Foreign and Domestic Firms in Colombia: How Do They Differ?

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Abstract

This paper studies foreign and domestic firms in Colombia and, in particular, whether these firms behave differently. The study uses a dataset containing the 2003 balance sheets and income statements for some 7,001 firms. The dataset was obtained from the Superintendencia de Sociedades. The study concludes that foreign and domestic firms differ in a number of aspects. Foreign firms tend to have a larger total asset turnover than domestic firms; they are more leveraged than domestic firms; and they tend to have a lower net-profit margin than domestic firms. However, these results are not conclusive. When the dataset is broken down by sector, the results are much less clear. When analysing external debt, foreign firms do, nevertheless, tend to hold almost four times as much external debt as domestic firms of the same size. Foreign firms also tend to import more.

* The opinions expressed here are those of the author and not necessarily of the Banco de la República, the Colombian Central Bank, nor of its Board of Directors. I express my thanks to Jorge Martínez, and Enrique Montes for helpful comments and suggestions. Any remaining errors are my own.

Contents

1 Introduction

Foreign investment flows is an important part of the balance of payments, and Banco de la República is currently carrying through a larger research project to build an understanding for the drivers behind such capital flows. An earlier part of this project researched foreign investment flows at a macro level and was documented in *Determinants of Investment Flows into Emerging Markets.*[1] Macro-level research, however, needs to be complemented by research on the micro level to build a more complete understanding of what drive such flows. A first step for such research would be to investigate how foreign and domestic firms differ in their behaviour, and whether these differences are dependent on some specific categorisation of the firms studied.

This current paper is the first of three papers presenting the results of a study on the differences of foreign and domestic firms in Colombia. The objective of the study has been to build a foundation for future research and to generate a general understanding of the topic, rather than to reach any conclusive results. This has been a necessary limitation, to restrict the scope of an otherwise potentially very extensive project. The research has, nevertheless, produced a number of initial results of which some are very interesting.

This first paper investigates the differences in behaviour between domestic and foreign firms present in Colombia by analysing the 2003 balance sheets and income statements of such firms. The second paper, *Foreign and Domestic Firms in Colombia: Development and Trends 1996-2003,*[2] investigates whether there are any differences in how these two categories of firms have developed between 1996 and 2003. The third paper, *Foreign and Domestic Firms in Colombia: Exports, Imports, and External Debt,*[3] looks at the differences in exports, imports, and external debt in the two categories of firms.

[1] Amaya and Rowland (2004).
[2] Rowland (2005a). A related study looking at regional differences and developments is documented in Rowland (2005b).
[3] Rowland (2005c).

For the purpose of the study presented here, an extensive database obtained from the *Superintenedencia de Sociedades*[4] containing some 7,001 firms is used. This should with few exceptions include all firms in the country. The dataset is divided into five size brackets: Small, medium-sized, major, large, and the largest 100 firms. Micro enterprises are excluded from the study. The dataset is also divided into domestic firms, foreign minority-owned firms, and foreign majority-owned firms. These sub-samples are then analysed and compared.

Foreign and domestic firms are found to differ in a number of aspects. Foreign firms tend to have a larger total asset turnover than domestic firms; they are more leveraged than domestic firms; and they tend to have a lower net-profit margin than domestic firms. However, these results are not conclusive. When the dataset is broken down by sector, the results are much less clear. There are large differences between different sectors, and while foreign firms might do better in some sectors, the situation is the opposite in others. Further research is, therefore, needed to reach any conclusive results.

Nevertheless, one interesting result is that foreign firms tend to hold much more external debt than domestic firms. External debt to total liabilities of foreign majority-owned firms, as an aggregate, was almost four times the corresponding value of domestic firms. Foreign firms also tend to import more than domestic firms. Accounts payable to external suppliers as a ratio of total liabilities was for foreign majority-owned firms more than twice the value of domestic firms in 2003. The quality of the data on external debt is, however, of relatively low quality. Rowland (2005c) studies these variables using an alternative data source.

The paper is organised as follows: Chapter 2 presents a survey on the literature investigating foreign direct investment at a firm level. The Colombian corporate sector is introduced in chapter 3. This chapter also discusses the dataset used for the study, and specifies the definitions used when dividing the dataset into brackets determined by the size and by the sector of the individual firms. Chapter 4 looks at foreign firms in

[4] This is the Colombian government body that supervises and regulates corporations in the country.

Colombia. These are divided into foreign minority-owned and foreign majority-owned firms. In chapter 5, foreign and domestic firms are compared using ratio analysis. Differences between different size brackets and sectors are also identified. In Chapter 6, private external debt is analysed and its presence in foreign and domestic firms by different size brackets. External suppliers, indicating that a firm is an importer of goods and services, are also studied in this chapter. Chapter 7 finally concludes the paper.

Note that this paper uses the Anglo-Saxon terminology for billions, trillions and so on.[5]

[5] In the Anglo-Saxon terminology, one billion is 1,000,000,000 and on trillion is 1,000,000,000,000. In Spanish terminology, 1,000,000,000 is referred to as one thousand million, while 1,000,000,000,000 is referred to as one billion.

2 FDI at a Firm Level: Literature Survey

Recent economic literature has made a great effort in understanding the main characteristics of capital flows. Foreign direct investment (FDI) flows have not been the exception as evidenced by the huge empirical research effort made at the macro level.[6] However, empirical research at the micro level constitutes only a small share of the studies that have been done in the area. This result is partially explained by information constraints at a firm level. Despite this limitation, an important number of studies have been done focussing on one major subject: foreign owned firms' higher levels of productivity compared to domestic firms and spillovers from the foreign to domestic firms. The rest of the studies relate FDI with different issues like taxation, corruption, credit constraints and pollution among others. This chapter is divided in three sections, where section 1.1 reviews the literature studying productivity and spillovers, section 1.2 deals with other related research topics and, finally, section 1.3 presents the research that has been done on Colombia.[7]

2.1 Firm-Level Studies on FDI, Productivity and Spillovers

As mentioned above, a great number of empirical studies try to examine if foreign owned firms have a higher productivity than local firms, and if the former generate spillovers to the latter. A main objective of these kind of studies comes from the fact that governments usually give important economic incentives to try to attract foreign firms. These incentives are given because foreign investment is supposed to bring different benefits. At the macro level, several studies like, for example, Borensztein et. al. (1995) find a strong link between economic growth and FDI flows. At the micro level, the literature agrees that positive externalities are supposed to occur through three basic channels:[8] First, through movements of highly skilled staff from multinationals, in which

[6] See, for example, Amaya and Rowland (2004), which also contains a literature survey.
[7] This chapter is based on the literature survey in Amaya and Rowland (2003), and I am grateful to Carlos Amaya for his contribution to this survey.
[8] Blomström and Kokko (1998).

they were trained, to domestic firms; second, through 'demonstration effects' originating from a close relationships between multinational and domestic firms in which domestic firms learn superior production technologies from foreign multinationals; and third, through competition from multinationals, forcing domestic rivals to up-date production technologies and techniques to become more productive. The main objective of these studies is, consequently, to investigate if such spillovers really take place. Economic literature in this field share this common concern but differ on how they test this hypothesis. In what follows, we survey different types of approaches that have been used.

In a much cited article, Aitken and Harrison (1999) address this problem using firm-level evidence from Venezuela. They estimate a log-linear production function using standard OLS and Weighted Least Squares for an unbalanced panel. Their dependant variables are output and the explanatory variables are the share of foreign equity participation in the firm and sector, skilled and unskilled labour, raw materials and capital. They find that increases in foreign equity participation are correlated with increases in productivity and that increases in foreign ownership affect negatively the productivity of domestic firms. They conclude that the net effect of foreign ownership is quite small, and that these benefits appear to be internalised by joint ventures.

A recent paper by Haskel et. al. (2002) conducts a similar study for U.K. manufacturing firms for the period 1973 to 1992 in which they estimate production function augmented with terms measuring presence in the industry and region. They estimate a log-linear production function which controls for foreign presence in the region and industry. As usual in these models, coefficient estimates on non-input regressors capture their contribution to total factor productivity (TFP). They estimate a positive correlation between domestic plants' TFP in a certain industry and the foreign share of activity in that industry. Their estimations give them evidence in support of the hypothesis that the social gains via spillovers are greater than the incentives, and that spillovers take time to be absorbed by domestic plants. Finally, they conclude that spillovers are stronger for smaller plants, less technological and less skill intensive plants.

Many other articles such as, for example, Griffith and Simpson (2003), Konings (2001), Barrios et. al. (2002) follow this same spirit and deal with the same issues obtaining different results. Overall, there is not a definitive result in the subject using this approach. Keller and Yeaple (2003) argue that these conventional measures of productivity can reflect market power as well as technical efficiency, hence providing incorrect inferences about the existence of spillovers. They develop as an alternative an innovative framework in which they measure the impact of foreign direct investment on knowledge spillovers using patent citations data, which provide, according to the authors, a potentially rich source of information on knowledge spillovers since they provide *prior state of the art* information about the patent that is going to be submitted. They gauge this impact using a group of Japanese and US manufacturing firms for the period 1986 to 1997. The paper provides positive evidence for the existence of spillovers due to FDI and estimate that the contribution explains 14 percent of productivity growth in the U.S. during that period. Finally, the study finds imports-related spillovers which they consider weaker than FDI. The research by Keller and Yeaple, furthermore, supports previous work done by Branstetter (2000) in which he finds positive spillovers both from and to the Japanese firms from the U.S. firms.

2.2 Other Empirical Studies at the Firm Level

There is another set of studies that relate FDI at the firm level with very diverse issues. In what follows, we will look closely at two relevant studies.

As was mentioned above, policy makers often offer foreign investors incentives in order to pursue them of investing in their country. One way in which this has been done is through tax incentives. A great deal of literature has focussed on the effectiveness of such incentives. Echavarría and Zodrow (2002) survey this literature and conclude that tax incentives are an effective mechanism and they bring attention to the role played by tax credits and tax sparing policies. Cummins and Hubbard (1994) perform a panel data analysis for U.S. multinational firms in order to examine the tax sensitivity of FDI. To

motivate the analysis, they develop an investment model based on the Euler equation, an approach which leads them to a nonlinear model which they estimate using GMM. Their empirical results lead them to the conclusion that taxes matter and that they seem to influence FDI in precisely the way indicated by neoclassical models.

The second study that is particularly relevant is Harrison and McMillan (2001). To motivate their analysis, they mention that in developing countries firms cite credit constraints as a major obstacle to investment. This problem may be eased by FDI flows since they can bring scarce capital to the economy. However, FDI may exacerbate this problem if foreign firms borrow heavily from the domestic credit market therefore crowding out local firms. Using firm-level data for the Ivory Coast, they try to empirically test if domestic firms face credit constrains and if the crowding out hypothesis holds. They modify the Euler equation investment model to introduce credit constraints. Their empirical findings suggest that only domestic firms face credit constraints. The paper finds that foreign long-term borrowing exacerbate domestic firms' credit constraints and has no effect on foreign firms' credit constraints. They split their sample to test for constraints in public enterprises finding no such evidence. Additionally they find that foreign firms are more profitable and liquid than local firms and, therefore, contributing to the problem. After controlling for these variables, their results are still robust, therefore implying a crowding out effect.

2.3 Firm-Level Studies on the Colombian Corporate Sector

Two recent articles by Pedraza (2003a, 2003b) explore FDI into Colombia at the firm level. The first explores how foreign capital affects the behaviour of recipient firms in terms of productivity and economic performance. In order to do this, the study compares national firms with firms characterised by being big and small recipients of foreign investment for the period 1995 to 2000. The study is done entirely on the industrial sector. In order to do this, the author constructs a dataset based on Banco de la República registers, data from the Superintendencia de Sociedades and the Encuesta Annual Manufacturera. The study is entirely comparative and lacks any econometric study.

After calculating several indicators of performance and productivity, the paper concludes that foreign firms are more efficient and productive than domestic firms of the same sector and of similar size. The second study explores the relationship between FDI and international trade in the Colombian economy. The motivation is based on previous research that states the possibility that foreign firms foster host country exports since they have different intangible assets that domestic firms seem not to have. They analyse the effects of FDI flows to the manufacturing sector, using firm information for the period 1998 to 2001, using a dataset constructed from the same sources as the previous study. As in the previous work, the author's analysis is purely descriptive. The evidence presented makes Pedraza (2003a) conclude that the activities of foreign firms have catalysed Colombia's commercial links with the outside world. However, one may envisage that the causality is the other way, i.e. that the increasing links of the Colombian economy have fostered FDI flows. Nevertheless, this result may be in conflict with what previous work has found. Steiner and Salazar (2001), after surveying what they consider the most important qualitative studies done so far for Colombia, conclude that foreign firm's main objective is to exploit local markets.

To my knowledge, the rest of the studies that have been done in Colombia, have either been qualitative studies, like the ones done by Coinvertir (2000, 2002), and Steiner and Salazar (2001), or have not been covering the real sector, like the work, done by Barajas et. al. (1999), which studied the liberalisation in the financial sector. This literature survey suggests that there is a broad field for empirical research to be done in this area.

3 The Colombian Corporate Sector

The research presented in this paper looks at the Colombian corporate sector at a firm level. The research is based on balance sheets and income statements for all Colombian registered firms. The chapter begins by giving an overall presentation of the corporate sector, which is done in section 3.1. Section 3.2 presents and discusses the dataset used for the study. In section 3.3, the firms in the dataset are divided into size brackets, and in section 3.4, the firms are divided into sectors based on their core activity.

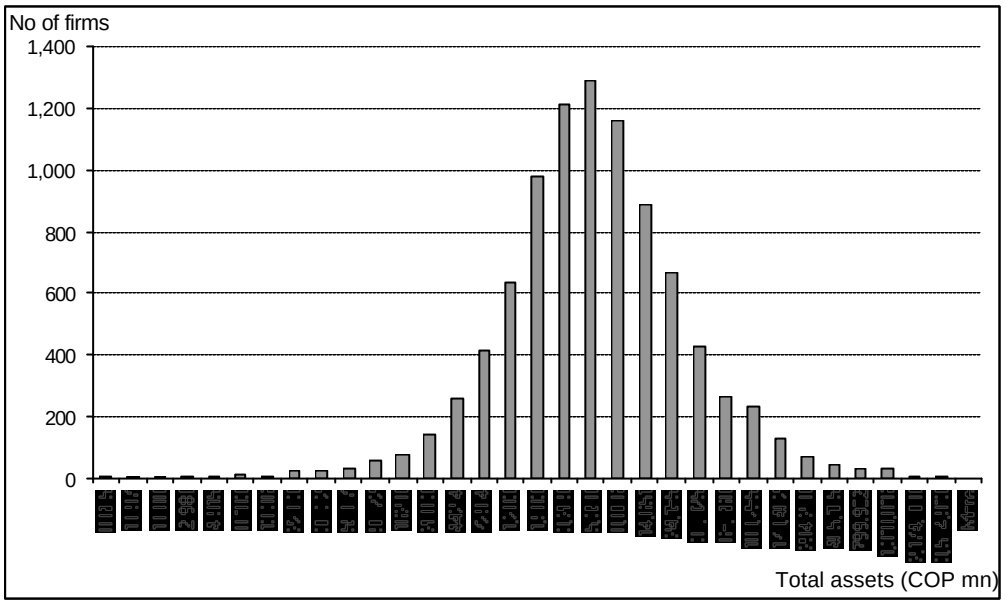
3.1 The Corporate Sector in 2003

The study presented in this report uses a database obtained from the *Superintendencia de Sociedades*. This contains the 2003 annual reports of some 9,204 Colombian firms. The database excludes banks and financial institutions, which are regulated by the *Superintendencia Bancaria*, as well as around 80 of the approximately 130 firms listed on the Colombian stock exchange, which are regulated by the *Superintendencia de Valores*. The database also excludes the large majority of micro enterprises, which are defined as firms with less than 10 employees or less than COP 166 millions in assets in 2003.[9] Apart from these exceptions, the database should include all firms in Colombia.

