Some trends and patterns of firm financing in Colombia

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1. Introduction

After a protracted period of financial deepening following a financial crisis at the end of the 20th century, the ratio of bank loans to GDP in Colombia stagnated between 2016 and 2019 (Graph 1). There were two opposite trends behind these dynamics. The ratio of commercial loans to GDP declined after 2016, whereas consumer and mortgage loan-to-GDP ratios kept increasing (Graph 2). The pandemic implied an increased volatility of these indicators since output declined and loans remained resilient. Post-pandemic, all the ratios have decreased.

Clearly, there has been a change in the composition of the bank loan portfolio towards household liabilities. While this is a natural development in an emerging market economy with greater financial inclusion, the reduction in the commercial loan-to-GDP ratio raises some questions about corporate financing in Colombia. Has there been a substitution of bank loans to other financial instruments linked to capital market development or enhanced foreign funding access? Or, has a healthy corporate deleveraging process taken place? Is the overall evolution of firms´ financial leverage related to the behaviour of investment? This note explores these questions using aggregate data.

From a longer-term growth perspective, we also aim to investigate whether fast-growing firms differ from others in terms of their financial leverage. This could provide some indication about the role of financial intermediation or capital markets in the promotion of economic growth. Thus, based on disaggregated data, this note examines some features of the financing behaviour of non-financial firms that have exhibited greater sales growth rates or capital expenditure (CAPEX) to asset ratios in the past 17 years. Furthermore, we characterise those banks that have been more exposed to fast-growing or high CAPEX ratio firms with respect to profitability, loan interest earnings, operational efficiency and ex post loan risk.

In a nutshell, we find that the decline of the ratio of bank corporate loans to GDP is related to substitution of funding sources and is not part of a balance sheet deleveraging process. Total corporate leverage (total liabilities/assets) has exhibited an upward trend, while financial leverage (financial liabilities/assets) has declined. The

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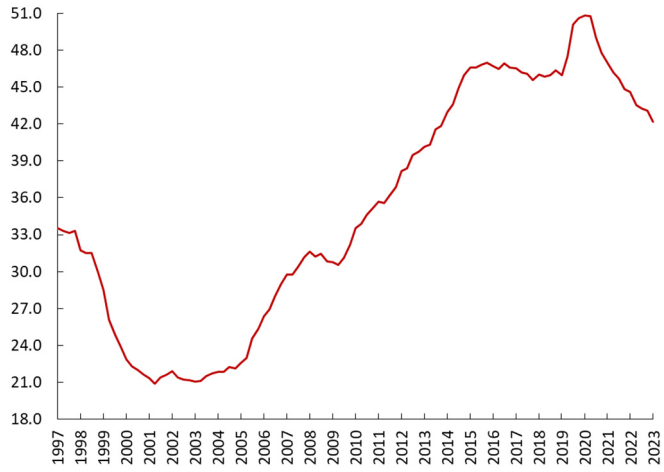
slowdown in financial liabilities coincided with the decrease in the investment-to-GDP ratio that was part of the macroeconomic adjustment to a sharp deterioration of terms of trade between 2014 and 2016. An exploration of disaggregated firm data indicates that fast-growing enterprises (measured by their real sales growth) typically display greater total leverage ratios, but their relative reliance on financial liabilities is less clear. On the other hand, financial leverage is higher for firms that exhibit large CAPEX-to-asset ratios. Thus, the association between financial intermediation and investment seems to be stronger than that between financial intermediation and sales growth.

2. Some features of firm financing in Colombia

The total debt ratio measured as corporate debt as a fraction of GDP increased continuously between 2004 and 2016, with local bank loans and suppliers´ loans being its main components (Graph 3). Interestingly, the importance of the debt held with foreign financial institutions has decreased compared with the beginning of the century, reflecting the reduction of currency mismatches that has accompanied the flexible exchange rate regime in place since 1999. Whereas the ratio of liabilities with domestic banks fell between 2016 and 2019, as mentioned above, total debt exhibited a smoother pattern.[2] Loans from parent companies abroad and local input supplier credit explain a large part of the difference. Nonetheless, the total corporate debt ratio has followed a declining trend after 2018 (with some volatility related to the pandemic in 2020 and 2021).

Total bank loans

As a percentage of GDP — Graph 1

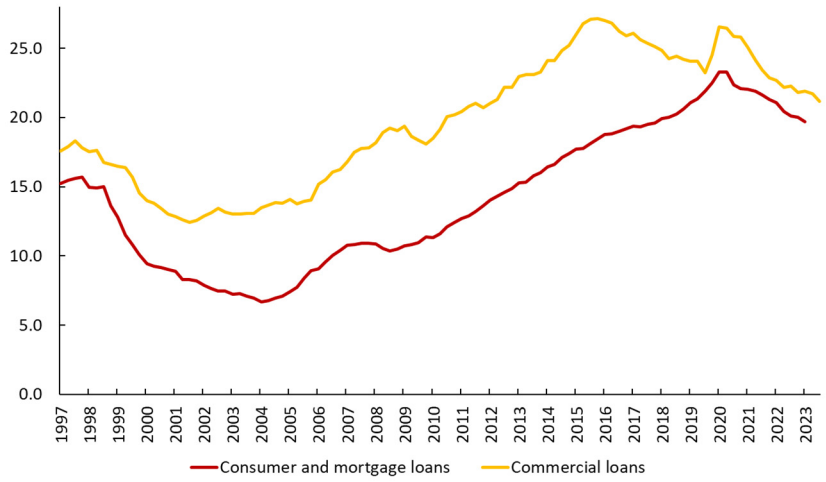


Sources: Central Bank of Colombia

[2] Unlike Graphs 1 and 2, Graph 3 includes foreign currency debts expressed in local currency using the average COP/USD exchange rate for the 2000–June 2023 period. This adjustment filters movements in the debt ratio that are due to valuation effects related to exchange rate fluctuations.

Commercial, consumer and mortgage loans

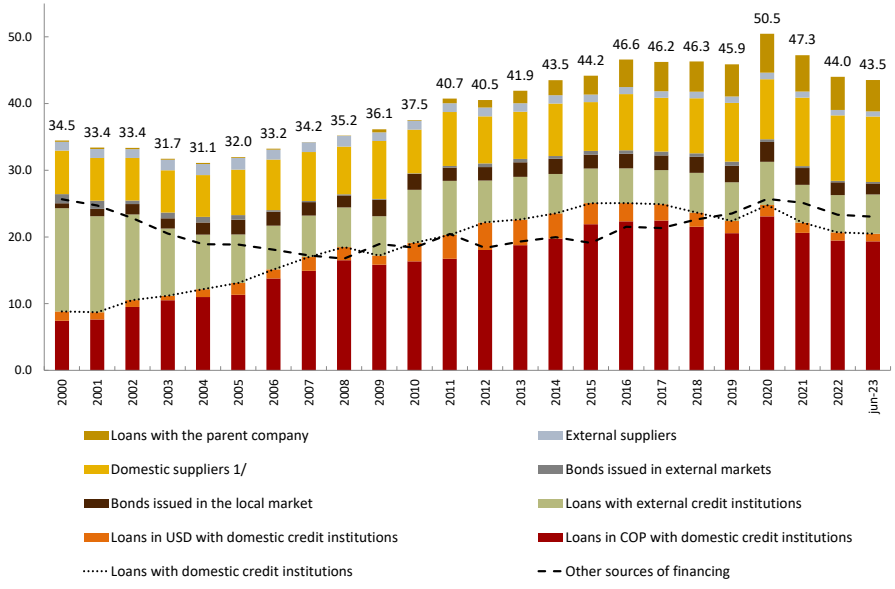
As a percentage of GDP — Graph 2



Sources: Central Bank of Colombia

Debt by instrument in the private corporate sector

As a percentage of GDP — Graph 3



1/ Only includes information from firms that report financial statements to the Superintendence of Corporations. In 2016, all firms reported their financial statements using IFRS, which did not allow the balance of domestic suppliers to be identified. To approximate this number, the average percentage of this account between 2007 and 2015 was used.

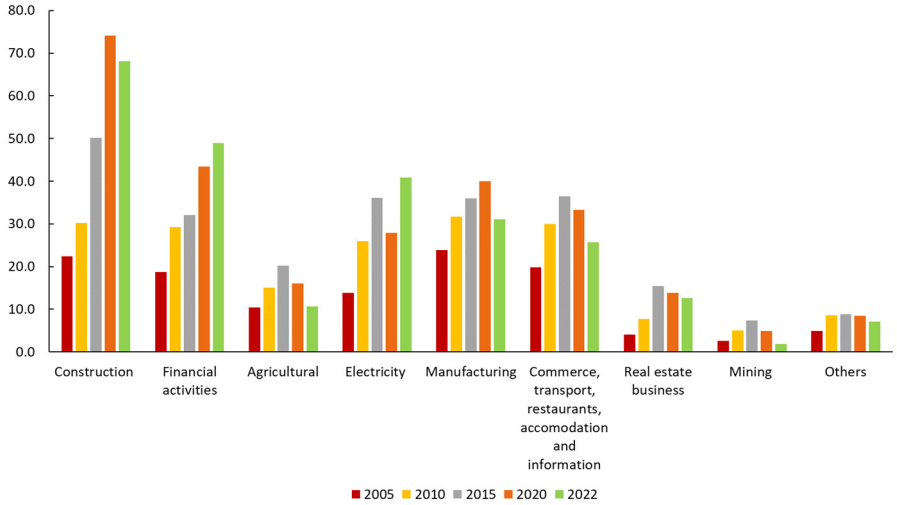
Sources: Central Bank of Colombia; Financial Superintendence; Superintendence of Corporations; Central Bank of Colombia calculations.

