classification of the listed firms according to ownership and group affiliation was included in the analysis of the trading data. It resulted in the recognition of the importance of the volume of trading by a group of large firms, members of business groups, on market capitalization.

Business groups colonised Bogotá's stock markets transactions by having listed the largest firms in their structure. As a result, the number of listed companies increased from 106 to 300, with only half of the listed companies trading often. Thus, the stock market transactions were mainly bonds issued by the government and a portion of shares issued by a small group of very active companies in the traditional industries (textiles, cement, food and beverage, and construction materials).

The increase in the number of financial institutions was not reflected in the listed companies. Although during the period more groups invested in financial institutions, the number of commercial banks and insurance companies listed remained constant. The great increase was in the number of investment funds listed.

Overall, the data suggests that while the stock exchange did not drive Colombia's economic transformation, it did play a role in facilitating investment and capital flows within established business groups. The shift towards manufacturing and services was driven by factors such as increased urbanization and infrastructure investment. The stock exchange may have served as a useful tool for established companies to channel funds into their internal capital markets, but it did not drive broader changes in the economy. This highlights the importance of considering multiple factors when analysing economic transformation and the role of financial markets in facilitating investment and growth.

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Author contribution statement

Beatriz Rodriguez-Satizabal: framework, methodology, formal analysis, investigation, dataset, writing, visualization, supervision.

Sergio Castellanos-Gamboa: framework, methodology, writing, visualization.

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Afiliació o no afiliació: l'impacte dels grups empresarials familiars a la Borsa de Valors de Bogotá, 1950-1980

RESUM

Aquest article examina l'impacte de l'afiliació a grups empresarials en el desenvolupament del mercat de valors de Bogotá entre el 1950 i el 1980. Si bé la literatura sobre grups empresarials ha discutit com responen a les falles del mercat, s'ha prestat poca atenció a les formes específiques en què l'afiliació a grups afecta el desenvolupament del mercat de valors a economies emergents. Aquest estudi té com a objectiu omplir aquesta bretxa analitzant dades de panell del mercat de valors de Bogotá i implementant una sèrie de regressions de panell d'efectes aleatoris correlacionats. Les troballes d'aquest estudi demostren que l'afiliació a grups va tenir un impacte significatiu a la capitalització borsària ponderada de les accions emeses per empreses cotitzades. Específicament, es van concentrar alts volums de negociació en un petit subconjunt d'empreses, cosa que suggereix que les empreses afiliades a grups van poder capturar el mercat de valors com a mitjà per finançar les seves inversions i augmentar la diversificació de productes i la diversificació geogràfica. Tot i que la literatura sobre grups empresarials suggereix que solen sorgir en absència d'un mercat de capitals desenvolupat, el nostre estudi revela una dinàmica diferent en el cas de Colòmbia, on aquests grups van advocar per la creació de la borsa de valors. Per tant, les nostres troballes desafien la idea que els mercats financers en economies emergents són ineficients i il·líquids i aporten nova llum sobre el paper dels grups empresarials que impulsen el desenvolupament del mercat financer.

PARAULES CLAU: grups empresarials, desenvolupament financer, mercat de valors, Colòmbia

CODIS JEL: D22, G23, N26, N86



Afiliación o no afiliación: el impacto de los grupos empresariales familiares en la Bolsa de Valores de Bogotá, 1950-1980

RESUMEN

Este artículo examina el impacto de la afiliación a grupos empresariales en el desarrollo del mercado de valores de Bogotá entre 1950 y 1980. Si bien la literatura sobre grupos empresariales ha discutido cómo responden a las fallas del mercado, se ha prestado poca atención a las formas específicas en que la afiliación a grupos afecta el desarrollo del mercado de valores en economías emergentes. Este estudio tiene como objetivo llenar esta brecha analizando datos de panel del mercado de valores de Bogotá e implementando una serie de regresiones de panel de efectos aleatorios correlacionados. Los hallazgos de este estudio demuestran que la afiliación a grupos tuvo un impacto significativo en la capitalización de mercado ponderada de las acciones emitidas por empresas cotizadas. Específicamente, se concentraron altos volúmenes de negociación en un pequeño subconjunto de empresas, lo que sugiere que las empre-

sas afiliadas a grupos pudieron capturar el mercado de valores como medio para financiar sus inversiones y aumentar su diversificación de productos y geográfica. Si bien la literatura sobre grupos empresariales sugiere que suelen surgir en ausencia de un mercado de capitales desarrollado, nuestro estudio revela una dinámica diferente en el caso de Colombia, donde estos grupos abogaron por la creación de la bolsa de valores. Por lo tanto, nuestros hallazgos desafían la idea de que los mercados financieros en economías emergentes son ineficientes e ilíquidos y arrojan nueva luz sobre el papel de los grupos empresariales en impulsar el desarrollo del mercado financiero.

PALABRAS CLAVE: grupos empresariales, desarrollo financiero, mercado de valores, Colombia.

CÓDIGOS JEL: D22, G23, N26, N86



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