Figure 3.1 graphs a histogram of the firms in the database. On a logarithmic scale, the firms seem to be normally distributed, with a geometric mean of total assets of COP 4,300 million.

[9] As defined by Law 590 of 2000.

Figure 3.1: Histogram of all firms by size (logarithmic scale)



Note: Based on the original database, including all 9,204 firms.

Source: Superintendencia de Sociedades.

3.2 The Dataset Used in the Study

As discussed in the previous section, the research documented in this report uses a database obtained from the Superintendencia de Sociedades. All figures used are as of year 2003.

The database includes information for 9,204 firms on:

- NIT number (a unique identification number)[10]
- Company name
- City and department where registered
- CIIU (the firm's main activity area – one out of 366 activity areas)
- Sector (one out of 60 sectors)

[10] *Numero de identificación tributaria*.

- Asset accounts (104 accounts)
- Liability accounts (98 accounts)
- Equity accounts (21 accounts)
- Income statement (12 accounts)

It is obvious that while balance sheet items (asset, liability and equity accounts) are reported in great detail, less information is available on the income statement.

In addition, the database has a number of annexes with additional information. While the data in the main database has been verified by the Superintendencia, this is not the case with the data in the annexes. For this reason, the data in the annexes is of inferior quality. We will in this study only use data from two of the annexes, that it data on foreign participation (i.e. foreign ownership) and data on foreign debt.

One problem with the dataset is that the accounts of several firms have been reported in pesos, instead of in thousands of pesos, which is the norm. A significant effort has been invested in correcting these errors, since they could otherwise seriously bias the results of the study.

Companies with total assets of less than COP 166 million (i.e. micro enterprises[11]) and with total sales of less than COP 83 million are excluded from the dataset, since these are generally very small companies. The rationale is that only a small fraction of micro enterprises are registered with the Superintendencia de Sociedades. We do, however, assume that all firms with assets totalling more than COP 166 million should be registered.

[11] A micro enterprise is defined as a firm with total assets of less than COP 166 million in 2003. This is further discussed in the following section.

In addition, we are excluding all firms that are in liquidation, in *concordato* or in restructuring as defined by Law 550.[12] These firms are normally under financial distress, and can be assumed to behave significantly different from the rest.

After these exclusions, the database includes 7,001 firms, and this is the dataset that we use in the study.

3.3 Firms by Size

The firms in the dataset have, for the purpose of the study, been divided into size brackets based on total assets. These size brackets are defined in table 3.1. The definition of micro, small, medium-sized and major companies is the same as stipulated by Law 590, as shown in table 3.2 on the next page. In addition, two more size brackets have been defined, large firms and the largest 100, as apparent in table 3.1. Note that we have chosen to base the company size on total assets rather than on number of employees. The main reason for this is that the data on number of employees is of inferior quality.[13]

[12] Firms in *concordato* are firms in financial distress that are temporarily protected from creditors to give them time to restructure their operations. *Concordato* was in 2000 replaced by Law 550, which is a more elaborated legal framework to restructure firms. Law 550 has many similarities with Chapter 11 in the United States.

[13] Number of employees is reported in one of the annexes to the database compiled by the Superintendencia de Sociedades. As discussed earlier, this data has not been verified by the Superintendencia, and can, therefore, be assumed to contain much more errors than the data in the main database.

Table 3.1: Definition of size brackets for the firms in the dataset

Size	Total assets in 2003 (COP million)	
	from	to
Micro	0	166
Small	166	1,660
Medium	1,660	4,980
Major	4,980	49,800
Large	49,800	340,500
Largest 100	340,500	

Note: The Largest 100 size bracket is defined to include the largest 100 firms in the dataset. Large firms have been defined to have a cut-off point ten times the size of major firms. Micro, small, medium-sized and major firms are defined according to Law 590. Micro enterprises are excluded from the study.

Table 3.2: Size definitions according to Law 590 of 2000

Size defined according to…	Micro	Small	Medium	Major
No of employees	0-10	11-50	51-200	> 201
Assets as no of minimum salaries	0-500	501-5,000	5,001-15,000	> 15,001
Assets in 2003 (COP million)	0-166	166-1,660	1,660-4,980	> 4,980

Note: Law 590 specifies two different definitions: One is based on the number of employees and one is based on total assets. The definition using total assets is, furthermore, based on the level of the 30-day minimum salary, which differs from year to year. The last row of the table calculates total assets based on the 2003 level of the minimum salary, and this is the definition used in the study reported here.

Source: Law 590 of 2000.

Table 3.3: The dataset divided into firms by size

Size	No of firms	Total assets (COP million)	% of total (based on assets)
Small	1,229	1,165,032	0.5%
Medium	2,155	6,669,958	3.1%
Major	2,975	43,712,265	20.1%
Large	542	62,897,119	28.9%
Largest 100	100	102,864,393	47.3%
Total all firms	7,001	217,308,767	100.0%

Table 3.3 presents the dataset divided into these size brackets. It is apparent that the largest 100 firms account for as much as 47.3 percent of total assets, while small and medium-sized firms together, even if as many as 3,384, only account for 3.6 percent of total assets. This presents one problem when analysing the data. If normal arithmetic averages are used to express a measure, these will mainly be based on small and medium-sized firms, with the largest 100 firms only playing a marginal role. However, an aggregate figure or an average weighted on the assets of firms will be dominated by the largest 100 firms, with small and medium-sized firms playing hardly any role at all.

Firms of different sizes can be assumed to behave very differently, so this calls for firms of different size brackets to be studied separately. However, one question still remains. Should arithmetic averages or weighted averages be used to express different measures? We will in this study use weighted averages for one simple reason: A main objective of the study is to investigate foreign companies and their part in generating foreign capital flows. A large company will in this context play a much more important role, and should, therefore, receive a larger weight than a small company.

3.4 Firms by Sector

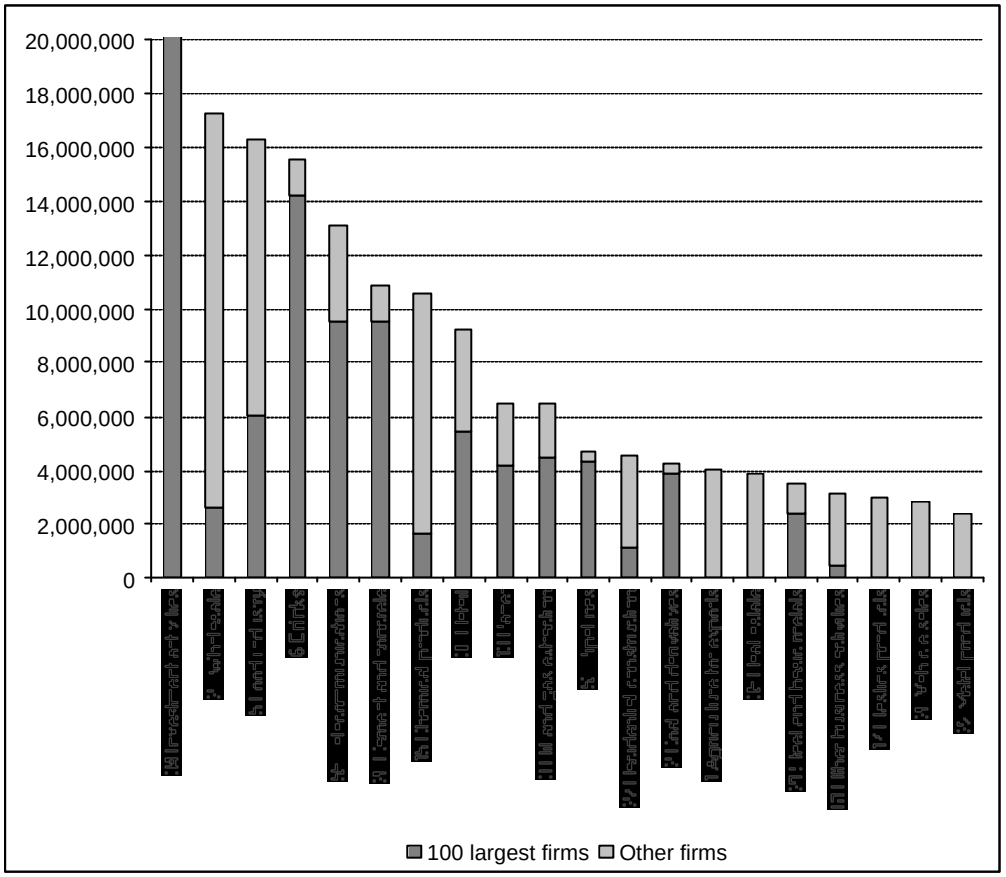
The database from the Superintendencia de Sociedades divides the firms into 60 different sectors representing different business segments. These are, in fact, numbered 1 to 66 with some numbers missing. Table 3.4 shows a complete list of these sectors.

Table 3.4: The different sectors

1 Agriculture with export predominance	31 Accommodation
2 Coal and derivatives	32 Cargo transportation by land
3 Oil and gas extraction	33 Mail delivery
4 Extraction of other minerals	34 Investment a ctivities
5 Food industry	35 Real estate
6 Drinks	37 Education
7 Tobacco	38 Health and social services
8 Textiles and fabrics	39 Other community services
9 Clothes	41 Sales of fuels and lubricants
10 Leather	42 Other agricultural sectors
11 Shoes and footwear	43 Cattle farming
12 Wood products	45 Forestry and related activities
13 Paper, carton and derivatives	46 Manufacturing of other products
14 Editorial and printing (excl publication)	47 Publication of periodicals
15 Chemical products	48 Manufacturing of machines and equipment
16 Rubber products	49 Transportation by sea
17 Plastics products	50 Transportation by air
18 Glass and glass products	52 Other passenger transportation systems
19 Mineral products (excl metals)	53 Pipelines
20 Cement and concrete products	54 Storage
21 Steel and basic metals	55 Telecommunications and networks
22 Metal-mechanical products	56 Radio and television
23 Vehicle manufacturing	59 Fishing
24 Manufacturing of other means of transportation	60 Information systems
25 Other manufacturing industries	61 Other business activities
26 Electricity generation	62 Civil construction
27 Residential building construction	63 Construction preparation
28 Vehicle sales	64 Oil and gas derivatives
29 Wholesale	65 Food retail
30 Retail	66 Tourism activities

Source: Superintendencia de Sociedades.

Figure 3.2: The 20 most important sectors in terms of aggregate assets (COP million)



Note: Investment activities have total assets of COP 41,103 trillion, of which 69.2 percent belongs to the 100 largest firms.

Source: Superintendencia de Sociedades, and calculations by the author.

Figure 3.2 shows the 20 most important sectors by aggregate assets. It is apparent from the figure that investment activities is the most dominant sector, with aggregate assets of some COP 41,103 trillion. This sector includes holding companies as well as conglomerates. The sector also includes 28 of the largest 100 companies, and those companies account for 69.2 percent of aggregate assets of the sector, i.e. significantly more then for the corporate sector as a whole. The largest companies in the investment activities sector are Grupo Aval, Invernac, Suramericana de Inversiones, Valores Bavaria, and Santo Domingo. The sector is by no means homogenous, and the companies in the

sector can be assumed to behave very different from one and another depending on their business activities.

After investment activities follow wholesale, food industry, drinks, and telecommunications, in order of aggregate assets.

Another important observation from figure 3.2 is that some sectors are dominated by large firms, while others are dominated by smaller firms. Sectors dominated by the largest 100 firms include, in particular, drinks, cement and concrete, pipelines, and coal and derivatives. Sectors where the largest 100 firms only have limited presence include, in particular, wholesale, and chemical products. It is also apparent, that of the seven least important sectors in the graph, only two, steal and basic metals, and other business activities, include firms from the largest 100.

Figure 3.2 only illustrates the 20 largest sectors. Data on all sectors are presented in the appendix in table A.1.

4 Foreign Firms in Colombia

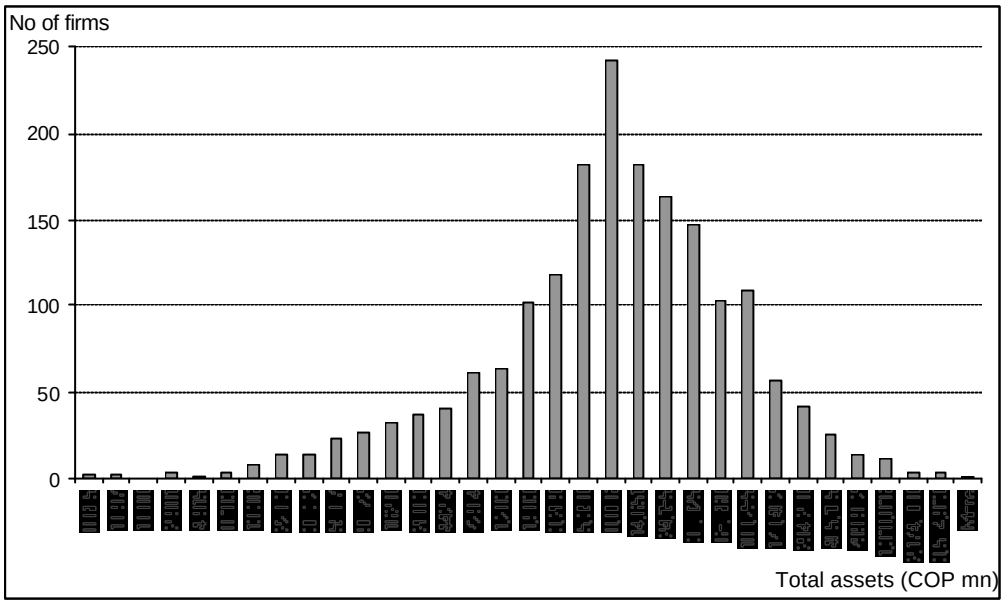
The firms in the dataset studied can be divided into firms owned by foreigners, i.e. foreign companies or individuals, and firms owned by Colombians. Such a division is done in section 4.1. Section 4.2 continues by looking at how foreign and domestic companies compare with regards to size, and in section 4.3 the presence of foreign companies in different sectors is investigated.