Sectoral local bank loan data also portray a general process of financial deepening up to 2015 (Graph 4). Afterwards, there have been heterogeneous patterns across sectors. Firms in construction, electricity and financial services[3] display an increasing trend in their loan-to-GDP ratios, in contrast to the rest of the sectors.[4] The sectoral composition of bank loans has changed over time. Bank credit to manufacturing and mining firms has decreased along with the share of these sectors in the economy, while loans to construction and real estate firms have increased their participation well above their share in total value added (Graph 5). Loans to agriculture and other sectors represent a fraction that is smaller than their share of total value added. Moreover, the participation of loans to the agricultural sector has fallen since 2005 (Graph 5).

Local credit to GDP by economic sector

In per cent

Graph 4



Note 1: Others include artistic, recreational activities, education, health, and public and defence administration.

Note 2: Financial activities include firms that are supervised by the Superintendence of Corporations but not by the Financial Superintendence. These firms are engaged in the purchase of credit portfolios or factoring, auxiliary financial activities, and purchase and sale of foreign currency, among others.

Note 3: Commerce represents 72% of the local credit in the correspondent sector.

Note 4: The increase in the financial deepening indicator observed in 2015 in most sectors is also explained by the change in the International Standard Classification of All Economic Activities (ISIC) from version 3 to 4 that increased the coverage of sectoral information reported.

Note 5: As of 2022, construction represents 9.6% of GDP, financial activities 8.0%, agriculture 14.2%, electricity 12.6%, manufacturing 9.4%, commerce, transport, restaurants, accommodation and information 9.6%, real estate business 8.4%, mining 19.5% and others 8.7%.

Sources: Financial Superintendence; National Administrative Department of Statistics; Central Bank of Colombia calculations.

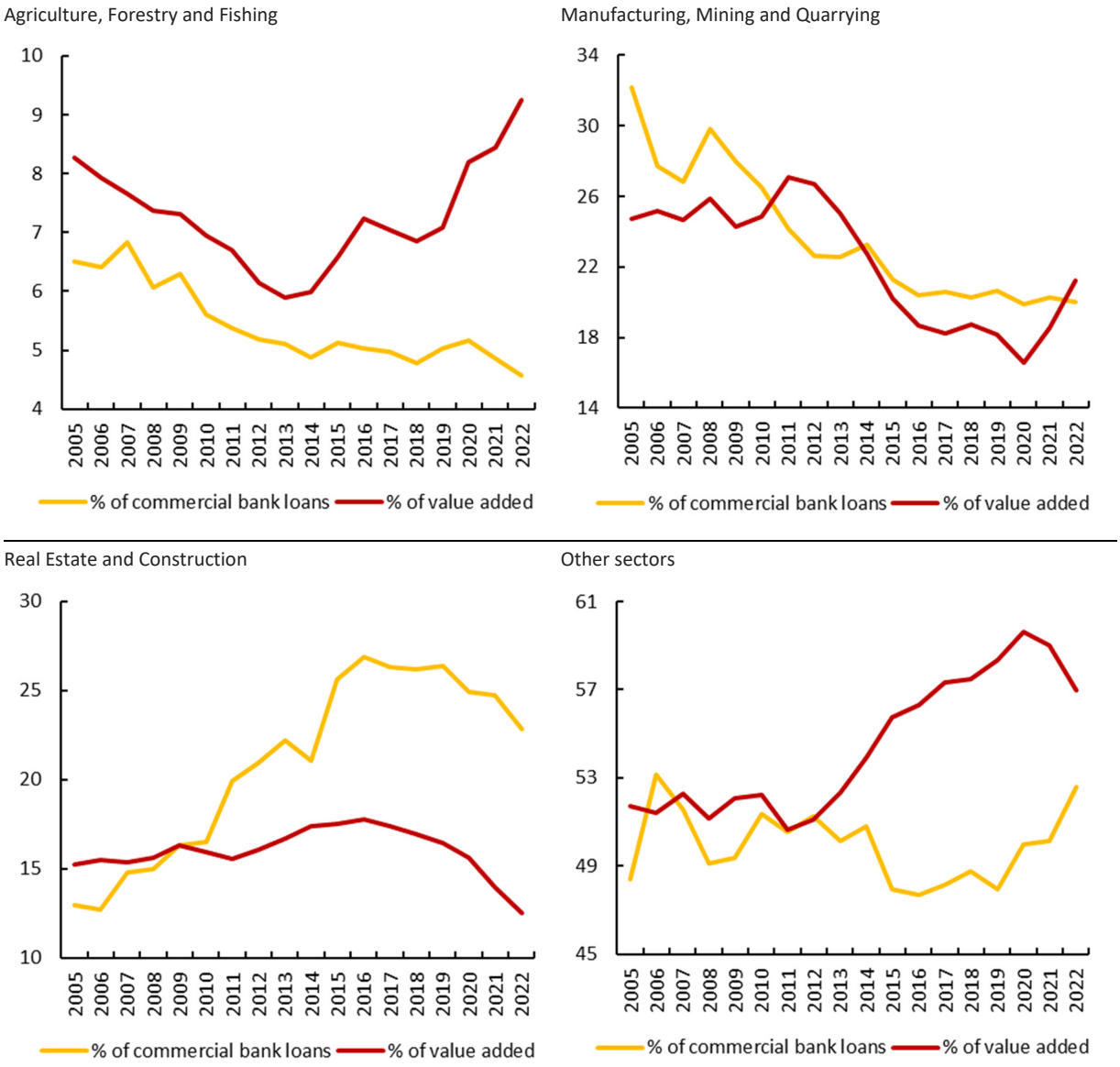
[3] Factoring, foreign exchange bureaus and other auxiliary financial activities. This sector does not include depository institutions, insurance companies and brokers, stockbroker firms or mutual and pension funds.

[4] As in Graph 3, Graph 4 includes foreign currency debts expressed in local currency using a constant exchange rate in order to filter movements in the debt ratios that are due to valuation effects related to exchange rate fluctuations.

Sectoral shares of bank loans and value added

In per cent

Graph 5



Source: Central Bank of Colombia and authors' calculations based on data from the National Administrative Department of Statistics.

A natural question that arises from the previous graphs is whether the declining trend of corporate financial debt after 2016 is part of a deleveraging process. Graph 6 shows the evolution and composition of the leverage ratio (liabilities/assets) for a sample of Colombian firms that report their financial statements to the Superintendence of Corporations.[5] Total leverage was relatively stable between 2005

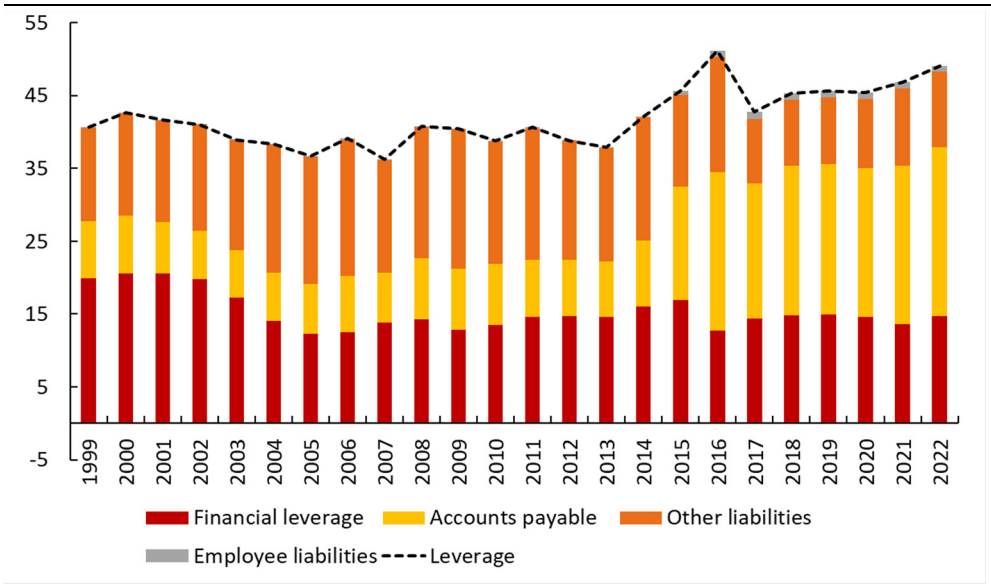
[5] Firms with assets or earnings above 30,000 current monthly legal minimum salaries (CMLMS) must disclose annual financial information to the Superintendence of Corporations. As of December 2022, the sample included 29,935 firms (of which 42.3% were large) with COP 1.7 trillion in assets and COP 1.2 trillion in sales (85.9% of GDP). These firms account for 43.9% of the commercial loans provided by banks in Colombia.

and 2013. It has exhibited an increasing trend since then, with a peak in 2016. By contrast, financial leverage (financial liabilities/assets) decreased after 2015, in line with the above-mentioned reduction in the banks´ commercial loan-to-GDP ratio. The difference between these trends is mainly explained by a greater participation of accounts payable in total assets. Hence, we infer that the decline in financial deepening is not related to an overall deleveraging process, but to a substitution of financial debt to other types of liabilities.[6]

Leverage of the private corporate sector

In per cent

Graph 6



Note 1: Leverage is defined as the ratio of total liabilities over total assets.

Note 2: Accounts payable include short- and long-run liabilities with suppliers, parent company and others. Other liabilities include short- and long-run tax liabilities and other liabilities.

Sources: Superintendence of Corporations; National Administrative Department of Statistics; Central Bank of Colombia calculations.

The increasing trend in total leverage is present in manufacturing, mining and agricultural firms, among others (Graph 7). The reduction in financial leverage since 2015 is observed in most sectors (Graph 8). Large enterprises explain the rising trend in total leverage (Graph 9), while small and medium-sized enterprises (SMEs) have displayed a stable ratio (Graph 10).[7] For both types of firms, financial leverage

[6] The change between 2015 and 2016 can be also explained by the introduction of IFRS accounting standards. Prior to 2015, companies were required to report their short- and long-term accounts payable excluding the liabilities to suppliers. Since 2016, short-term and long-term accounts payable include liabilities to suppliers and it is not possible to disaggregate this information. Nevertheless, we consider that this factor does not affect the interpretation of the results significantly, since financial leverage decreased in that period.

[7] SMEs are defined as enterprises that have assets below 15,000 CMLMS and large enterprises are those that record assets above that amount. Given the criterion of the Superintendence of Corporations that only firms with earnings or assets above 30,000 CMLMS must disclose their financial statement, the SMEs group is tilted towards medium-sized enterprises.

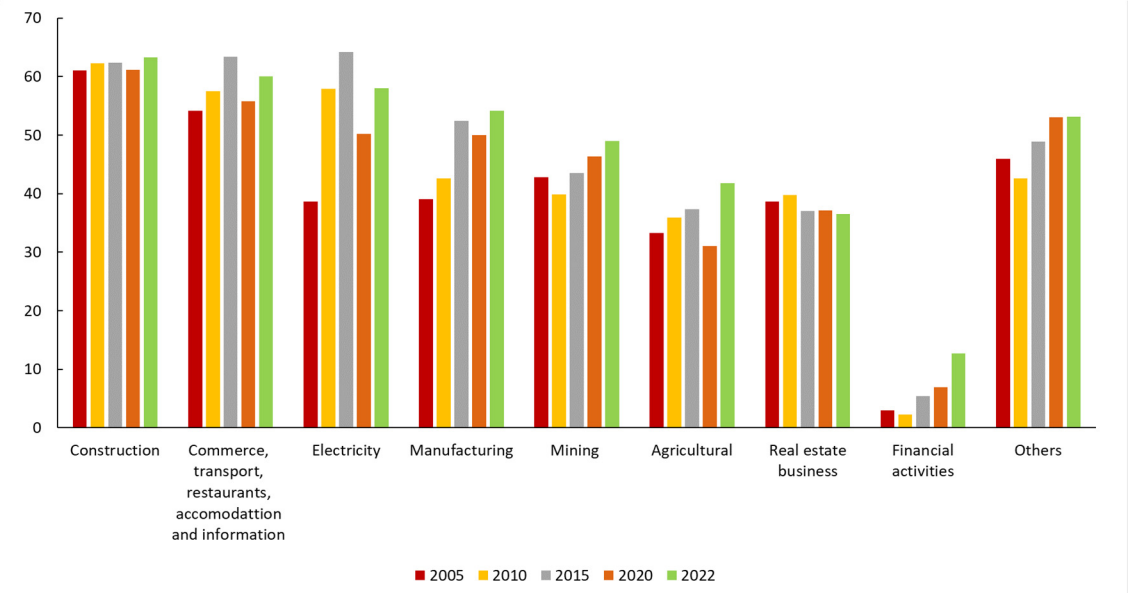
decreases and accounts payable participation increases from 2016 onwards (Graphs 9 and 10).

Between mid-2014 and 2016, Colombia experienced a sharp and prolonged deterioration of its terms of trade, following the drop in international oil prices. The ensuing fall in national income and widening of the external imbalance required a macroeconomic adjustment that included a reduction of the current account deficit, based mostly on a slide of the investment-to-GDP ratio (Table 1). Private corporate investment bore part of this and it coincided with a decline in financial corporate debt as a percentage of GDP and the real growth rate of commercial bank loans between 2014 and 2019 (Graphs 11 and 12). Thus, the retrenchment of private investment after the oil shock could be among the reasons for the ebb of corporate financial deepening. By contrast, the strong recovery in investment after the pandemic (especially in 2022) did not come with a significant increase in total or financial corporate debt (Graphs 3, 11 and 12).

Leverage of the private corporate sector by economic sector

In per cent

Graph 7



Note 1: Others include artistic, recreational activities, education, health, and public and defence administration.

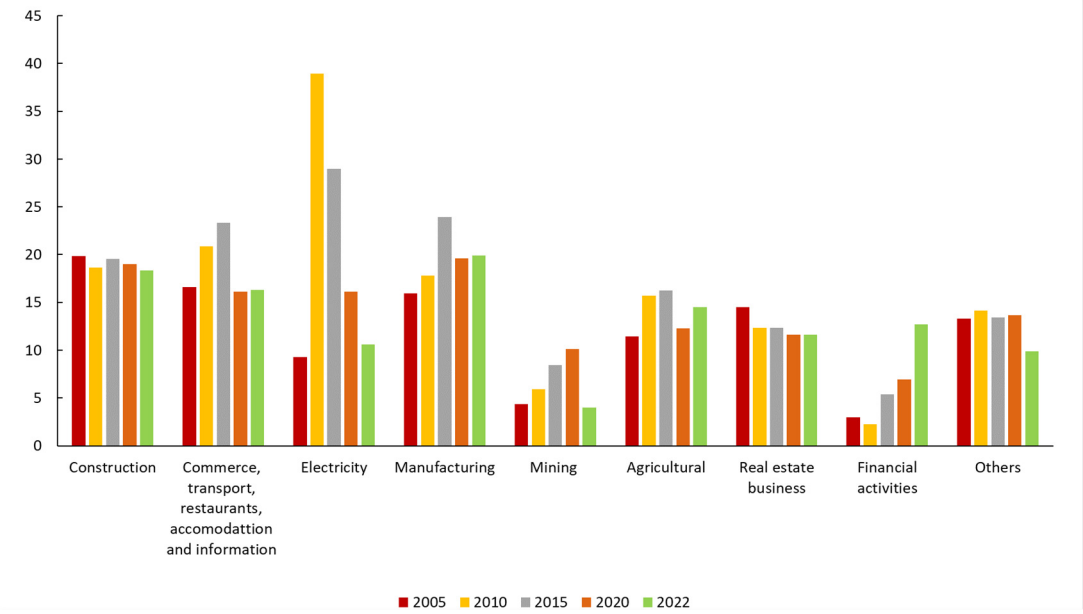
Note 2: Financial activities include firms that are supervised by the Superintendence of Corporations but not by the Financial Superintendence. These firms are engaged in the purchase of credit portfolios or factoring, auxiliary financial activities, and purchase and sale of foreign currency, among others.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Financial leverage of the private corporate sector by economic sector

In per cent

Graph 8



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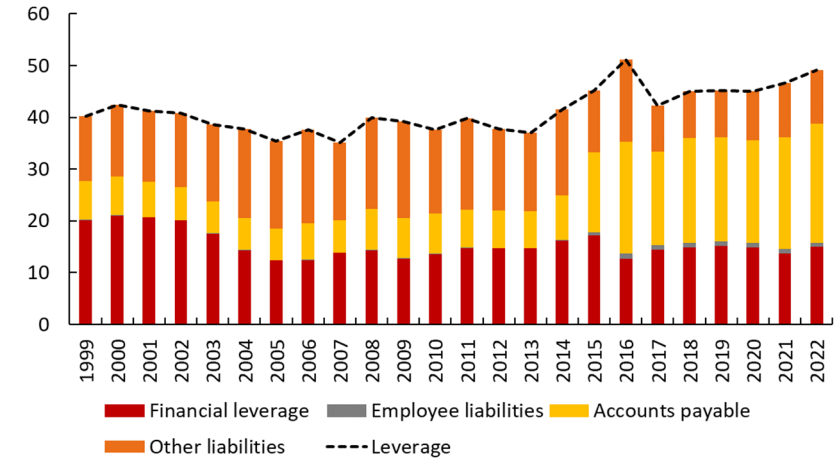
Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Leverage of big enterprises

In per cent

Graph 9



Note 1: Leverage is defined as the ratio of total liabilities over total assets.

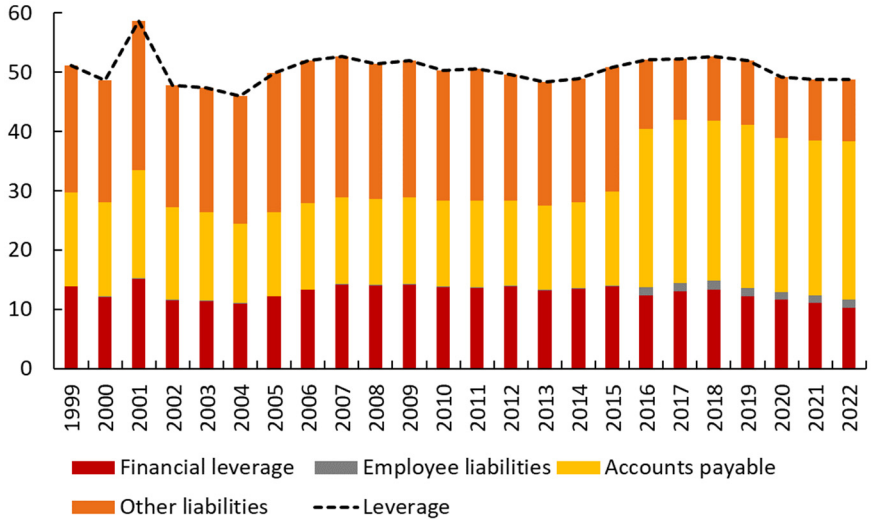
Note 2: Accounts payable include short- and long-run liabilities with suppliers, parent company and others. Other liabilities include short- and long-run tax liabilities and other liabilities.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Leverage of small and medium-sized enterprises

In per cent

Graph 10



Note 1: Leverage is defined as the ratio of total liabilities over total assets.