4.1 Foreign Firms in Colombia: An Overview

Data on foreign ownership is available in one of the annexes in the database from the Superintendencia de Sociedades.[14] This is stated as the participation of foreigners, which is the percentage of the firm's equity that is held by foreign individuals or firms. We will classify firms with foreign participation into firms with foreign majority ownership and firms with foreign minority ownership. The former are firms where foreigners have a controlling stake, i.e. hold 50 percent or more of the equity, while the latter are firms where foreigners hold a minority. The latter can also be classified as joint ventures.

[14] Data in the annexes of the Superintendencia de Sociedades database is generally not validated. The particular dataset used here has, nevertheless, been validated against the Banco de la República investment registers and any errors should have been corrected. The dataset is, therefore, of relatively good quality.

Figure 4.1: Histogram of foreign firms by size (logarithmic scale)



Note: Based on the original database, including all 9,204 firms, of which 1,846 are firms with foreign participation.

Source: Superintendencia de Sociedades.

Figure 4.1 shows the histogram of the foreign firms in Colombia. This is based on the original database with 9,204 firms, of which some 1,846 have foreign participation. The geometric mean of the assets of the foreign firms is COP 6,700 million, which is considerably larger than the geometric mean for all 9,204 firms, which is COP 4,300 million. This suggests that foreign firms on average are larger than domestic firms.

Furthermore, of the foreign firms in the dataset, 1,516 have foreign majority ownership, and some 330 have foreign minority ownership.

4.2 Foreign Firms by Size

Table 4.1 presents domestic firms, foreign minority-owned firms and foreign majority-owned firms broken down by size brackets. It is obvious that large firms are more dominant among foreign firms, minority-owned as well as majority-owned, than among domestic firms. The largest 100 firms together with other large firms account for 85.8 percent of total assets for foreign minority-owned firms and for 84.5 percent for foreign-majority owned firms. For domestic firms the corresponding figure is 70.5 percent, i.e. considerably lower than for foreign firms. Of the largest 100 firms as many as 45 are, in fact, foreign.

For small, medium-sized and major firms the situation is the opposite. These firms are more dominant among domestic than among foreign companies in terms of aggregate assets. For small and medium-sized firms (SMEs) the figures are 0.9 percent and 1.1 percent respectively for foreign minority-owned and foreign majority-owned firms compared to 5.3 percent for domestic firms. For major firms, the figures are 14.4 percent and 20.1 percent respectively for foreign minority-owned and foreign majority-owned firms compared to 24.1 percent for domestic firms.

Data on the participation of foreign firms in all 60 sectors is presented in table A.2 in the appendix.

Table 4.1: Domestic and foreign firms by size

Size	No of firms	Total assets (COP million)	% of total (based on assets)
Domestic firms			
Small	1,077	1,034,670	0.8%
Medium	1,910	5,877,184	4.5%
Major	2,260	31,394,130	24.1%
Large	286	31,627,997	24.3%
Largest 100	55	60,142,226	46.2%
Total	5,588	130,076,207	100.0%
Foreign minority-owned firms			
Small	20	21,373	0.1%
Medium	46	145,740	0.8%
Major	134	2,387,498	13.2%
Large	52	6,355,460	35.2%
Largest 100	9	9,143,420	50.6%
Total	261	18,053,492	100.0%
Foreign majority-owned firms			
Small	132	108,989	0.2%
Medium	199	647,034	0.9%
Major	581	9,930,637	14.4%
Large	204	24,913,662	36.0%
Largest 100	36	33,578,747	48.5%
Total	1,152	69,179,069	100.0%
All firms			
Small	1,229	1,165,032	0.5%
Medium	2,155	6,669,958	3.1%
Major	2,975	43,712,265	20.1%
Large	542	62,897,119	28.9%
Largest 100	100	102,864,393	47.3%
Total	7,001	217,308,767	100.0%

4.3 Foreign Firms by Sector

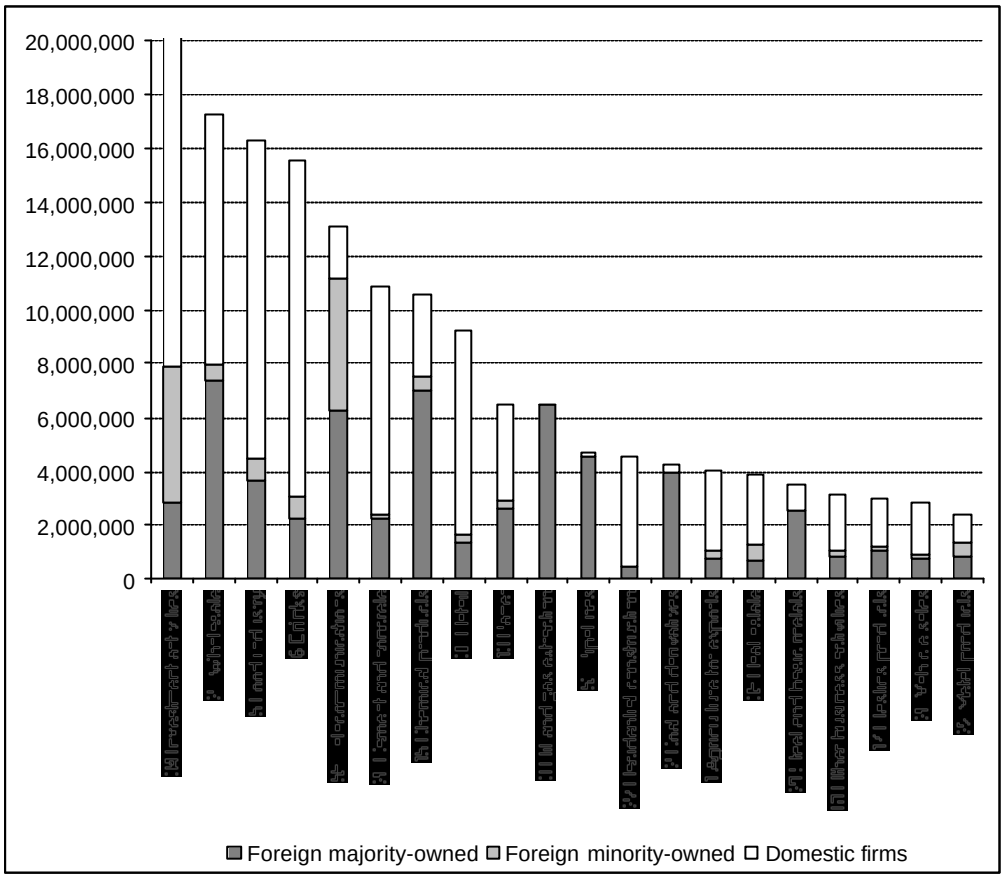
If we study foreign firms by sector, we will see that some sectors are dominated by foreign firms, while others are dominated by domestic firms. Figure 4.2 presents the 20 most important sectors in terms of aggregate assets. Of these sectors, Investment activities, Drinks, Retail, and Residential construction are dominated by domestic firms,[15] while Telecommunications, Oil and gas extraction, Pipelines, and Coal and derivatives are dominated by foreign firms.[16]

Figure 4.3 illustrates the most important sectors in terms of foreign firms. It is obvious that Telecommunications is the most important sector in terms of aggregate assets, followed by Wholesale, Investment activities, and Chemical products. Oil and gas extraction, Pipelines, and Coal and derivatives, which all relate to the traditional exports of Colombia, are also very important sectors in terms of foreign direct investment.

It is also apparent from Figure 4.3, that while investment in some sectors have taken the form of acquisitions or fully-owned green-field investments (i.e. foreign majority ownership), in others joint ventures (i.e. foreign minority ownership) has been the preferred model. The sector where joint ventures have been the norm is Investment activities. Other sectors with a large proportion of joint ventures include Telecommunications, Metal products, and Real estate.

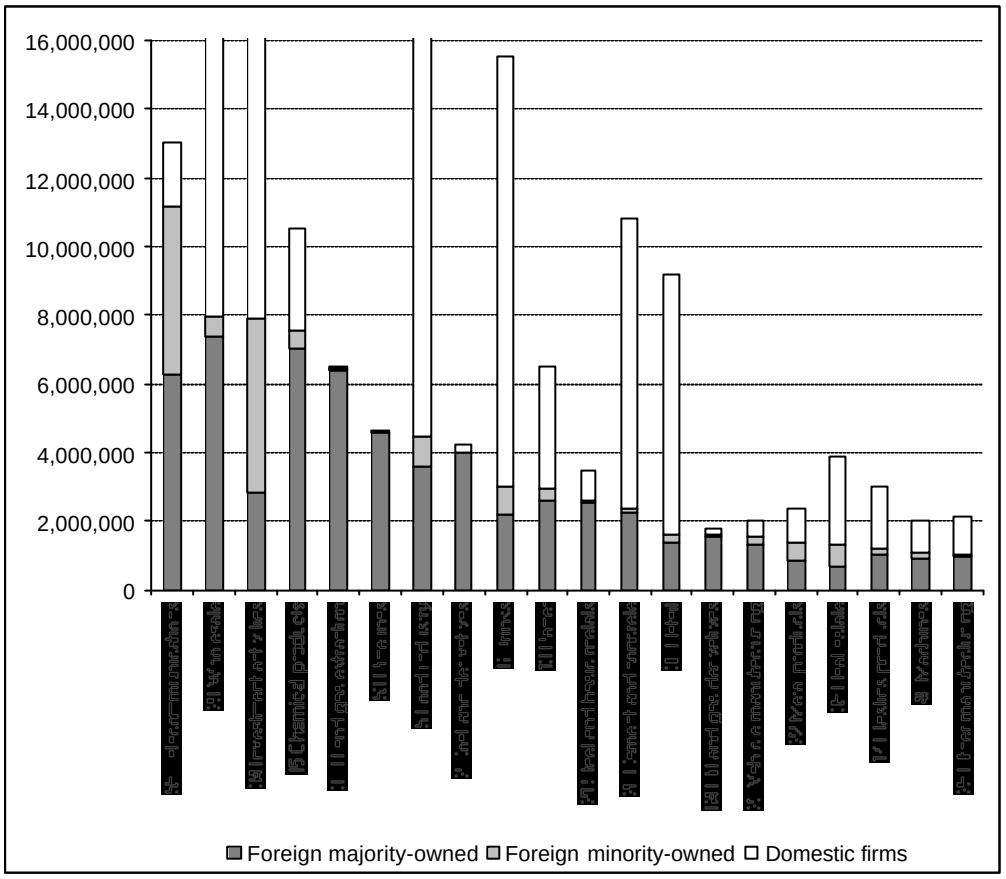
[15] Domestic firms account for more than 80 percent of aggregate assets in these sectors.
[16] Together, foreign majority-owned and foreign-minority owned firms account for more than 80 percent of aggregate assets in these sectors.

Figure 4.2: The 20 most important sectors in terms of aggregate assets (COP million)



Note: Investment activities have total assets of COP 41,103 trillion, of which 6.9% belongs to foreign majority-owned firms and 12.4% to foreign minority-owned firms.

Figure 4.3: The 20 most important sectors in terms of aggregate assets of foreign firms (COP million)



5 Foreign versus Domestic Firms

To investigate how foreign firms differ from domestic firms in their behaviour, we will study a number of financial ratios. These are defined in section 5.1. Many ratios are, however, dependent on the size of the firm, and it, therefore, makes sense to study firms of different sizes separately. This is done in section 5.2. Section 5.3 continues by presenting the results of some regressions to investigate whether the behaviour of foreign firms is significantly different from that of domestic firms. Finally, in section 5.4, the ratios of firms of different sectors are studied.

5.1 Ratio Analysis: Selected Ratios

For the purpose of analysing how domestic and foreign firms differ in their structure and profitability we will use a number of financial ratios, and we will analyse how these differ between different categories of firms. To start with, we will here define and explain these ratios.[17] Box 5.1 defines some basic accounting concepts which might be useful for those not familiar with accounting in general, and box 5.2 summarises the ratios defined below.

> *Total asset turnover* is sales divided by total assets. This reflects the level of sales generated by the firm's total capital. The relationship provides a measure of overall investment efficiency by aggregating the joint impact of both short- and long-term assets. The total asset turnover may also reflect the capital intensity of the production process.
>
> *Leverage* is here defined as total liabilities divided by total assets.[18] A higher proportion of debt relative to total capital increases the riskiness of the firm. However, even if a low leverage might indicate that the owners or the management of the firm are risk avert, it might also indicate that the firm does not have access to debt financing at reasonable terms.

[17] See also White, Sondhi and Fried (1998).
[18] Note that total liabilities plus equity by definition equals total capital, which equals total assets.

Box 5.1. Some basic accounting concepts

The Balance Sheet

The Balance Sheet presents the financial position of a company at a given point in time. It is comprised of three parts: Assets, Liabilities, and Equity. The Assets are the resources that the company uses to operate its business, and can be broken down into Liquid Assets, e.g. Cash, and Inventory, and Fixed Assets, e.g. Machinery, and Buildings. In the same way, Liabilities, which are the debts of the company, are normally broken down into Current Liabilities, e.g. Suppliers, and Accounts Payables, and Long-Term Liabilities, e.g. Bank Loans. Equity is the net worth of the company. The Total Capital of the company consists of Total Liabilities plus Equity, and the Total Capital must equal Total Assets for the balance sheet to balance.

The Income Statement

The income statement presents the results of operations of a business over a specified period of time, e.g. one year, and it is composed of Revenues, Expenses and Net Income. Revenues normally arise from the sale of goods or services, but can also arise from, for example, the sale of a business segment or a fixed asset such as an office building or a machine. In such a case it will be classified as a Non-Operating Income.

Simplified Balance Sheet

EMPRESA S.A.

Liquid Assets (AL)	**Current Liabilities (LC)**
Cash	Accounts payables
Accounts Receivables	
Inventory	**Long-Term Liabilities (LL)**
	Bank Loans
Fixed Assets (AF)	Bonds
Buildings	
Machinery	**Equity (E)**
	Common Stock
	Retained Earnings
Total Assets (AL+AF)	**Total Capital (LC+LL+ E)**

Simplified Income Statement

Sales
- Cost of goods sold
Gross Earnings

- Administrative and Sales Expenses
Operating Income

+ Non-Operating Income
- Non-Operating Expenses
Earnings Before Taxes (EBT)

+ Inflation Adjustment (only in Colombia)
- Taxes
Net Profit

Note: Account names of financial statements are generally initiated with a capital letter.