Note 2: Accounts payable include short- and long-run liabilities with suppliers, parent company and others. Other liabilities include short- and long-run tax liabilities and other liabilities.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Current account deficit and investment ratio

As a percentage of GDP

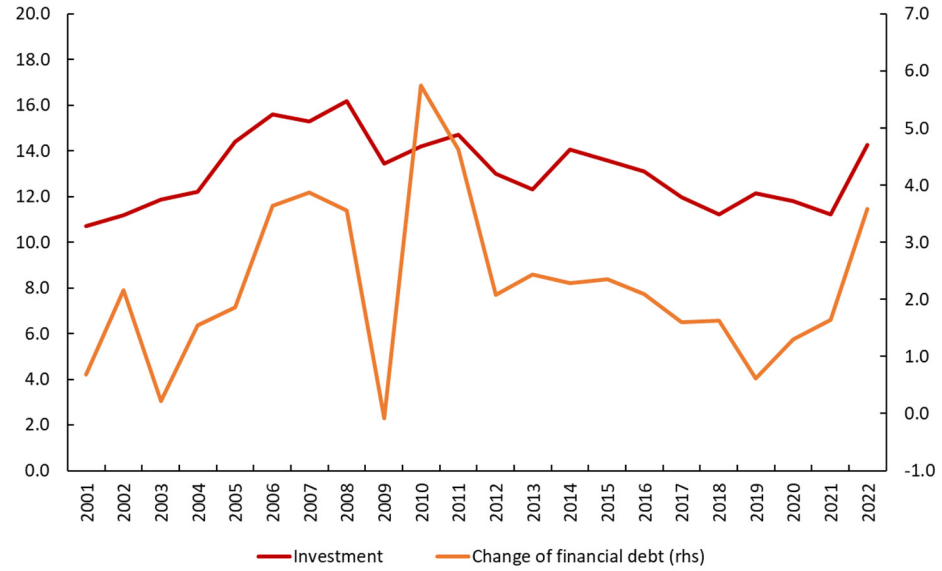
Table 1

Current account deficit	Investment ratio (nominal prices)	Investment ratio (real terms)	Current account deficit
2014	-5.2	24.1	24.8
2015	-6.3	23.7	23.8
2016	-4.4	22.6	23.3
2017	-3.2	22.0	22.2
2018	-4.2	23.0	22.0
2019	-4.6	22.1	21.9

Source: Central Bank of Colombia and authors' calculations based on data from the National Administrative Department of Statistics.

Investment and financial debt change

As a percentage of GDP — Graph 11

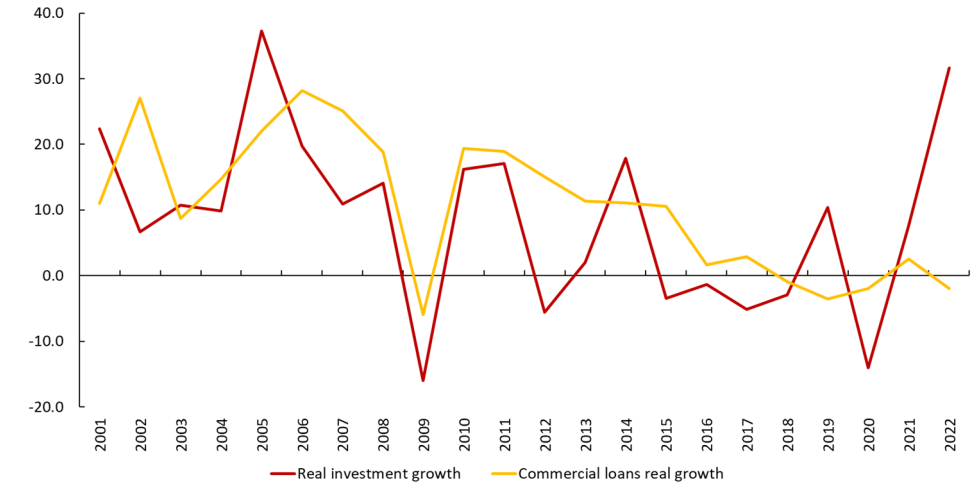


Financial debt change is calculated as the change of financial debt between two periods divided by nominal GDP.

Sources: Superintendence of Corporations; National Administrative Department of Statistics; Central Bank of Colombia calculations.

Real commercial loans and investment growth

In per cent — Graph 12



Sources: Financial Superintendence; National Administrative Department of Statistics; Superintendence of Corporations; Central Bank of Colombia calculations.

3. Total leverage and financial leverage of fast-growing firms

Have fast-growing firms relied more on funding from financial intermediaries or capital markets than other firms? If so, this could be an indication of the importance of financial development in promoting economic growth, possibly because of the role of financial institutions in selecting the most promising projects and businesses. However, some firms may grow faster than others simply because they have greater access to funding from the financial system, and situations in which financial intermediaries treat equally promising projects in different ways cannot be ruled out.[8] In this case, the positive effect of financial intermediation on economic growth may be diminished.[9]

In this context, greater reliance of fast-growing firms on financial markets may signal a largely significant role of financial intermediation in promoting economic growth. In this section, we explore whether this pattern is found in the granular Colombian firm data. More precisely, we use the financial statements of firms reporting to the Superintendence of Corporations[10] between 2006 and 2022 to obtain the distributions of the firms according to sales growth and CAPEX to total asset ratios. We then compare the total and financial leverage ratios of each quartile of the distributions to assess the differences between the firms with faster-growing sales or greater CAPEX ratios (those in the fourth quartile) and the rest.

To set the stage for this exploration, we estimate the conditional correlation between real sales growth and non-financial and financial leverage, and between CAPEX ratios and non-financial and financial leverage, respectively, based on panel regressions with time and firm fixed effects (Table 2).[11] The correlations between real sales growth and non-financial and financial leverage are both significant, although

[8] Naturally, there are many reasons that explain differences in the growth of firms, and a more comprehensive analysis must include them (eg size, vintage, market structure, etc).

[9] Banking activities can foster economic growth, limiting financial market imperfections and channelling funds to the best investment opportunities, as pointed out in Bernanke and Gertler (1990) and Holmstrom and Tirole (1997). However, there are other possible channels such as provision of ex ante information, availability of monitoring technologies, improvement in risk management, consolidation of prudential buffers, the contract enforcement role, mobilisation of savings and reduction of the costs of exchanging goods and services in the economy (Levine (2005); Da Rin and Hellmann (2002); Beck et al (2000)).

[10] See footnote 5.

[11] We estimate the following panel data models using OLS:

$$Y_{it} = \beta_1 \cdot \text{Non Fin Leverage}_{it} + \beta_2 \cdot \text{Fin Leverage}_{it} + a_i + b_t + v_{it} \text{ and}$$

$$Y_{it} = \alpha \cdot Y_{it-1} + \beta_1 \cdot \text{Non Fin Leverage}_{it} + \beta_2 \cdot \text{Fin Leverage}_{it} + a_i + b_t + v_{it}.$$

Y_{it} corresponds to either real sales growth or the CAPEX ratio of firm i in period t. Fin Leverage_{it} represents the financial leverage measure (financial liabilities/assets) of firm i in period t. $\text{Non Fin Leverage}_{it}$ is the equivalent measure for non-financial leverage. Even though the rest of this section uses total and financial leverage, we estimate the model with the mentioned variables to mitigate multicollinearity problems in regressions. a_i and b_t correspond to firm and time fixed effects, respectively, and v_{it} represents the error term. Estimations are conducted using the within fixed effects transformation and errors are clustered at the firm level.

the former is statistically larger.[12] The correlations between CAPEX ratios and non-financial and financial leverage are also significant, but the latter is stronger in this case.[12] We next examine these relationships in more detail across the distributions of the variables of interest.

a. Sales growth

Appendix 1 shows the distribution of real sales growth for the whole 2006–22 period and for the initial (2006–12), medium (2013–19) and Covid (2020–22) subperiods. Sales growth exhibits wide heterogeneity across firms and its distribution is similar in the three subperiods. In general, sales growth is positively related to total leverage and CAPEX ratios (Graph 14 and Table 3), with the fastest-growing firms (fourth quartile) having the highest leverage and CAPEX ratios for the whole sample. The relation between CAPEX and sales growth should be expected, as greater sales usually follow a larger scale of investment, or larger investment may follow greater sales potential. By contrast, there is no clear relationship between sales growth and financial leverage. If anything, the slowest-growing firms have the highest financial leverage ratios throughout the period of analysis. These results generally hold for the firms in significant sectors such as manufacturing, commerce and real estate, as well as for both large enterprises and SMEs (Appendices 2 and 3).

Firms belonging to the construction, real estate, financial activities and mining sectors have larger shares in the fourth quartile of the growth sales distribution than in the overall sample for some selected years (Table 4). Likewise, large enterprises represent a relatively larger fraction of the fastest-growing firms (Table 5), even though smaller firms could have been expected to have greater growth possibilities.

Correlations between real sales growth or CAPEX ratio and total and financial leverage

Table 2

	(1)	(2)	(4)	(5)
Variables	Sales growth	Sales growth	CAPEX ratio	CAPEX ratio
Lag of dependent variable		–2.43e-08***		–0.0000725
		(6.52e-10)		–0.0000971
Non-financial leverage	0.354***	0.355***	0.0261***	0.0261***
	(0.0147)	(0.0157)	(0.00194)	(0.00210)
Financial leverage	0.0822***	0.0553***	0.0525***	0.0528***
	(0.0163)	(0.0172)	(0.00233)	(0.00255)
Observations	226,312	189,050	226,312	195,574
R-squared	0.030	0.025	0.049	0.052
Number of firms	37,938	33,245	37,938	33,754

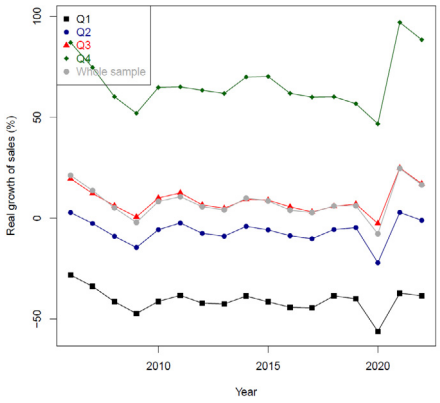
Robust standard errors clustered at the firm level in parentheses. ***p<0.01, **p<0.05, *p<0.1.

[12] The null hypothesis of equality of the coefficients of non-financial and financial leverage is rejected according to an F-test with p-value < 0.01 for the models with and without the lagged dependent variable.

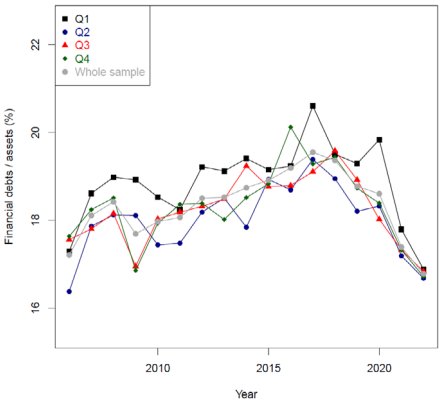
Average activity and financial performance of firms by quartiles of real growth of sales

Graph 14

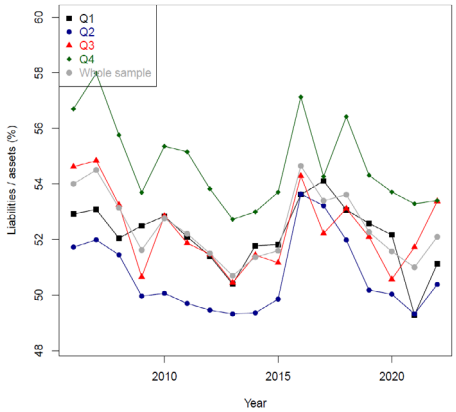
A Real growth of sales



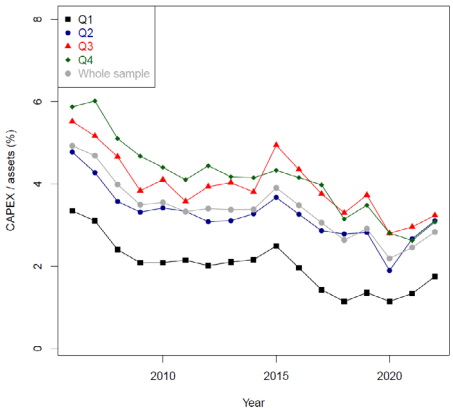
B Financial leverage



C Total leverage



D Capital expenditure



Note 1: This plot considers only firms with financial leverage.

Note 2: Each point represents the year-quartile simple average.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Mean difference test between quartiles (mean of row – mean of column, in percentage points)

Table 3

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–34.6***	–50.2***	–108.5***
	Q2			–15.5***	–73.9***
	Q3				–58.4***
	Q4				
Financial leverage	Q1		0.8***	0.6***	0.6***
	Q2			–0.2*	–0.3**
	Q3				–0.1
	Q4				
Total leverage	Q1		1.5***	–0.2	–2.6***
	Q2			–1.7***	–4.1***
	Q3				–2.3***
	Q4				
CAPEX/assets	Q1		–1.3***	–2***	–2.1***
	Q2			–0.7***	–0.8***
	Q3				–0.1*
	Q4				

***p<0.01, **p<0.05, *p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Percentage of firms in each sector by quartiles of real growth of sales

Table 4

	2007					2012					2017					2022				
Sector	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
Financial activities	5.6	2.0	1.8	4.4	3.4	5.4	2.0	2.5	4.9	3.7	7.2	3.0	2.7	5.5	4.6	3.8	2.3	2.1	7.1	3.8
Agricultural	8.9	6.7	6.1	6.1	6.9	5.1	4.8	5.9	7.8	5.9	3.8	4.0	6.5	10.6	6.2	13.6	7.1	3.5	3.3	6.9
Commerce	37.0	42.9	44.2	34.3	39.6	30.3	40.0	43.0	33.5	36.7	29.2	47.0	35.7	23.1	33.8	23.0	34.5	43.0	28.7	32.3
Construction	11.4	3.3	3.6	13.9	8.1	19.6	5.5	4.2	15.9	11.3	20.2	4.8	3.6	13.9	10.6	20.7	5.8	5.3	15.5	11.8
Electricity	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.3	0.4	0.3	0.5	0.2	0.1	0.2	0.2
Real estate business	16.3	16.7	12.4	18.3	15.9	17.6	18.3	18.7	21.2	18.9	24.7	18.2	25.9	27.3	24.0	22.8	27.9	24.1	30.8	26.4
Manufacturing	16.6	24.8	27.4	18.2	21.7	16.5	25.3	20.7	11.7	18.5	10.7	20.1	22.0	15.0	16.9	11.2	19.3	18.9	11.0	15.1
Mining	1.2	0.8	0.7	2.2	1.2	3.0	1.1	1.3	2.6	2.0	2.7	0.9	0.7	2.7	1.7	3.2	0.9	0.7	1.2	1.5
Other services	2.6	2.7	3.6	2.4	2.8	2.2	2.8	3.6	2.1	2.7	1.3	1.8	2.6	1.7	1.8	1.1	2.0	2.5	2.2	1.9

Source: Superintendence of Corporations; Central Bank of Colombia calculations .

Percentage of firms in each sector by quartiles of real growth of sales

Table 5

	2007					2012					2017					2022				
Size	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
Big	20.5	26.7	30.6	29.4	26.8	23.4	28.3	32.9	30.8	28.9	48.8	53.0	56.8	60.3	54.7	36.2	42.0	46.1	45.0	42.3
SME	79.5	73.3	69.4	70.6	73.2	76.6	71.7	67.1	69.2	71.1	51.2	47.0	43.2	39.7	45.3	63.8	58.0	53.9	55.0	57.7

Source: Superintendence of Corporations; Central Bank of Colombia calculations.

b. CAPEX ratios

Appendix 4 shows the distribution of the CAPEX/assets ratios for the whole 2006–22 period and for the same subperiods as in the foregoing subsection.[13] The CAPEX ratio distribution is similar in the three subperiods. In general, the CAPEX ratios are positively related to sales growth and total leverage (Graph 15 and Table 6). The firms with the highest CAPEX ratios (fourth quartile) have significantly higher financial leverage ratios than other firms (Graph 15 and Table 6). Thus, in contrast to the case of sales growth, there seems to be a strong link between financial leverage and investment. These results generally hold for the firms in commerce and real estate, while manufacturing firms exhibit a weaker relationship between CAPEX ratios and total leverage (Appendix 5). Large enterprises display a stronger relationship between CAPEX ratios and financial leverage, with the average firm in a higher quartile exhibiting larger financial leverage ratios than average firms in lower quartiles (Appendix 6). By contrast, the relationship between CAPEX ratios and sales growth for large firms holds only when comparing the fourth quartile with the rest. The link between total leverage and CAPEX ratios is weak for SMEs relative to the overall sample (Appendix 6).

Firms belonging to the manufacturing, mining and agricultural sectors account for larger shares in the fourth quartile of the CAPEX ratio distribution than in the overall sample for some selected years (Table 7). Likewise, large enterprises represent a relatively larger fraction of the firms with the highest CAPEX ratios (Table 8).

c. Some features of the banks that finance the fast-growing and high CAPEX ratio firms

Finally, we briefly explore the characteristics of the banks that are more exposed to fast-growing or high CAPEX ratio firms. Are they usually the same institutions? Do they differ from other banks in some basic dimensions like profitability, interest revenue, ex post credit risk or operational efficiency? For this purpose, we compute the exposure of banks to firms located in the fourth quartiles of the sales growth and CAPEX ratio distributions. This is measured as the percentage of each bank´s commercial loans that has been granted to firms in the fourth quartiles of those distributions. We then construct the distribution of banks for these measures (Appendix 7) and identify those banks that are in the fourth quartile of these distributions.

We found that few banks systematically exhibit high exposures to fast-growing firms (Table 9). For example, only four out of 29 banks belonged to the fourth quartile of the corresponding distribution in more than a third of the years between 2006 and 2022. By contrast, a larger fraction of banks is systematically exposed to high CAPEX ratio firms (Table 10). Eight out of 24 banks belonged to the fourth quartile of the corresponding distribution in more than a third of the years between 2006 and 2022. We also found that banks that are highly exposed to fast-growing and high CAPEX ratio firms generally display lower levels of profitability (measured as the return on assets – ROA), non-performing loans (NPL ratio) and operational efficiency than other

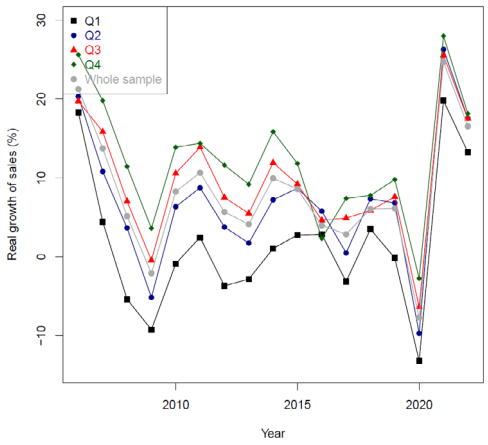
[13] CAPEX is defined as the annual change in fixed assets (property, plant and equipment) plus depreciation expenditures.

banks (Graphs 16 and 17). Interest revenue (as a fraction of performing commercial loans) is similar for both groups of banks.