Long-term debt to total debt is a measure of the firm's debt structure. A low level of long-term debt to total debt might, as in the case of leverage, indicate that the owners or the management is risk averse and do not want to take on bank debt, but it might also indicate that the firm does not have access to debt financing.

Bonds to total debt is another measure of the firm's debt structure. In general, only large firms have access to the bond markets and can issue bonds as a way to finance themselves. The ratio is of particular interest when comparing domestic and foreign firms.

Return on assets (ROA) is here defined as earnings before taxes (EBT) divided by total assets.[19] This ratio can be interpreted in two ways. First, it measures the ability of the management to generate profits using the firm's assets. Second, it reports the rate of return yielded by the firm's capital.

Return on capital employed (ROCE) is defined as EBT divided by capital employed, which is defined as total capital minus current liabilities. The capital employed measures the actual amount of capital involved in running the business, and might therefore be a more suitable denominator than total assets in measuring the firm's internal efficiency.

Return on equity (ROE) is defined as EBT divided by equity.[20] It measures the rate of return on the shareholder's equity. Note that a firm that is leveraged should in general yield a higher ROE since it is a more risky investment.[21]

Operations margin is defined as operating income divided by sales. This provides information about the firm's profitability from the operations of its core business. It excludes the effects of income from asset sales, interest expenses and tax position.

Pre-tax margin and *net-profit margin* are defined as EBT divided by sales and net profit divided by sales respectively. Note that these measures can be highly misleading if a firm has sold assets (including subsidiaries) during the year and thereby made large capital gains or losses.

---

[19] Normally, ROA, or other ratios measuring return on investment, is generally using the earnings before interest and taxes (EBIT) as the return measure. Nevertheless, sometimes ROA is calculated using either net income or EBT as the numerator. We have here chosen to use the latter, since EBIT is not available in our dataset. Using EBT rather than EBIT has the disadvantage that it makes leveraged firms look less profitable by charging earnings for payments (interest) to some capital providers (lenders) but not to others (shareholders). Using EBIT is therefore preferable when comparing firms with different leverage.

[20] In contrast to ROA, ROE should always be calculated using earnings after interest, i.e. EBT or net profit, since the denominator in this case, i.e. the equity, excludes the debt. A leveraged firm with significant interest payments would otherwise get a misleading ROE.

[21] This is according to the capital asset pricing model. See, for example, White, Sondhi and Fried for a definition and discussion.

Box 5.2: Summary of the ratios

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

$$\text{Leverage} = \frac{\text{Total liabilitie s}}{\text{Total assets}}$$

$$\text{Long term debt to total debt} = \frac{\text{Long term liabilitie s}}{\text{Total liabilitie s}}$$

$$\text{Bonds to total debt} = \frac{\text{Bonds}}{\text{Total liabilitie s}}$$

$$\text{ROA} = \frac{\text{EBT}}{\text{Total assets}}$$

$$\text{ROCE} = \frac{\text{EBT}}{\text{Total capital} - \text{Current liabilitie s}}$$

$$\text{ROE} = \frac{\text{EBT}}{\text{Equity}}$$

$$\text{Operations margin} = \frac{\text{Operating income}}{\text{Sales}}$$

$$\text{Pretax margin} = \frac{\text{EBT}}{\text{Sales}}$$

$$\text{Net profit margin} = \frac{\text{Net profit}}{\text{Sales}}$$

Table 5.1: Summary of ratios for the firms in the dataset

Ratio	Aggregate value	Average value	Standard deviation	95% confidence interval (+/-)
Total asset turnover	0.736	1.322	1.685	0.039
Leverage	0.382	0.439	0.287	0.007
Long-term debt to total debt	0.354	0.168	0.259	0.006
Bonds to total debt	0.065	0.002	0.033	0.001
ROA	0.050	0.027	0.663	0.016
ROCE	0.066	-0.069	12.650	0.296
ROE	0.080	-0.256	20.167	0.472
Operations margin	0.077	-0.025	1.403	0.033
Pre-tax margin	0.068	0.023	1.706	0.040
Net-profit margin	0.049	-0.003	1.711	0.040

Table 5.1 presents these ratios calculated for the 7,001 firms in our dataset. The ratios are here calculated as aggregates, i.e. where the numerator and the denominator are aggregate values. This can also be interpreted as a weighted average, i.e. an average weighted by the variable that is used as the denominator of the ratio.[22] As discussed earlier, this will give a very heavy weight to the large firms in the dataset, and particularly to the largest 100 firms. The table also present the average, calculated as the average of the ratios of the individual firms. This also allows us to calculate the standard deviation and the confidence interval for these averages. These averages will give a heavy weight to small and medium-sized firms, while hardly giving any weight at all to the largest 100 firms.

[22] It is easy to show that the aggregate value equals the weighted average, i.e. that

$$\frac{a_1 + \ldots + a_n}{b_1 + \ldots + b_n} = \frac{a_1}{b_1}\frac{b_1}{b_1 + \ldots + b_n} + \ldots + \frac{a_n}{b_n}\frac{b_n}{b_1 + \ldots + b_n}$$

where a_n is the numerator in the ratio of firm n, b_n is the denominator, and $n = 1, \ldots, N$ are the firms in the sample.

A few things are apparent from the table. ROCE and ROE have very large confidence intervals, which puts these parameters in question. A reason might be that both are sensitive to errors in the calculation of the firm's assets. These calculations are based on the value of the firm's fixed assets, such as buildings and machinery, and this value is normally estimated by the firm's management. Particularly in small and medium-sized companies, which do not have an accounting department, this valuation might be rather arbitrary. ROCE might, furthermore, be rather misleading in developing countries such as Colombia. Many small and medium-sized companies do not have access to bank loans as a source of financing, but are instead using short-term debt as a way to finance themselves. For this reason, many suppliers are giving their clients relatively long time to pay, often two or three months, rather than the 30 days that is customary in many developed countries. We will in the rest of the analysis only use ROCE and ROE sparingly for the reasons stated here.

We can also see in the table that the aggregate values and the average values differ considerably, and that the aggregate value many times lies outside of the confidence interval of the average. The main reason for this is that large firms tend to behave very different from small and medium-sized firms, which we will investigate further in section 5.3. It is also apparent from the table, that the averages of the profitability margins are not consistent. The operations margin for a firm should generally be larger than the pre-tax margin, which should be larger than the net-profit margin. This is the case for the aggregate values but not for the averages. This is because a number of small and medium-sized firms are outliers in the sense that they have rather extreme values on some or all of these ratios. These firms have a relatively large impact on the average numbers, but a very limited impact on the aggregate values. This is one reason for using the aggregate values rather than averages. Another reason, which has been discussed earlier, is that from a standpoint of foreign investment flows, a large firm play a much more important role than a small firm. When analysing foreign investment flows, firms should certainly be weighted by their size. We will, therefore, use the aggregate values in the rest of the study carried out here.

A further point that needs to be made is that we are here bundling firms together that individually might be very different. A retailer, for example, behaves very different from a manufacturing firm, and these should, in fact, not be directly compared in terms of many of the financial ratios studied here. This will be further discussed in section 5.4 in this chapter, where we look at the differences between firms of different sectors. The results of the ratio analysis in the following section are for this reason not conclusive. Further research is needed to confirm these.

5.2 Ratio Analysis by Size of Firm

We concluded in the previous section that a very likely reason for the divergence of the weighted average (the aggregate value) and the un-weighted average was that firms of different size behave differently, and while the former gives a very heavy weight to large firms, the latter gives a heavy weight to smaller firms. We will, therefore, analyse the ratios for the different size brackets of firms. We will also divide the dataset into domestic firms, foreign minority-owned firms, and foreign majority-owned firms. As mentioned before, we will use the aggregate values rather than the averages in the analysis.

Figure 5.1 shows total asset turnover for domestic firms, foreign minority-owned firms, and foreign majority-owned firms for the five size brackets that we defined in chapter 3.[23] A clear trend in the figure is that the total asset turnover decreases with the size of the firm. A likely explanation to this is that larger firms are more capital intense than smaller firms. When comparing domestic firms with foreign majority-owned firms, the latter has a higher total asset turnover than the former in all size brackets but small firms. Among the largest 100 firms, the difference is particularly large, with foreign majority-owned firms having more than twice the total asset turnover of domestic firms. An explanation might be that domestic firms are more capital intensive. However, another explanation might be that foreign firms are having more efficient operations, leading to higher productivity. As discussed in the literature survey in chapter 2, some previous studies of

[23] See table 3.1.

foreign and domestic firms in developing countries have, indeed, concluded that this is the case. A further explanation might be that foreign firms are in sectors that are generally more capital intense than domestic firms. We will analyse this in section 5.4.

When analysing foreign-minority owned firms in figure 5.1, the situation is very different. These actually tend to have a lower asset turnover than domestic firms in all size brackets but small firms. The situation is, consequently, the opposite from foreign-majority owned firms. We do not see any clear reason for this, but leave it to future research to explain.

Figure 5.1: Total asset turnover

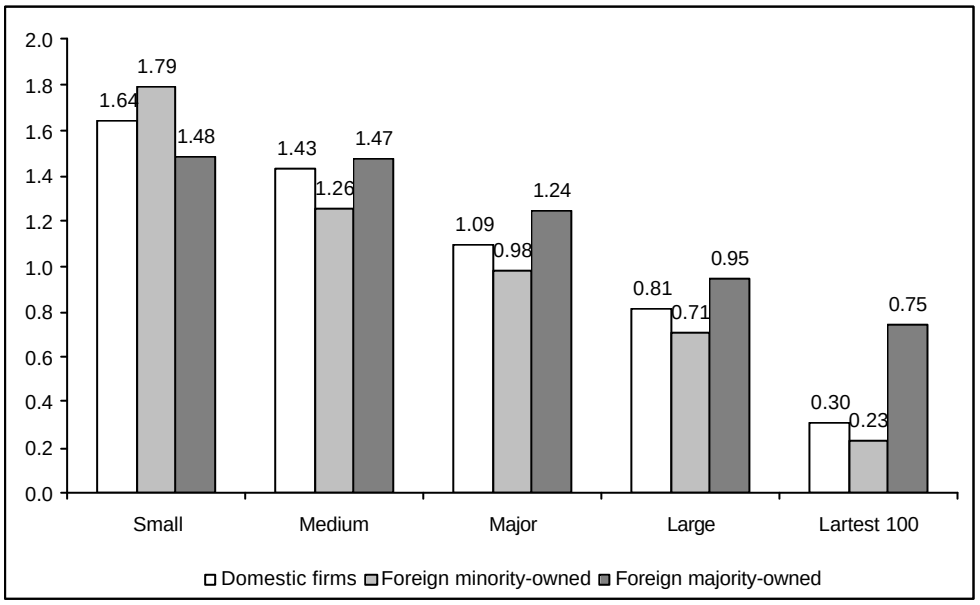
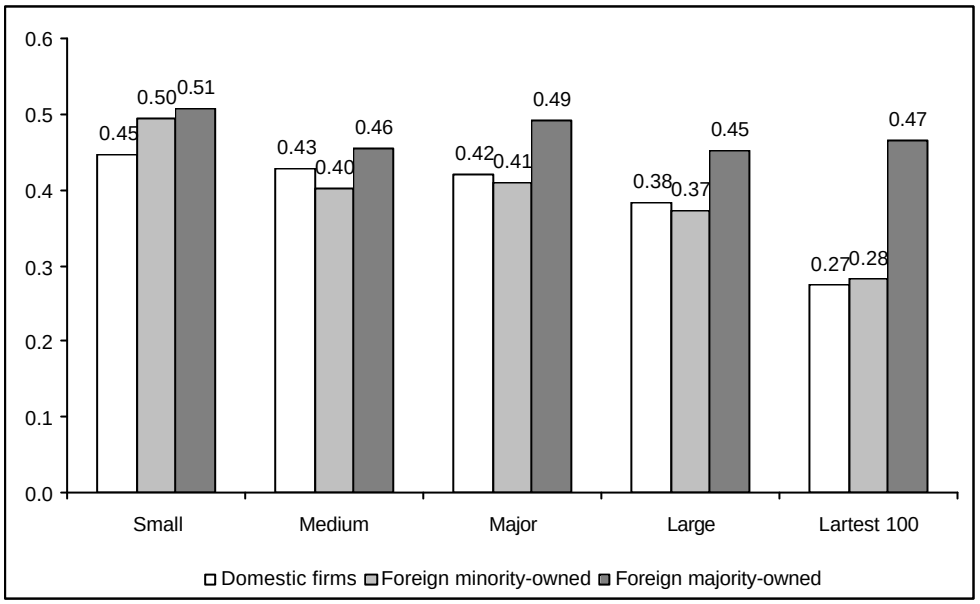
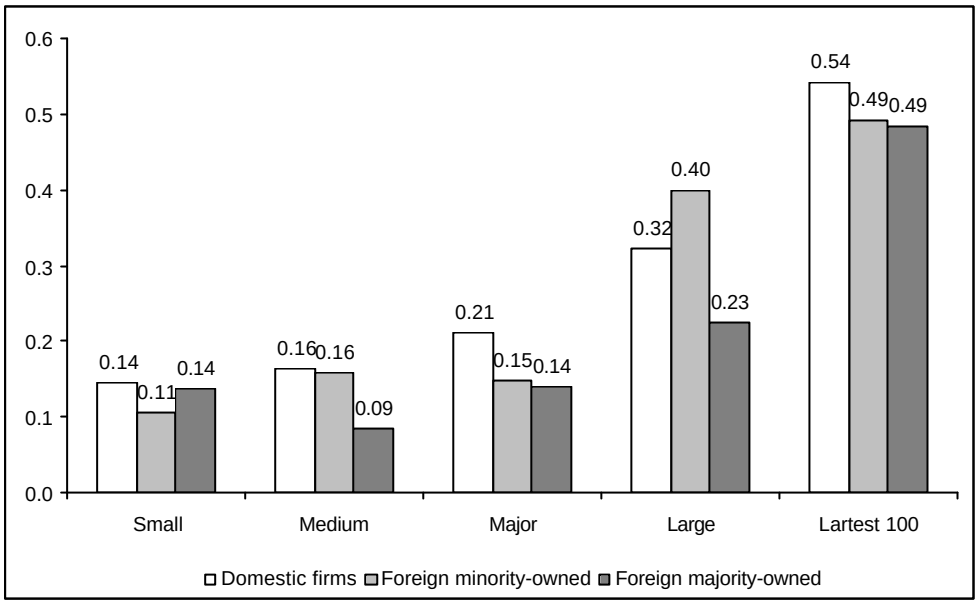


Figure 5.2: Leverage



If we look at leverage, i.e. the total-liability-to-total-capital ratio, which is illustrated in figure 5.2, we can conclude that foreign-majority owned firms are generally more leveraged than domestic firms, and that the difference increases with the size of firms. Foreign-minority owned firms, on the other hand, have more or less the same leverage as domestic firms. The leverage for domestic and foreign-minority owned firms, furthermore, tend to decrease with increasing firm size, while the leverage for foreign majority-owned firms seems to be independent of size.

Figure 5.3: Long-term debt to total debt



We continue by studying two other debt ratios, and those are the long-term-debt-to-total-debt ratio and the bonds-to-total-debt ratio. Starting with the former, which is illustrated in figure 5.3, it is clear that long-term debt to total debt tend to increase with the size of the firm. A likely explanation is that large firms have better access to long-term bank debt at reasonable terms than small and medium-sized firms. This tendency could also be explained by owners of small and medium-sized firms being more reluctant to take on debt than owners of large firms. However, such an explanation is contradicted by the fact that the smaller firms tend to be more leveraged in general than larger, as illustrated earlier in figure 5.2. Instead we can conclude that smaller firms tend to rely more on short-term debt to finance their operations than larger firms.

If we compare the long-term-debt-to-total-debt ratio of domestic firms with that of foreign firms we see a quite interesting pattern. In all size brackets, foreign-majority owned firms have a lower ratio than domestic firms. The fact that total leverage decreased with firm size for domestic firms, but remained more or less constant for foreign majority-owned firms, as illustrated earlier in figure 5.2, clearly suggests that

foreign majority-owned firms depend more on short-term financing then domestic firms. For foreign minority-owned firms, on the other hand, the results are inconclusive.

If we look at the bonds-to-total-debt ratio, which is graphed in figure 5.4 it is very clear than it is only the largest firms that issue bonds, which is what could be expected. It is also clear that among the largest 100 firms, domestic firms has a bond-to-total-debt ratio almost three times that of foreign majority-owned firms, while foreign minority-owned firms do not issue any bonds whatsoever.

We can, consequently, conclude that foreign majority-owned firms, even if more leveraged than domestic firms, tend to rely less on long-term debt, particularly bonds, to finance their operations. One explanation to this might be that they tend to borrow short-term from their foreign mother company. Our dataset does, however, not allow us to verify this hypothesis.

Figure 5.4: Bonds to total debt

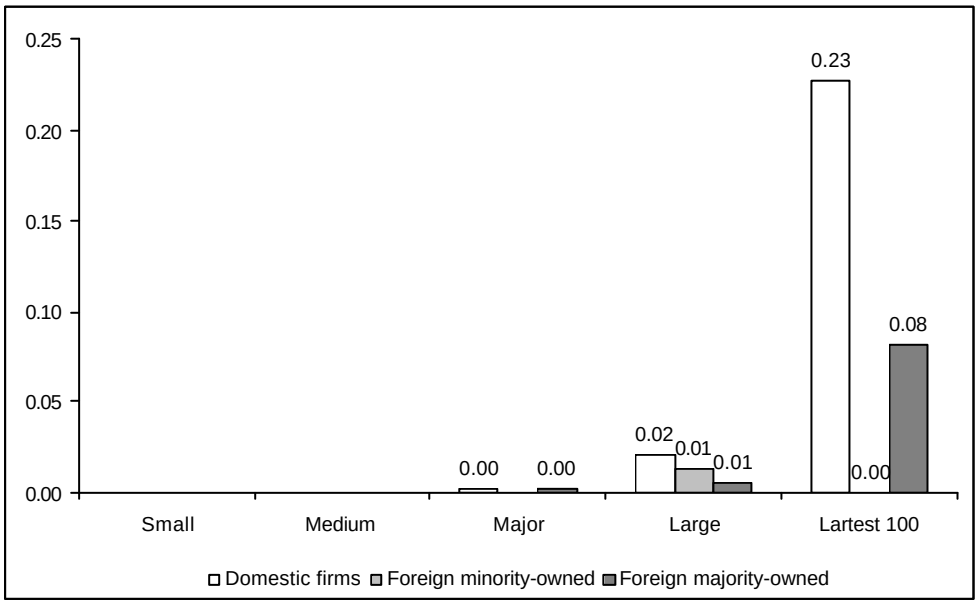
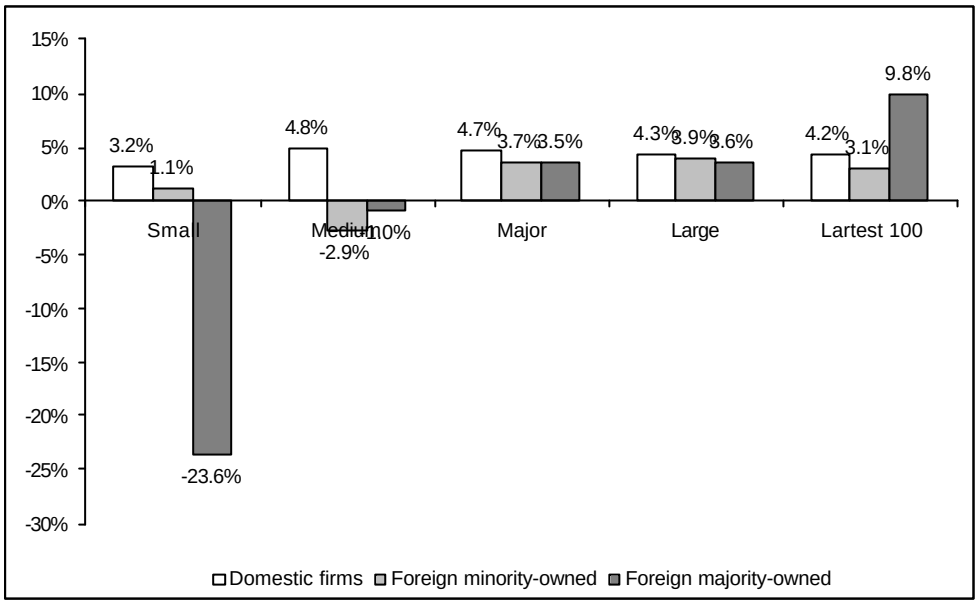


Figure 5.5: Return on assets



We continue by analysing the return on assets, which is illustrated in figure 5.5. Major, large, and the largest 100 firms have more or less the same return on assets independent of whether they are foreign or domestic, with one exception. Among the largest 100 firms, foreign majority-owned firms have a return on assets that is more than twice the rest. To explain this, we need to study the individual firms, and this lies outside the scope of this paper. The profitability of a firm might, furthermore, vary considerably from one year to another. The development of the return and profitability ratios over time is analysed in Rowland (2005a).

If we look at small and medium-sized firms, still in figure 5.5, the domestic firms had a return on assets in line with major and larger firms, while foreign firms, both minority- and majority-owned, show a different pattern. For medium-sized firms, both categories of foreign firms are loss making, and for small foreign majority-owned firms, this takes a quite extreme value. An explanation to why many foreign small and medium-sized firms are making a loss is that they are subsidiaries of foreign companies in the process of being set up. Such a subsidiary might during the course of the following one or two years

grow significantly. It might also during this time make a considerable loss, since it has not entered full operations yet. The specific reason to why small foreign-majority owned firms as an aggregate are making such a large loss, as illustrated in the figure, is due to the sample containing a number of small and medium-sized firms in the oil exploration business. Such firms can incur quite extreme losses until they find oil.

Profitability margins are illustrated in figure 5.6, 5.7 and 5.8, which shows operations margin, pre-tax margin and net-profit margin respectively. For major and large companies the patterns are similar to those for return on assets. No really large differences between the different categories of firms. Domestic and foreign minority-owned firms are doing slightly better than foreign majority-owned firms. The largest 100 firms are, on the other hand, doing considerably better than the rest. The fact that, for foreign minority-owned firms, the operations margin is lower than the net-profit margin is due to one firm making an operations loss at the same time as it makes large non-operations earnings which generates a large net profit. The reason why the pre-tax margin in some cases can be higher than the net-profit margin is, furthermore, that net profits in Colombia is calculated as Earnings before tax plus Inflations adjustments minus Taxes, and such inflation adjustments can in some cases be quite considerable.

For small and medium-sized firms, the patterns in figure 5.6, 5.7 and 5.8 are similar to those for return on assets. Possible reasons to why foreign small and medium-sized firms are loss making, and in particular, why small foreign-majority owned firms as an aggregate are quite extreme loss makers, has already been discussed.

One point that should be noted when comparing profitability among domestic and foreign firms is that foreign firms might declare a part of their profits abroad. Colombian corporate taxes are, by international standards, relatively high, and this might, indeed, give foreign firms an incentive to transfer at least some of their profits to their foreign mother company. Profits of foreign firms could, therefore, be understated.

Figure 5.6: Operations margin

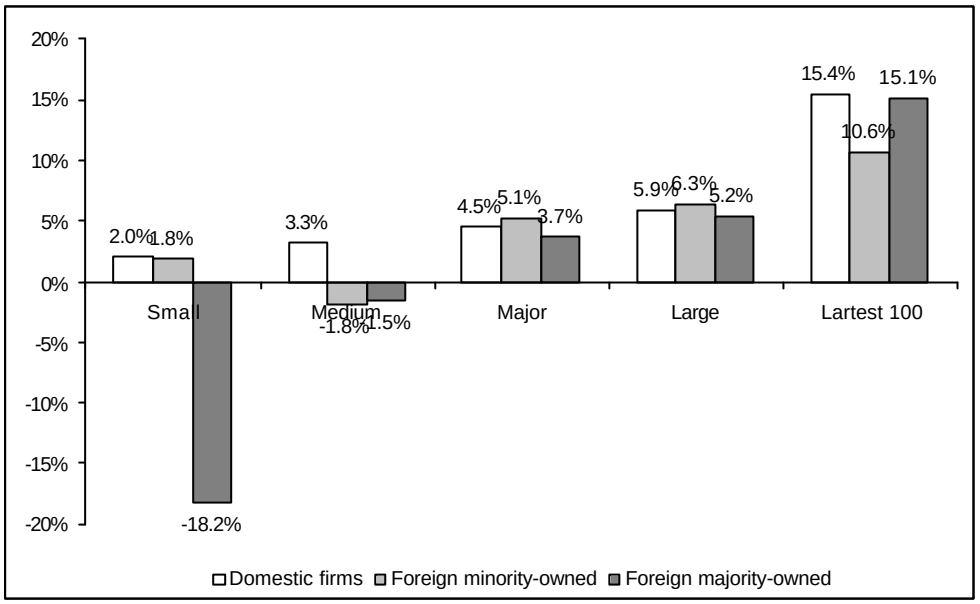


Figure 5.7: Pre-tax margin

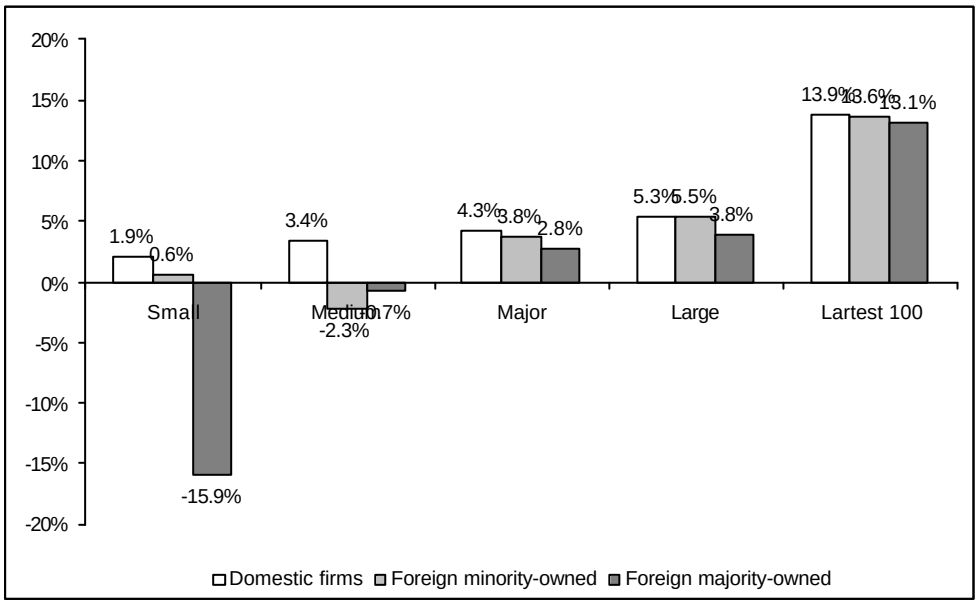
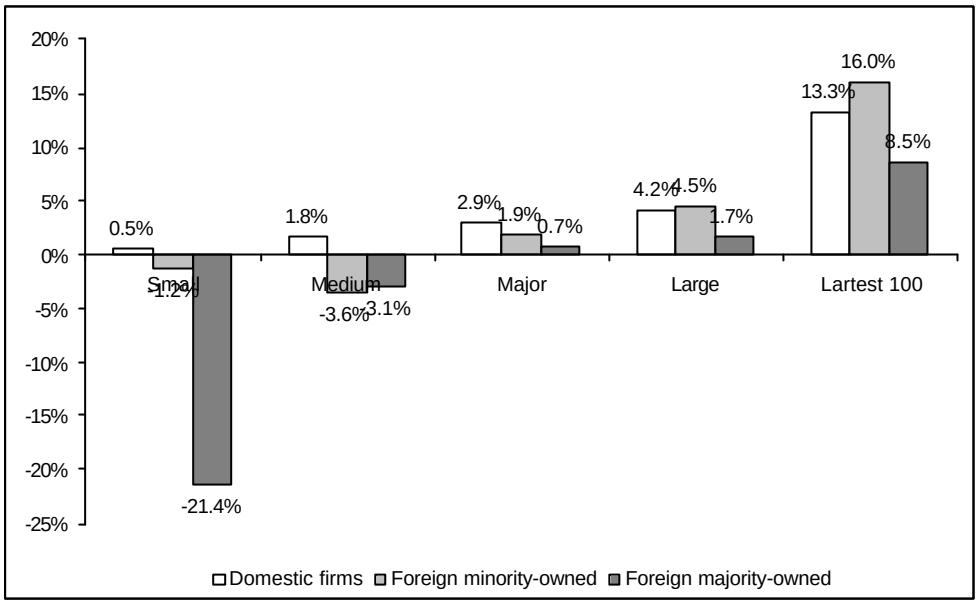


Figure 5.8: Net-profit margin



5.3 Foreign versus Domestic Firms: Some Regressions

To try to assess whether the difference between foreign and domestic firms is statistically significant, we will do some very simple regressions. We will study four of the ratios in the previous section, which are the total asset turnover, the leverage, the operations margin, and the net-profit margin to asses whether foreign majority-owned firms and foreign minority-owned firms are statistically different from domestic firms.