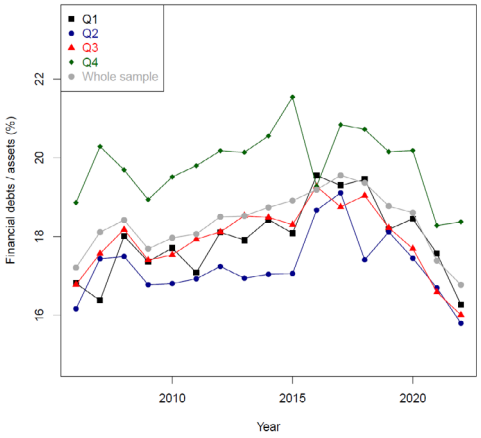
Average activity and financial performance of firms by quartiles of the CAPEX ratio

Graph 15

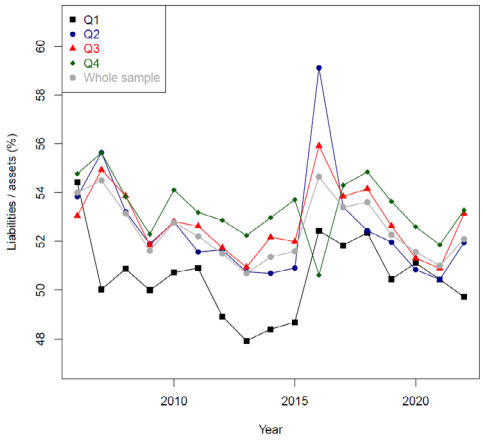
A Real growth of sales



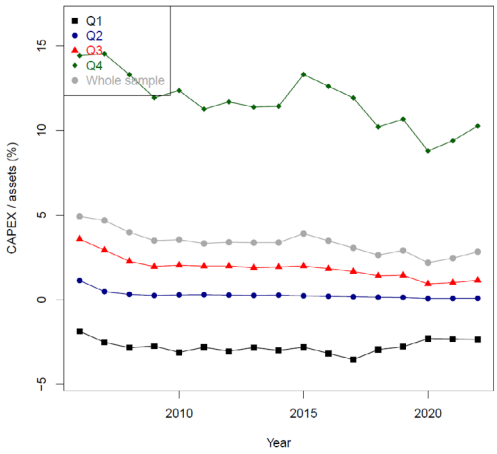
B Financial leverage



C Total leverage



D Capital expenditure



Note: Each point represents the year-quartile simple average.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Mean difference test between quartiles (mean of row – mean of column, percentage points)

Table 6

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–4.8***	–7.6***	–10.6***
	Q2			–2.8***	–5.8***
	Q3				–3***
	Q4				
Financial leverage	Q1		0.7***	0	–1.9***
	Q2			–0.7***	–2.6***
	Q3				–2***
	Q4				
Total leverage	Q1		–2.1***	–2.3***	–2.9***
	Q2			–0.2	–0.8***
	Q3				–0.6***
	Q4				
CAPEX/assets	Q1		–3.2***	–5.2***	–15.4***
	Q2			–1.9***	–12.1***
	Q3				–10.2***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations

Percentage of firms in each sector by quartiles of CAPEX/assets

Table 7

	2007					2012					2017					2022				
Sector	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
Financial activities	8.9	3.5	1.8	1.5	3.9	8.9	4.7	1.5	1.4	4.2	9.4	5.9	2.3	1.6	5.1	7.3	5.3	2.5	1.5	4.4
Agricultural	8.1	5.1	5.7	9.2	7.0	7.1	4.9	5.2	7.2	6.2	5.2	4.3	6.6	8.6	6.3	6.1	5.8	6.5	8.9	6.9
Commerce	30.8	48.8	40.6	32.3	38.1	27.5	42.2	39.7	32.1	34.9	25.0	38.8	39.0	32.2	32.6	23.7	35.6	39.3	31.1	30.9
Construction	11.2	9.3	6.4	7.5	8.6	15.8	12.1	8.6	10.3	11.8	14.8	12.5	7.7	7.5	10.8	16.8	14.7	8.7	8.0	12.3
Electricity	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.3	0.3	0.3	0.2	0.3	0.3
Real state business	24.6	13.7	14.1	15.7	17.0	24.0	17.7	17.3	19.6	19.8	31.6	24.6	20.0	20.7	24.8	34.8	26.5	21.5	22.0	27.3
Manufacturing	12.6	16.6	27.6	26.6	20.8	11.2	14.9	23.1	21.5	17.6	10.2	11.0	21.2	23.0	16.3	8.3	9.3	17.9	22.4	14.4
Mining	1.5	0.7	0.9	2.7	1.4	3.2	1.1	1.5	4.2	2.5	2.2	1.2	1.2	3.2	2.1	1.3	1.1	1.2	3.2	1.7
Other services	2.2	2.2	2.7	4.3	2.8	2.1	2.3	2.7	3.5	2.6	1.4	1.4	1.8	2.7	1.8	1.4	1.6	2.1	2.7	1.9

Source: Superintendence of Corporations; Central Bank of Colombia calculations.

Percentage of firms in each size by quartiles of CAPEX/assets

Table 8

	2007					2012					2017					2022				
Size	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
Big	17.2	28.3	32.2	27.6	26.3	20.1	28.7	35.3	30.6	28.4	48.8	56.0	57.1	59.3	54.7	32.6	43.7	47.7	49.5	41.9
SME	82.8	71.7	67.8	72.4	71.6	79.9	71.3	64.7	69.4	71.6	51.2	44.0	42.9	40.7	45.3	67.4	56.3	52.3	50.5	58.1

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Percentage of years in the fourth quartile of exposure to fast-growing firms by subperiods

Table 9

Bank	Initial	Mid	COVID	Total
Bank 1	14.3	0.0	0.0	5.9
Bank 2	57.1	14.3	0.0	29.4
Bank 3	14.3	0.0	0.0	5.9
Bank 4	42.9	0.0	0.0	17.6
Bank 5	28.6	28.6	0.0	23.5
Bank 6	14.3	0.0	33.3	11.8
Bank 7	0.0	0.0	33.3	5.9
Bank 8	42.9	0.0	66.7	29.4
Bank 9	0.0	57.1	0.0	23.5
Bank 10	0.0	100.0	100.0	58.8
Bank 11	57.1	28.6	33.3	41.2
Bank 12	0.0	57.1	0.0	23.5
Bank 13	0.0	14.3	0.0	5.9
Bank 14	0.0	0.0	33.3	5.9
Bank 15	28.6	0.0	0.0	11.8
Bank 16	57.1	71.4	66.7	64.7
Bank 17	0.0	28.6	0.0	11.8
Bank 18	0.0	14.3	0.0	5.9
Bank 19	28.6	0.0	0.0	11.8
Bank 20	14.3	0.0	0.0	5.9
Bank 21	28.6	0.0	0.0	11.8
Bank 22	0.0	0.0	33.3	5.9
Bank 23	0.0	57.1	0.0	23.5
Bank 24	57.1	0.0	0.0	23.5
Bank 25	42.9	28.6	33.3	35.3
Bank 26	14.3	14.3	33.3	17.6
Bank 27	14.3	0.0	0.0	5.9
Bank 28	42.9	0.0	0.0	17.6
Bank 29	14.3	0.0	0.0	5.9

Note: *Initial* comprehends years 2006-12; *Medium*, years 2013-19; and *COVID*, years 2020-22.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Percentage of years in the fourth quartile of exposure to high CAPEX ratio firms by subperiods

Table 10

Bank	Initial	Mid	COVID	Total
Bank 1	0.0	14.3	0.0	5.9
Bank 2	85.7	14.3	0.0	41.2
Bank 3	14.3	14.3	0.0	11.8
Bank 4	14.3	14.3	100.0	29.4
Bank 5	71.4	14.3	0.0	35.3
Bank 6	28.6	28.6	33.3	29.4
Bank 7	0.0	0.0	33.3	5.9
Bank 8	14.3	42.9	66.7	35.3
Bank 9	0.0	42.9	100.0	35.3
Bank 10	57.1	28.6	0.0	35.3
Bank 11	0.0	57.1	0.0	23.5
Bank 12	0.0	0.0	33.3	5.9
Bank 13	42.9	71.4	66.7	58.8
Bank 14	0.0	14.3	0.0	5.9
Bank 15	57.1	57.1	0.0	47.1
Bank 16	71.4	14.3	0.0	35.3
Bank 17	14.3	0.0	0.0	5.9
Bank 18	14.3	0.0	0.0	5.9
Bank 19	0.0	42.9	0.0	17.6
Bank 20	28.6	14.3	0.0	17.6
Bank 21	14.3	0.0	0.0	5.9
Bank 22	42.9	14.3	0.0	23.5
Bank 23	42.9	0.0	0.0	17.6
Bank 24	14.3	0.0	0.0	5.9

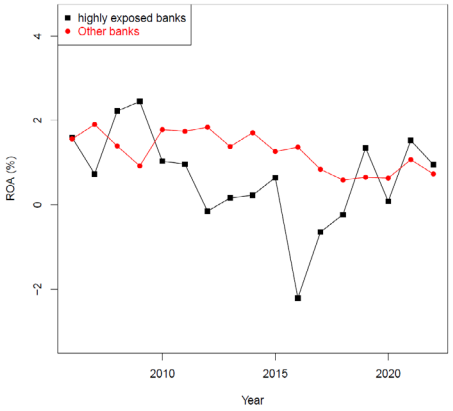
Note: *Initial* comprehends years 2006-12; *Medium*, years 2013-19; and *COVID*, years 2020-22.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

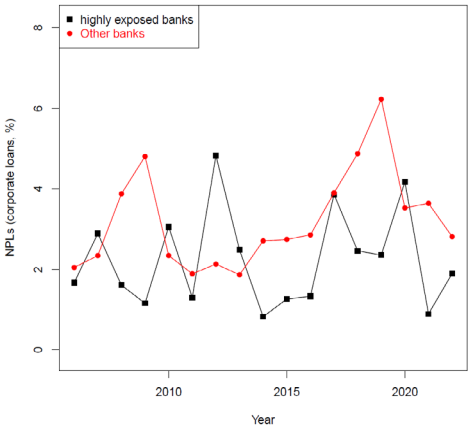
Average evolution of performance indicators of banks in the fourth quartile of exposure to fast-growing firms and other banks