We will use OLS regression to estimate a model specified as:

$$RATIO_n = a + bASSETS_n + cMINORITY_n + dMAJORITY_n + e_n \qquad (1)$$

where $n = 1, \ldots, N$ is the number of firms, $RATIO_n$ is the ratio for firm n, $ASSETS_n$ is the logarithm of the total assets of the firm, and $MINORITY_n$ and $MAJORITY_n$ are dummy variables that take the value 1 if the firm is a minority-owned or majority-owned foreign

firm and 0 otherwise. The parameters a, b, c and d are parameters to be estimated, and e_n is an error term. If b is significant, the ratio is dependent on the size of the firm. If c and d are significant, this indicate that foreign majority-owned firms and foreign minority-owned firms respectively are significantly different from domestic firms in terms of the ratio studied.

Figure 5.9 to 5.12 plots the four different ratios against the logarithm of the total asset turnover. Note that for the first ratio, the total asset turnover, we use the logarithmic value, since the total asset turnover in itself is not normally distributed, while its logarithmic value is. The leverage, plotted in figure 5.11, can hardly be regarded as normally distributed either. It is rather evenly distributed in the zero-to-one interval. This might put the validity of the regression results for this particular ratio into question.

Another problem with the regression is that the error terms are not normally distributed, which is a condition for the t-tests to be valid. If the error terms of the regressions are graphed, it is apparent that they are quite far from being normally distributed, apart from maybe the first regression. The error terms do, furthermore, not pass a Jarque-Bera test for normality in any of the regressions. The regression results presented in table 5.2 should, therefore, be regarded only as indicative.

Figure 5.9: The logarithm of total asset turnover against the logarithm of total assets

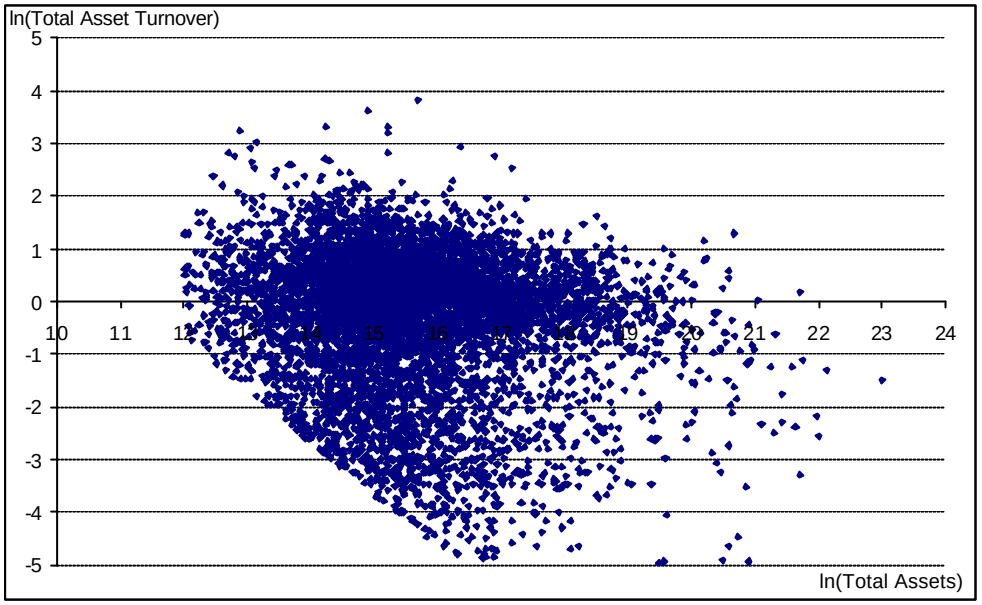


Figure 5.10: The leverage against the logarithm of total assets

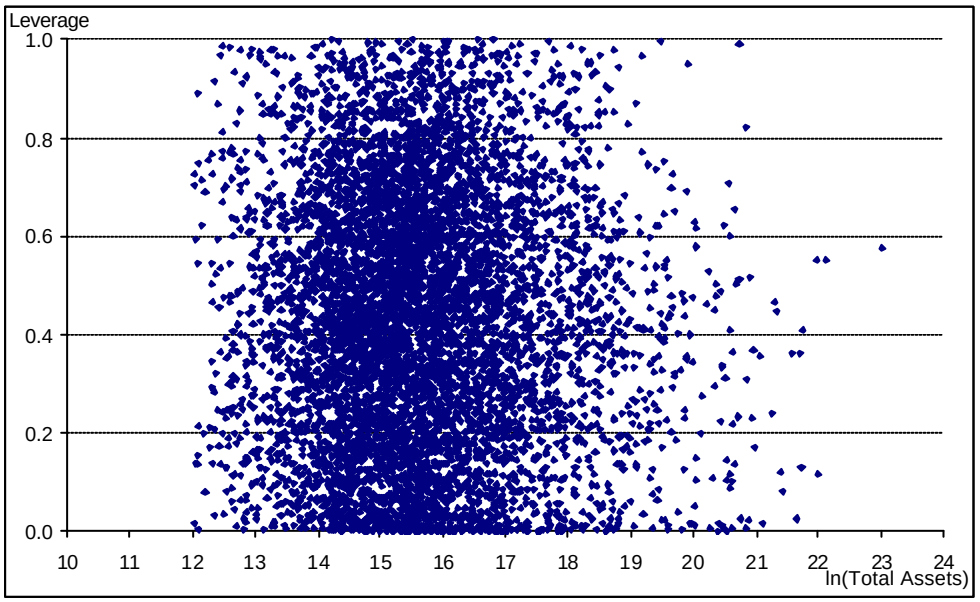


Figure 5.11: Operations margin against the logarithm of total assets

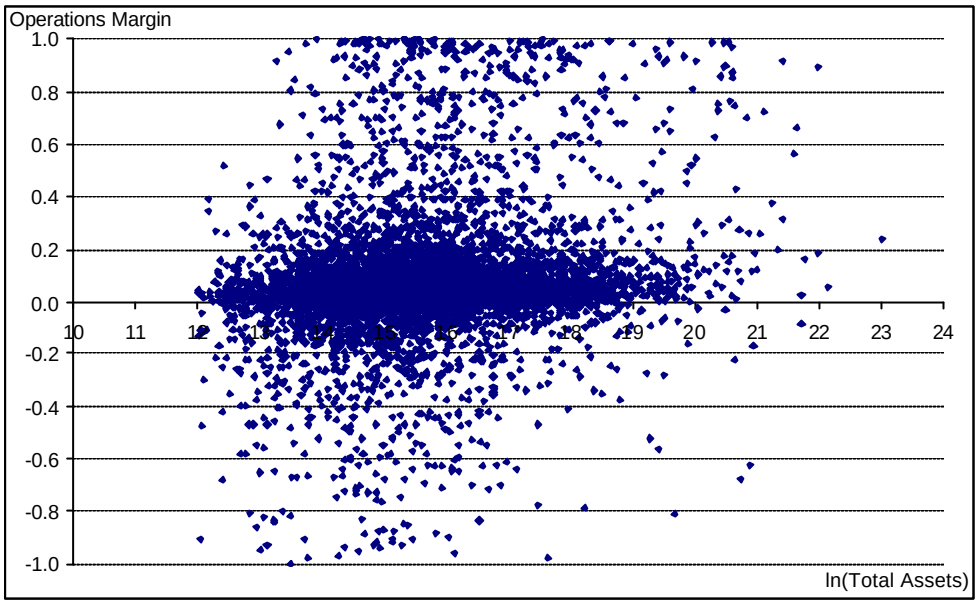


Figure 5.12: Net-profit margin against the logarithm of total assets

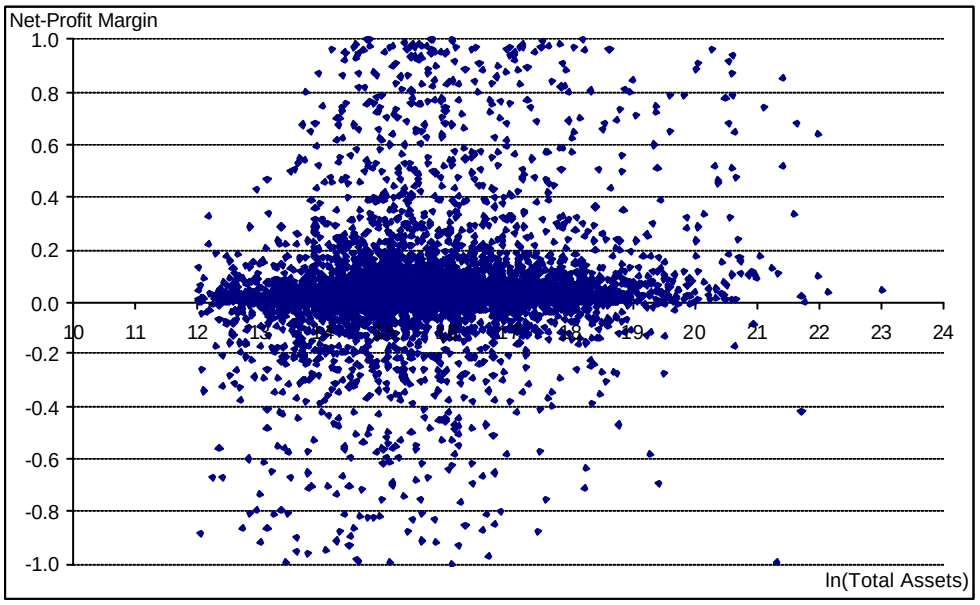


Table 5.2: Regression results

Explanatory Variable	Dependent Variable: Total Asset Turnover (in logs)	Leverage	Operations Margin	Net-Profit Margin
Constant	2.363 (14.35)	0.6240 (17.21)	-0.3410 (-1.91)	-0.8655 (-4.00)
ASSETS (in logs)	-0.1756 (-16.56)	-0.0124 (-5.34)	0.0223 (1.95)	0.0586 (4.20)
MINORITY dummy	0.0725 (0.87)	-0.0116 (-0.63)	-0.1960 (-2.19)	-0.3894 (-3.57)
MAJORITY dummy	0.2754 (6.38)	0.0650 (6.86)	-0.1510 (-3.24)	-2.339 (-4.13)
No of observations	7001	7001	7001	7001
Adjusted R^2	0.039	0.009	0.002	0.005
Standard error	1.297	0.287	1.402	1.707

Note: T-statistics are in parentheses. The residuals are not normally distributed in any of the regressions, so the t-tests might not be valid. The results reported here should, therefore, be regarded only as indicative.

According to the regression results presented in table 5.2, the size of the firm, in terms of total assets, is significant in explaining all the four dependent variables, even if it is a border case for the operations margin. What is even more interesting is that the *MAJORITY* dummy is significant in all the regressions. The *MINORITY* dummy is only significant in explaining the profitability margins. These results, consequently, suggest that foreign majority-owned firms are behaving significantly different from domestic firm with respect to their total asset turnover, their leverage and their profitability margins. According to the results foreign majority-owned firms tend to have a higher total asset turnover and tend to be more leveraged than their domestic counterparts, while they tend to have lower profitability margins. Foreign minority-owned firms, on the other hand, do not behave significantly different from domestic firms in terms of total asset turnover or leverage, but do so in terms of profitability margins. In line with their majority-owned counterparts, they tend to have lower profitability margins than domestic firms.

5.4 Ratio Analysis by Sector

We concluded in the previous section that foreign-majority owned firms are different from domestic firms in their behaviour. However, does this depend on them being different in general, or does it depend on foreign firms being in sectors that are different from those where domestic firms dominate? To answer this question, we will study 14 different sectors where foreign firms are present,[24] and we will look at how foreign-majority owned firms behave in comparison to domestic firms with respect to total asset turnover, leverage and operations margin. Foreign minority-owned firms will not be studied here.

Total asset turnover varies to a large degree between different sectors, as shown by figure 5.13. This is mainly because capital intensity varies largely between the sectors. Sectors where trade is the main activity, such as wholesale, and retail, have large total asset turnover, while sectors such as telecommunications, and Paper production, which are very capital intense, have a much lower total asset turnover.

More importantly, it is not possible to draw any clear conclusion on whether foreign firms have a higher total asset turnover than domestic firms. In some sectors they certainly do, while in others they do not.

[24] These sectors have been selected by taking the 18 most dominant of the 20 sectors in figure 4.3 and excluding those sectors related to oil, gas and coal, where foreign firms are completely dominant. The excluded four sectors are Oil and gas extraction, Pipelines, Coal and derivatives, and Oil and gas derivatives.