Graph 16

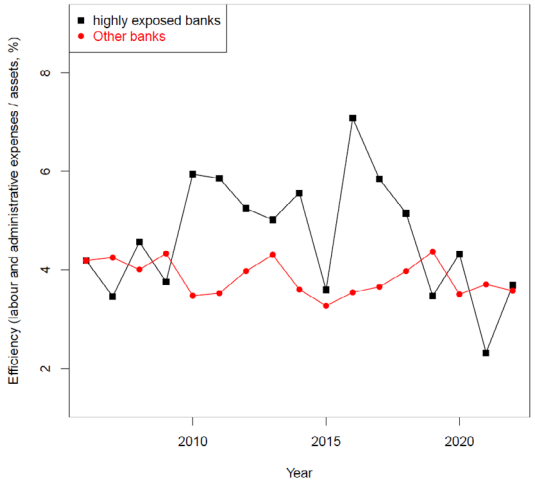
A ROA



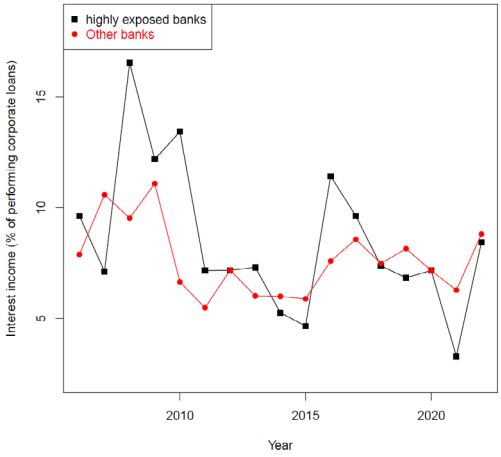
B NPLs



C Efficiency



D Interest income (% of performing corporate loans)



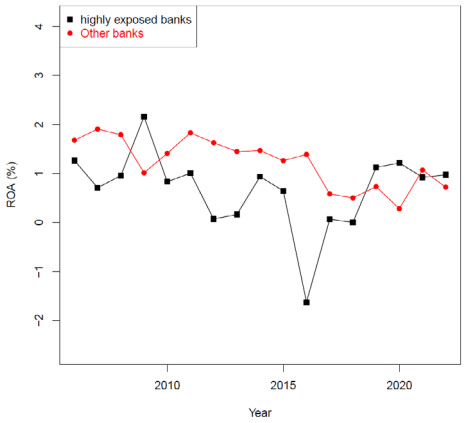
Note: For "highly exposed banks", each point represents the year-quartile simple average.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

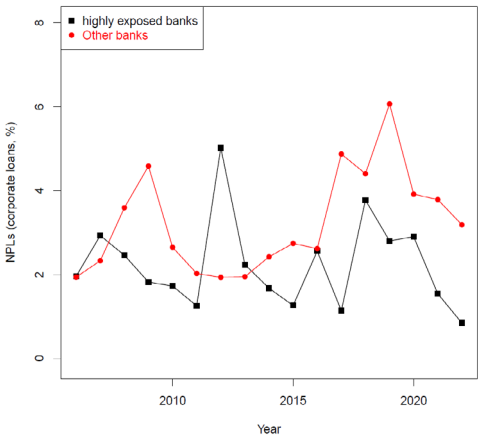
Average evolution of performance indicators of banks in the fourth quartile of exposure to high CAPEX ratio firms and other banks

Graph 17

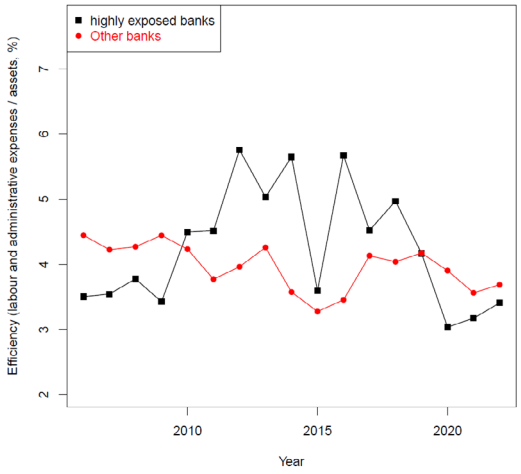
A ROA



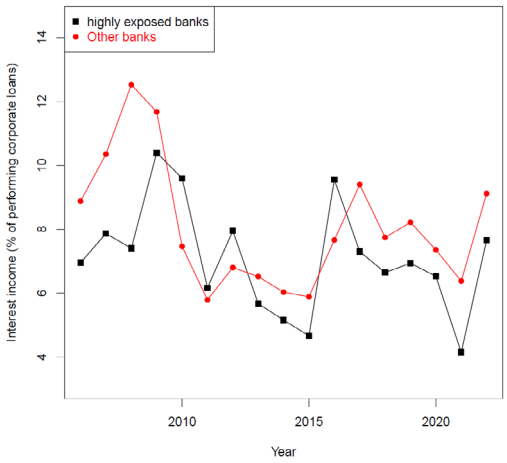
B NPL



C Efficiency



D Interest income (% of performing corporate loans)



Note: For "highly exposed banks", each point represents the year-quartile simple average.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

4. Conclusions

After a prolonged period of continuous increase, the ratio of commercial local bank loans to GDP has followed a declining trend since 2016. Although there is evidence of some substitution of funding sources in favour of local input supplier credit and foreign parent company loans, overall corporate debt as a percentage of GDP stagnated between 2016 and 2019, and has fallen in recent years, after exhibiting some volatility during the pandemic. These dynamics are not the reflection of a balance sheet deleveraging process, since total corporate leverage (total liabilities/assets) has exhibited an upward trend, with a peak in 2016. Nevertheless, financial leverage (financial liabilities/assets) has declined, as accounts payable and other liabilities have gained participation in overall corporate debt. The slowdown in financial liabilities coincided with the decrease in the investment-to-GDP ratio that was part of the macroeconomic adjustment to a sharp deterioration of terms of trade between 2014 and 2016.

An exploration of disaggregated firm data indicates that fast-growing enterprises (measured by their real sales growth) typically belong to the construction, real estate, financial services and mining sectors, exhibit high CAPEX-to-asset ratios, and tend to be large. They display greater total leverage ratios, but their relative reliance on financial liabilities is less clear. Interestingly, financial leverage is higher for the slowest-growing firms. Also, few banks systematically show large exposures to high-growth firms. However, without an examination of the dynamics of individual firms, it is difficult to reach clear conclusions about the importance of financial intermediation for firm growth. For example, one possible benevolent interpretation of these findings is that local banks finance small, initially slow-growing firms, but the latter eventually develop and grow faster. An alternative, less benevolent interpretation could be simply that banks fund permanently slow-growing firms.

On the other hand, financial leverage is higher for firms that exhibit large CAPEX-to-asset ratios. These firms are typically large, display high sales growth and belong to the manufacturing, agricultural or mining sectors. About one third of a sample of banks are systematically exposed to high CAPEX ratio firms. Thus, the association between financial intermediation and investment seems to be stronger than that between financial intermediation and sales growth. Overall, then, the disaggregated firm data examined suggest a contribution of financial intermediation to economic growth, mostly through the financing of investment.

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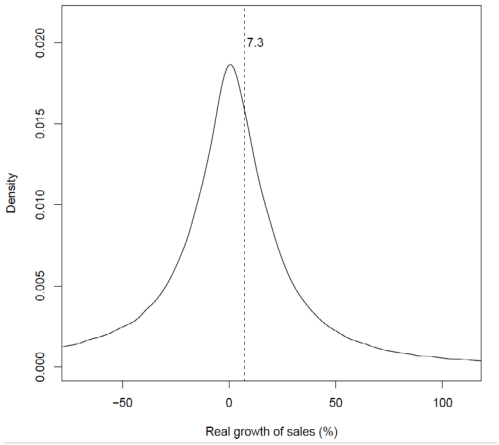
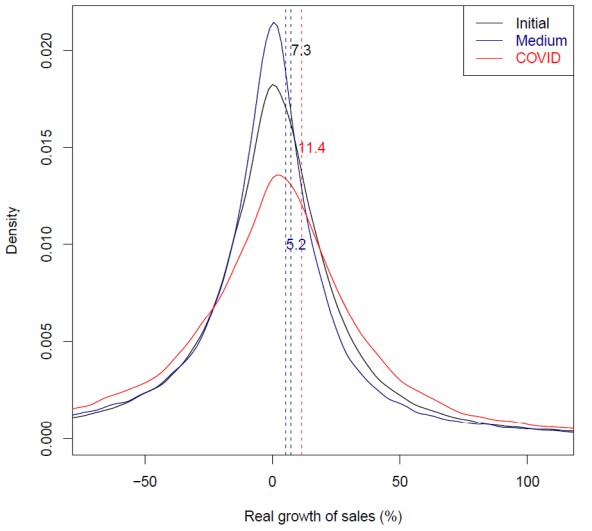
Real sales growth distribution

Appendix 1

A. Whole period (2006–22)



B. By subperiods



Note 1: Vertical dashed lines and labels refer to the average.