Figure 5.13: Total asset turnover for firms in different sectors

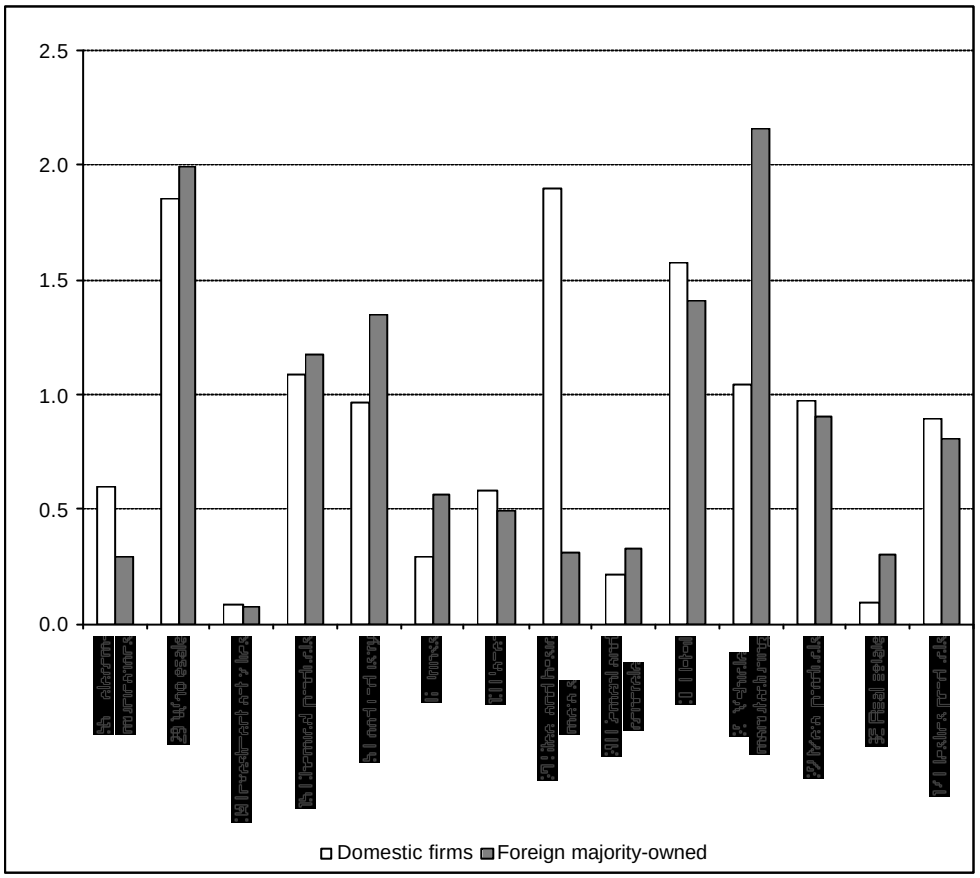
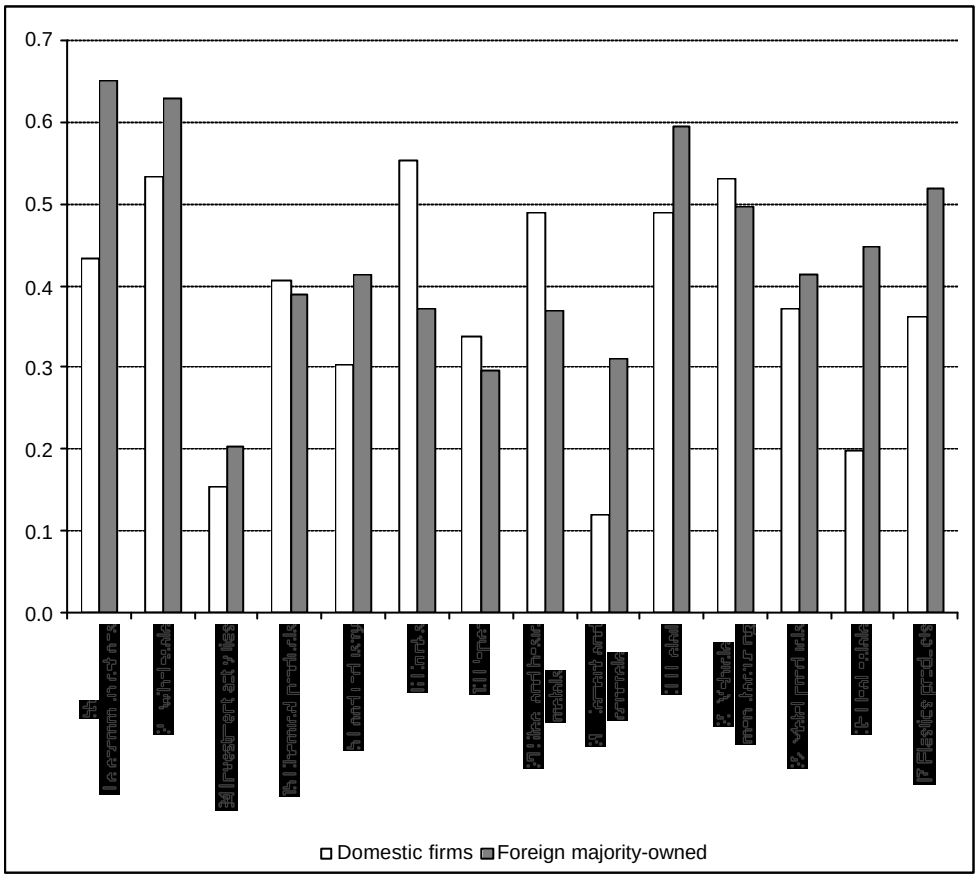


Figure 5.14: Leverage for firms in different sectors



The leverage of firms also varies considerably between different sectors, as shown by figure 5.14. While sectors such as investment activities, and cement and concrete tend to be less leveraged, telecommunications, wholesale, and retail belong to the most leveraged sectors. Foreign firms are, furthermore, more leveraged than domestic firms in some sectors but not in others, so no conclusive result in this aspect.

Figure 5.15: Operations margin for firms in different sectors

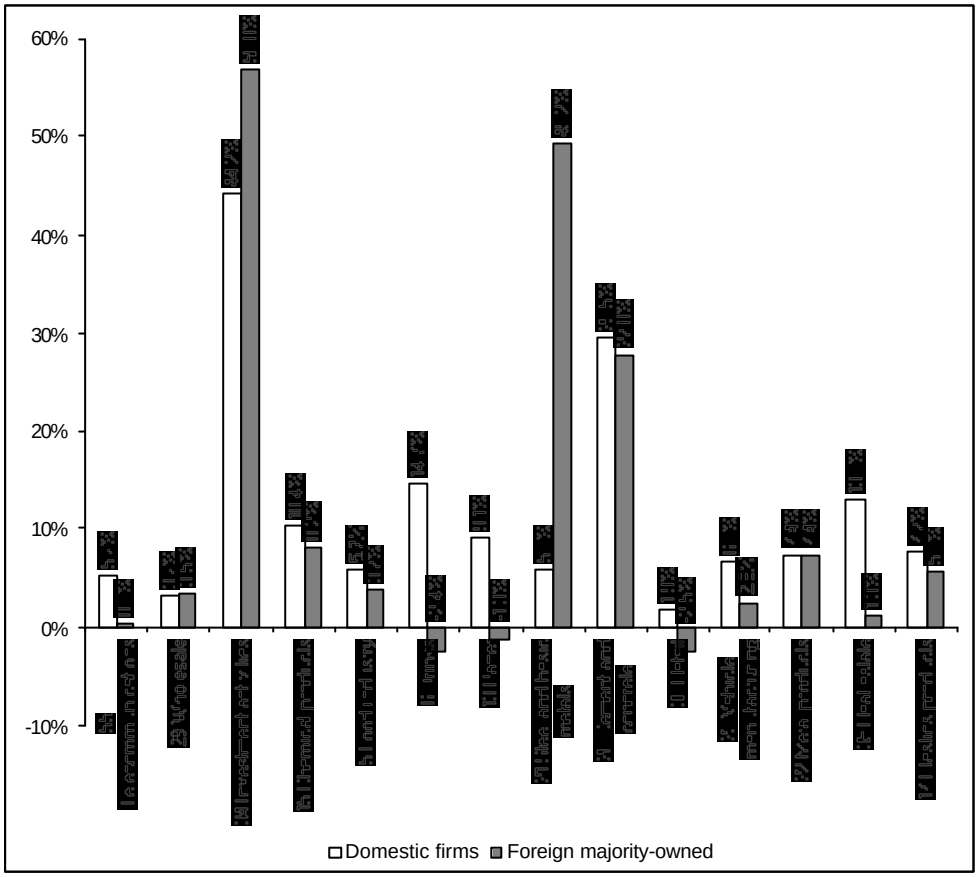


Figure 5.15, which shows the operations margin for firms in different sector, tells a similar story: The differences between different sectors are large, and while foreign firms are more profitable in some sectors, domestic firms are more profitable in others.

The results in this section suggest that the results of the previous sections have to be interpreted with caution. The differences between different sectors are very large, and the sector to which a firm belongs will, therefore, have a significant impact on a specific ratio of that firm. The sectoral ratio analysis is, furthermore, inconclusive in any general differences between foreign and domestic firms. The figures on the previous pages do indeed suggest that there are large differences between foreign and domestic firms in some of the sectors. However, while foreign firms have a larger value on a particular ratio in a particular sector than domestic firms, domestic firms have a larger value on the same ratio in other sectors. By comparing firms of different sectors with each other, we might simply compare firms of very different types. It might, therefore, be impossible to draw any clear conclusions from such a research.

To reach any definite results we would, therefore, need to study individual sectors in depth. This is, however, outside the scope of this particular study, but could be a very interesting area for future research.

6 Private External Debt and External Suppliers

One important question when studying foreign and domestic companies in Colombia is whether these companies differ in their external borrowings, i.e. whether foreign firms borrow more abroad than their domestic counterparts. This is particularly important when trying to forecast private debt flows in the balance of payments. Section 6.1 investigates the difference in external bank debt in domestic and foreign firms in Colombia. In section 6.2 these firms are broken down in size brackets. While these two sections only analyse bank debt, section 6.3 investigates accounts payable to external suppliers. This is a short-term liability which is directly related to the imports of the firm.[25] Private external debt is further analysed in Rowland (2005c).

6.1 External Debt in Domestic and Foreign Firms

One of the annexes of the database of the Superintendencia de Sociedades contains information on the external liabilities of the firms, which are divided into short-term bank debt, long-term bank debt and accounts payable to external suppliers. The database does, however, not contain information on debt that foreign-owned firms might hold with their mother company abroad, and this is an external liability that, indeed, might be significant.

Since the information on external debt is included in the annex of the database, it is generally not verified, and might, therefore, be of questionable quality. We have done a number of tests for each individual firm to check so that the numbers are reasonable. These include checking that External Short-Term Bank Debt does not exceed Total Current Liabilities, and that External Long-Term Bank Debt does not exceed Total Long-Term Liabilities.

[25] I am grateful to Jorge Martinez for helping me to compile the data aggregates that are presented in this chapter.

Figure 6.1: External debt to total liabilities

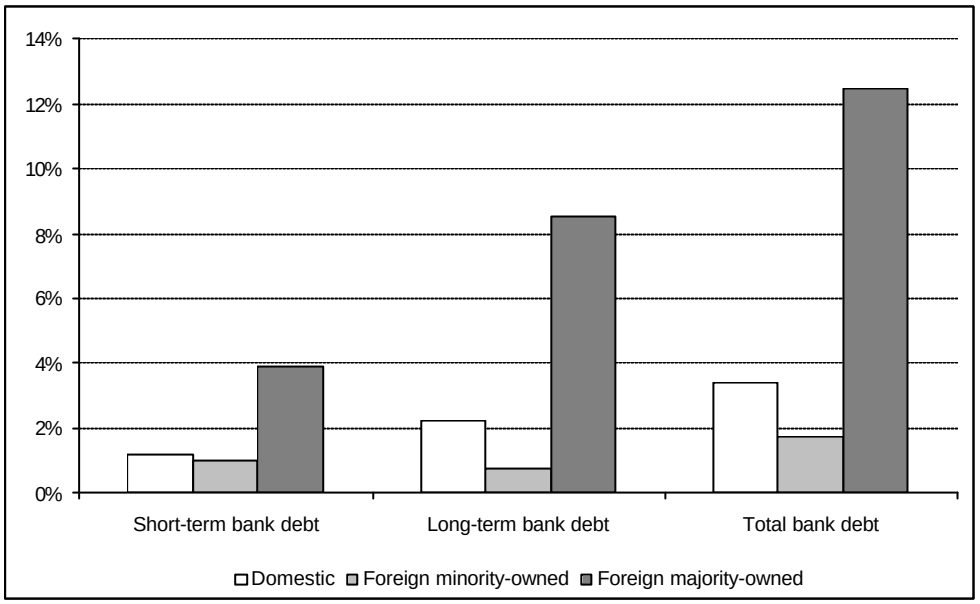


Figure 6.1 graphs the ratios of external debt to total liabilities for short-term, long-term and total external bank debt. It is apparent that both in the case of short-term debt and long-term debt, foreign-majority owned firms borrow significantly more abroad than both domestic and foreign-minority owned firms. The most likely reason to this is that foreign-majority owned firms have better access to international banks. Their mother company, particularly if a multinational, might also be able to guarantee the debt and might already have good connections with international banks.

6.2 External Debt by Size of Firm

We now continue by breaking down the dataset in size brackets, in line with the analysis in the previous chapters. Figure 6.2, 6.3 and 6.4 shows the external-debt-to-total-liabilities ratio for short-term, long-term and total external bank debt respectively. Firms are broken down by size brackets. Note that the size brackets for small firms and medium-sized firms have been merged into small and medium-sized enterprises (SMEs).

Figure 6.2: Short-term external bank debt to total liabilities

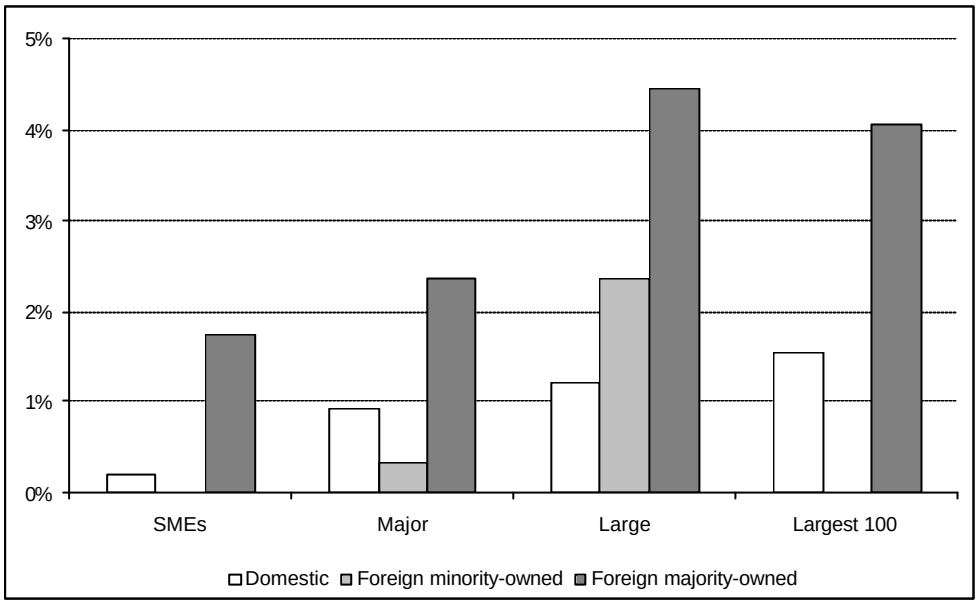


Figure 6.3: Long-term external bank debt to total liabilities

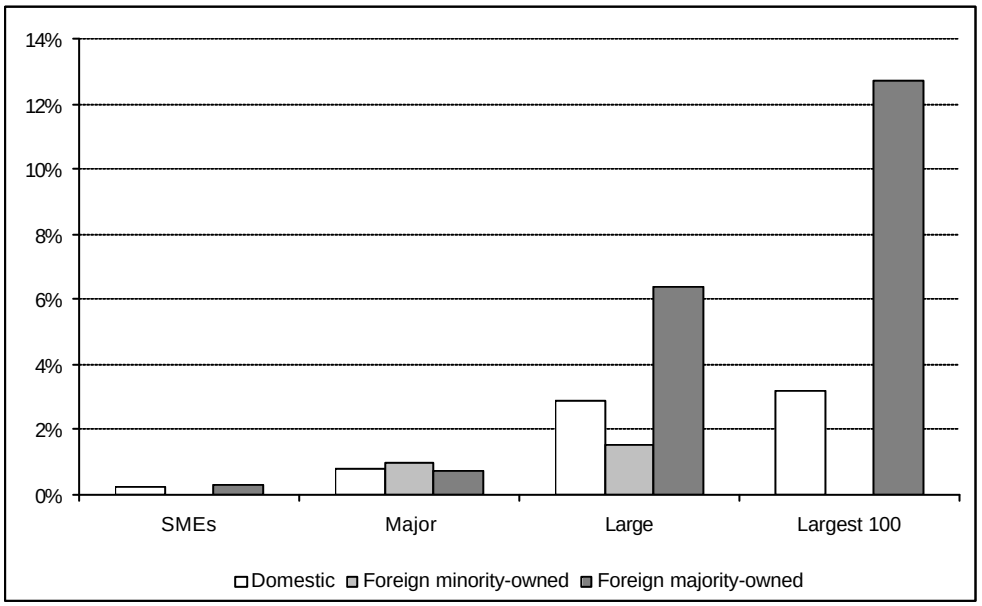
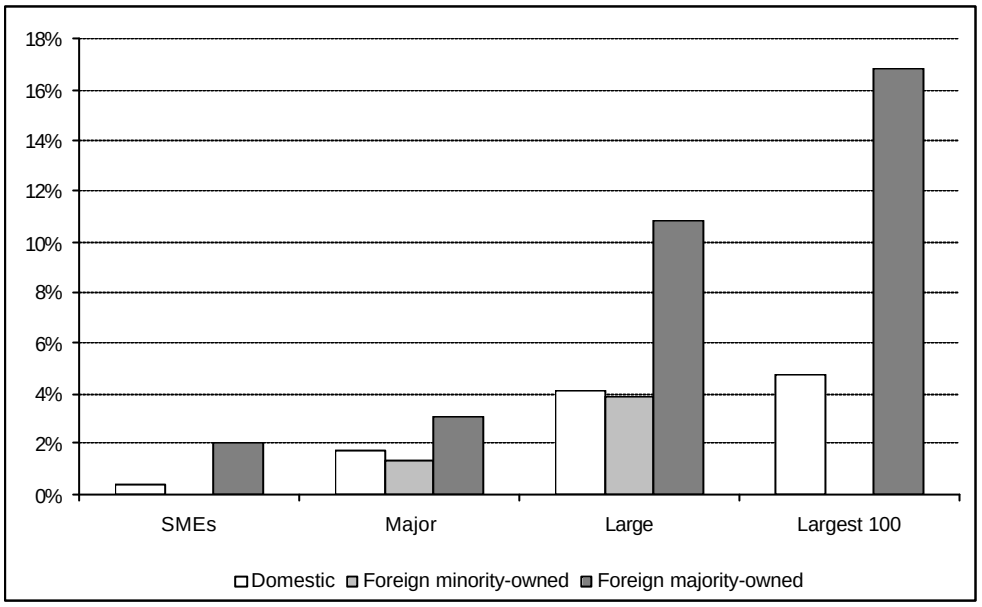