Note 2: *Initial* comprehends years 2006–12; *Medium*, years 2013–19; and *COVID*, years 2020–22.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Sales growth quartile differences of leverage, financial leverage and CAPEX ratios for selected sectors

Mean difference test between quartiles (mean of row – mean of column, percentage points)

Appendix 2

Commerce

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–26.9***	–39.9***	–73.7***
	Q2			–13***	–46.7***
	Q3				–33.8***
	Q4				
Financial leverage	Q1		1.4***	1.1***	0.8***
	Q2			–0.3	–0.6***
	Q3				–0.3*
	Q4				
Total leverage	Q1		0.5**	–1.3***	–4.1***
	Q2			–1.8***	–4.6***
	Q3				–2.8***
	Q4				
CAPEX/assets	Q1		–0.8***	–1.3***	–1.8***
	Q2			–0.5***	–1***
	Q3				–0.5***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Manufacturing

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–22.8***	–34.8***	–61.8***
	Q2			–12***	–39***
	Q3				–26.9***
	Q4				
Financial leverage	Q1		0.9***	0.9***	0.6**
	Q2			0	–0.3
	Q3				–0.3
	Q4				
Total leverage	Q1		2.1***	1.2***	–2.7***
	Q2			–0.9***	–4.8***
	Q3				–3.8***
	Q4				
CAPEX/assets	Q1		–1.1***	–1.6***	–2***
	Q2			–0.6***	–0.9***
	Q3				–0.4***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Real estate

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–37.7***	–53.8***	–128.6***
	Q2			–16.2***	–91***
	Q3				–74.8***
	Q4				
Financial leverage	Q1		1.5***	1.1***	0.6*
	Q2			–0.4	–0.9***
	Q3				–0.5*
	Q4				
Total leverage	Q1		2.7***	0.6	–2.7***
	Q2			–2.1***	–5.5***
	Q3				–3.3***
	Q4				
CAPEX/assets	Q1		–1.2***	–1.9***	–2.4***
	Q2			–0.7***	–1.2***
	Q3				–0.5***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Sales growth quartile differences of leverage, financial leverage and CAPEX ratios by firm size

Mean difference test between quartiles (mean of row – mean of column, percentage points)

Appendix 3

SMEs

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–35.2***	–51.4***	–102.7***
	Q2			–16.1***	–67.5***
	Q3				–51.3***
	Q4				
Financial leverage	Q1		1.4***	1.9***	1.8***
	Q2			0.4***	0.4***
	Q3				–0.1
	Q4				
Total leverage	Q1		1.1***	–0.1	–1.9***
	Q2			–1.2***	–3***
	Q3				–1.8***
	Q4				
CAPEX/assets	Q1		–1.3***	–1.9***	–2.3***
	Q2			–0.6***	–0.9***
	Q3				–0.3***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Large enterprises

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–32.9***	–47.4***	–121.2***
	Q2			–14.6***	–88.3***
	Q3				–73.8***
	Q4				
Financial leverage	Q1		0.2	–0.3	–0.4*
	Q2			–0.5***	–0.5***
	Q3				–0.1
	Q4				
Total leverage	Q1		1.8***	–0.6**	–3.6***
	Q2			–2.4***	–5.5***
	Q3				–3***
	Q4				
CAPEX/assets	Q1		–1.3***	–2***	–1.8***
	Q2			–0.7***	–0.5***
	Q3				0.2**
	Q4				

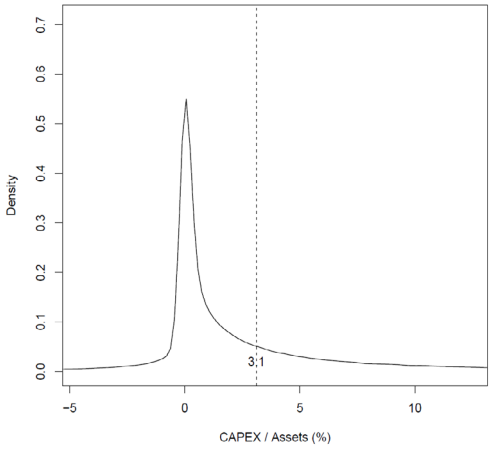
*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

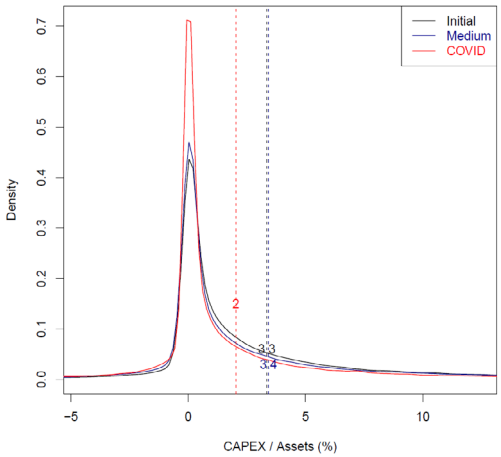
Distribution of CAPEX/assets

Appendix 4

A. Whole period (2006–22)



B. By subperiods



Note 1: Vertical dashed lines and labels refer to the average.

Note 2: *Initial* comprehends years 2006–12; *Medium*, years 2013–19; and *COVID*, years 2020–22.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

CAPEX ratio quartile differences of leverage, financial leverage and CAPEX ratios for selected sectors

Mean difference test between quartiles (mean of row – mean of column, percentage points)

Appendix 5

Commerce

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–6.6***	–9.8***	–11.8***
	Q2			–3.2***	–5.1***
	Q3				–1.9***
	Q4				
Financial leverage	Q1		0.8***	0.1	–1.7***
	Q2			–0.7***	–2.5***
	Q3				–1.8***
	Q4				
Total leverage	Q1		–1.8***	–2.1***	–2.2***
	Q2			–0.3	–0.5**
	Q3				–0.2
	Q4				
CAPEX/assets	Q1		–2.5***	–4.3***	–13.2***
	Q2			–1.7***	–10.7***
	Q3				–8.9***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Manufacturing

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–6.1***	–8.9***	–10.1***
	Q2			–2.8***	–4***
	Q3				–1.2***
	Q4				
Financial leverage	Q1		0.1	–1.3***	–3.3***
	Q2			–1.4***	–3.4***
	Q3				–2***
	Q4				
Total leverage	Q1		1.4***	0.4	–1.7***
	Q2			–1***	–3.1***
	Q3				–2.1***
	Q4				
CAPEX/assets	Q1		–3.2***	–6.2***	–15.6***
	Q2			–2.9***	–12.4***
	Q3				–9.4***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Real estate

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		0.7	–5.3***	–9.2***
	Q2			–6***	–9.9***
	Q3				–3.9***
	Q4				
Financial leverage	Q1		1.6***	0.9***	–2.1***
	Q2			–0.7**	–3.6***
	Q3				–3***
	Q4				
Total leverage	Q1		–2***	–6.4***	–7.4***
	Q2			–4.3***	–5.4***
	Q3				–1***
	Q4				
CAPEX/assets	Q1		–3.9***	–5.4***	–17.2***
	Q2			–1.4***	–13.2***
	Q3				–11.8***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

CAPEX ratio quartile differences of leverage, financial leverage and CAPEX ratios by firm size

Mean difference test between quartiles (mean of row – mean of column, percentage points)

Appendix 6

SMEs

Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–5.7***	–10.3***	–13***
	Q2			–4.5***	–7.2***
	Q3				–2.7***
	Q4				
Financial leverage	Q1		1.3***	1.1***	–0.9***
	Q2			–0.1	–2.1***
	Q3				–2***
	Q4				
Total leverage	Q1		–2.1***	–2***	–2.2***
	Q2			0.1	–0.1
	Q3				–0.2
	Q4				
CAPEX/assets	Q1		–3.5***	–5.2***	–15.4***
	Q2			–1.7***	–11.9***
	Q3				–10.3***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Large enterprises

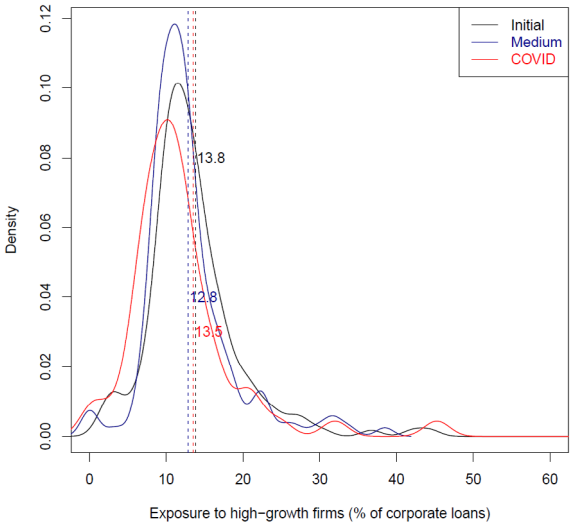
Variable		Q1	Q2	Q3	Q4
Sales growth	Q1		–0.1	1	–2.6***
	Q2			1.1	–2.5***
	Q3				–3.6***
	Q4				
Financial leverage	Q1		–0.6***	–1.3***	–3.2***
	Q2			–0.7***	–2.6***
	Q3				–1.9***
	Q4				
Total leverage	Q1		–3.1***	–3***	–4.2***
	Q2			0	–1.2***
	Q3				–1.2***
	Q4				
CAPEX/assets	Q1		–2.6***	–4.9***	–15***
	Q2			–2.3***	–12.4***
	Q3				–10.1***
	Q4				

*** p<0.01, ** p<0.05, * p<0.1.

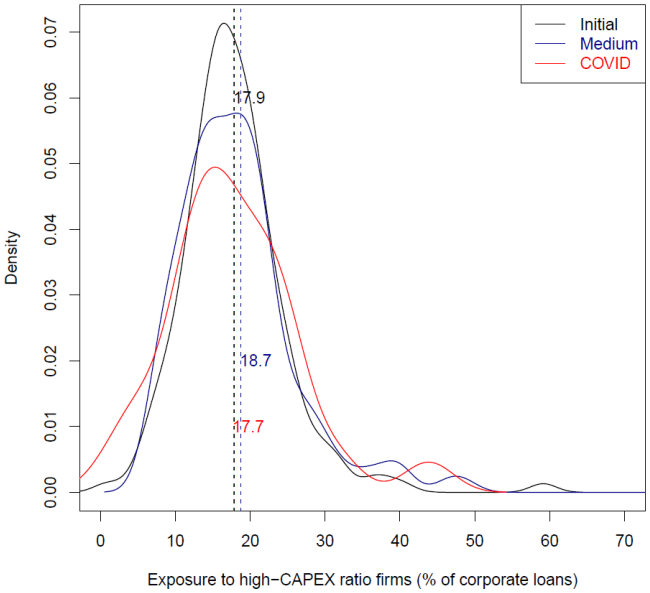
Sources: Superintendence of Corporations; Central Bank of Colombia calculations.

Distribution of banks according to their exposure to fast-growing firms

Appendix 7



Distribution of banks according to their exposure to high CAPEX ratio firms



Note 1: Vertical dashed lines and labels refer to the average.

Note 2: 118*Initial* comprehends years 2006–12; *Medium*, years 2013–19; and *COVID*, years 2020–22.

Sources: Superintendence of Corporations; Central Bank of Colombia calculations.