Figure 6.4: Total external bank debt to total liabilities



The results presented in figure 6.4 above clearly suggest that foreign majority-owned firms tend to hold much more external bank debt than both domestic and foreign minority-owned firms, independent of the size of the firm. It is also clear from the figure, that the larger a firm is, the more external debt it tends to hold. The results here are based on aggregates, and the difference between individual firms might still be very large.

If external bank debt is broken down in short-term and long-term debt, the results are presented in figure 6.2 and 6.3 on the previous page. The tendencies are the same. Foreign-majority owned firms tend to hold more external bank debt than its domestic and foreign-minority owned counter parts, except in the cases of long-term external bank debt in SMEs and major firms, which, nevertheless, tend to hold very little long-term external bank debt whatsoever. Furthermore, in these figures there is an apparent tendency of larger firms to hold more external bank debt than smaller firms, clearly in line with the results presented in figure 6.4.

Foreign minority-owned firms show a slightly unexpected pattern. None of the foreign minority-owned firms among the largest 100 had any external bank debt at all. However, there are only nine such firms in this size bracket, so the sample might be too small to draw any definite conclusions. Furthermore, as discussed earlier, the data on external debt are not of the best quality, and this might very well relate to errors or omissions in the dataset.

We do, indeed, suspect that the dataset on external debt has a number of errors and omissions. In particular, we suspect that there is a significant number of firms that hold external debt but do not report it. Unless there is a systematic bias related to which firms that do report external debt and which that do not, the tendencies suggested by figure 6.2, 6.3 and 6.4 should be correct. However, the levels reported in these figures might very well be understated, due to a number of firms holding external debt but not reporting it.

6.3 External Suppliers

Finally we take a look at accounts payable to external suppliers. This should be an indicator of how much the firms import. Figure 6.5 shows accounts payable to external suppliers divided by total liabilities. The results presented here suggest that there is a clear tendency for foreign majority-owned firms to import more than domestic firms. Foreign minority-owned firms end up in the middle.

Figure 6.6 shows the results if the dataset is broken down in size brackets. The tendency for foreign majority-owned firms to import most, followed by foreign minority-owned firms and domestic firms is clear throughout all size brackets. Another tendency that is apparent is that smaller firms, in relative terms, tend to import more than larger firms.

Concerning data quality, the discussion regarding the quality of the data for external debt is applicable also for external suppliers, i.e. the exact level of the external-suppliers-to-total-liabilities ratio might be understated here, while the relative tendencies should be valid.

Figure 6.5: External suppliers to total liabilities

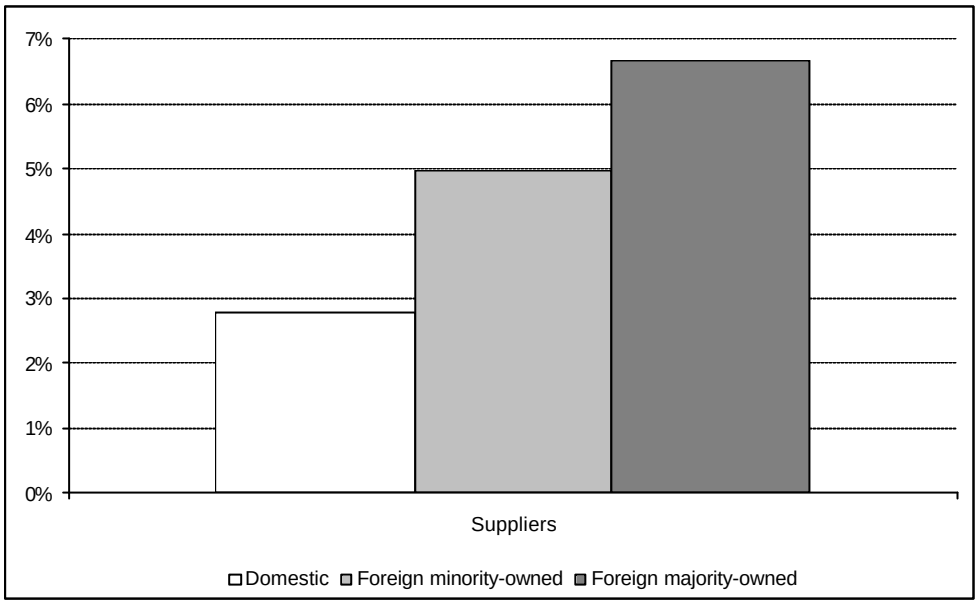
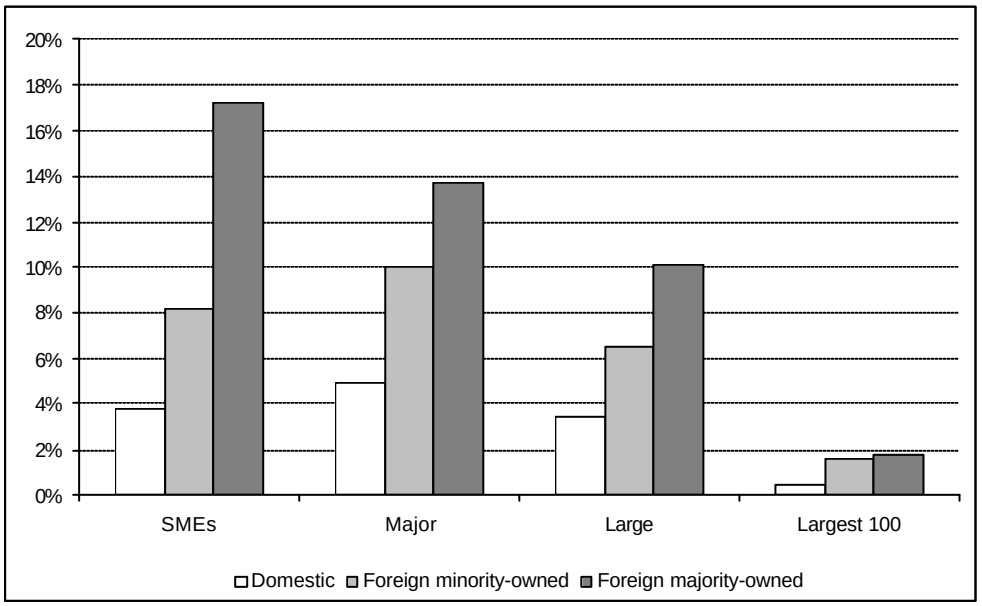


Figure 6.6: External suppliers to total liabilities broken down by size of firm.



7 Conclusions

We have in this paper studied domestic and foreign firms in Colombia and, in particular, whether these firms behave differently. The study has been carried out by analysing the 2003 balance sheets and income statements of some 7,001 firms, which with few exceptions should include all firms present in Colombia. Micro enterprises have been excluded from the study. The data used has been obtained from the Superintendencia de Sociedades.

The dataset has, furthermore, been divided into five size brackets, including small, medium-sized, major, large, and the largest 100 firms. Foreign firms have been divided into foreign majority-owned and foreign minority-owned firms, and these have been compared to domestic firms.

The objective of the research has been to build a foundation for future research in the area, rather than to reach any conclusive results. This has been a necessary limitation, to restrict the scope of an otherwise potentially very extensive project.

The research has, nevertheless, generated a number of preliminary results, of which some are very interesting. If we compare foreign majority-owned firms with domestic firms, these do, indeed, tend to differ in a number of aspects. In terms of total asset turnover, foreign firms tend to have a larger turnover than domestic firms. Foreign firms also tend to be more leveraged than domestic firms. In addition, foreign firms tend to have a lower net-profit margin than domestic firms. When it comes to foreign minority-owned firms, the results are, on the other hand, much less clear.

However, it is unclear whether the differences between foreign majority-owned firms and domestic firms relate to the fact that foreign firms have foreign ownership, or whether it relates to foreign firms being present in different sectors from domestic firms. The results of the study do, indeed, suggest that different sectors are very different from each other. And comparing foreign and domestic firms from each respective sector has not

yielded any conclusive results. While foreign firms have a larger value on a particular ratio in a particular sector than domestic firms, domestic firms have a larger value on the same ratio in other sectors. Since foreign and domestic firms are not equally distributed throughout all sectors, this might very well lead to systematically biased results.

The results generated by the research, consequently, have to be interpreted with care. An area of future research is to compare foreign and domestic companies of a certain sector or of a certain group of sectors with similar attributes, e.g. manufacturing sectors, to investigate whether this would yield similar results to those documented in this paper.

The study presented here also investigated external liabilities held by individual firms. Here, the results were much more conclusive. Foreign firms hold much more external bank debt than domestic firms, indeed almost four times as much as domestic firms of the same size. The results of the study also suggest that foreign firms import much more than domestic firms, since accounts payable to external suppliers for foreign firms is more than twice the corresponding value for domestic firms.

By studying different size brackets of firms, we have also been able to conclude that many of these ratios are dependent on the size of the firms. Total asset turnover tend to fall with increasing size, suggesting that larger firms are more capital intense. Leverage tend to fall for domestic firms, but is rather independent of size for foreign firms, while long-term debt to total debt tend to increase with the size, which can be explained by larger firms having better access to bank lending then smaller firms. Larger firms, furthermore, tend to hold more external debt than smaller firms, while smaller firms tend to import more.

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Appendix

Table A.1: Firms by sector in order of total assets

Table A.2: Foreign and domestic firms by sector in order of total assets of foreign firms

The tables are presented on the following pages.

Table A.1a: Firms by sector in order of total assets

Sector	Small/medium No of firms	Small/medium Assets (COP mn)	Small/medium % of Total	Major No of firms	Major Assets (COP mn)	Major % of Total	Large No of firms	Large Assets (COP mn)	Large % of Total	Largest 100 No of firms	Largest 100 Assets (COP mn)	Largest 100 % of Total	Total No of firms	Total Assets (COP mn)
34 Investment activities	130	357,491	0.9%	195	3,095,733	7.5%	72	9,191,589	22.4%	28	28,458,658	69.2%	425	41,103,472
29 Wholesale	572	1,393,778	8.1%	529	7,152,077	41.3%	56	6,086,961	35.2%	5	2,676,791	15.5%	1,162	17,309,607
5 Food industry	102	249,249	1.5%	150	2,696,419	16.5%	64	7,299,140	44.8%	11	6,055,816	37.2%	327	16,300,624
6 Drinks	14	35,786	0.2%	21	439,954	2.8%	6	855,103	5.5%	6	14,209,974	91.4%	47	15,540,817
55 Telecommunications	32	72,587	0.6%	48	749,553	5.7%	20	2,669,564	20.4%	6	9,578,597	73.3%	106	13,070,301
20 Cement and concrete	8	23,660	0.2%	8	100,613	0.9%	9	1,121,366	10.4%	9	9,584,147	88.5%	34	10,829,785
15 Chemical products	58	160,498	1.5%	117	1,846,489	17.5%	57	6,893,852	65.4%	4	1,641,354	15.6%	236	10,542,193
30 Retail	253	558,552	6.1%	147	1,840,230	20.0%	15	1,348,479	14.7%	5	5,451,190	59.3%	420	9,198,452
13 Paper	2	5,449	0.1%	23	455,558	7.0%	12	1,875,819	28.8%	4	4,183,886	64.2%	41	6,520,712
3 Oil and gas extraction	6	8,744	0.1%	18	378,290	5.8%	12	1,669,618	25.7%	6	4,441,752	68.4%	42	6,498,404
53 Pipelines	0	0	0.0%	0	0	0.0%	2	324,154	6.9%	2	4,342,591	93.1%	4	4,666,745
27 Recidential construction	149	351,741	7.8%	124	1,754,635	38.7%	14	1,300,064	28.7%	1	1,128,748	24.9%	288	4,535,189
2 Coal and derivatives	9	15,603	0.4%	5	87,115	2.0%	2	261,076	6.1%	3	3,888,905	91.4%	19	4,252,698
1 Agriculture for exports	170	452,266	11.3%	173	2,295,435	57.2%	11	1,266,596	31.6%	0	0	0.0%	354	4,014,296
35 Real estate	226	527,066	13.6%	172	2,392,519	61.6%	10	967,365	24.9%	0	0	0.0%	408	3,886,950
21 Steel and basic metals	10	19,880	0.6%	21	328,682	9.4%	7	799,116	22.9%	1	2,343,152	67.1%	39	3,490,830
61 Other business activities	250	484,365	15.5%	122	1,686,473	53.9%	6	476,135	15.2%	1	482,961	15.4%	379	3,129,934
17 Plastics products	58	151,529	5.1%	79	1,495,008	49.9%	12	1,350,983	45.1%	0	0	0.0%	149	2,997,520
28 Vehicle sales	154	363,283	12.7%	111	1,357,460	47.6%	11	1,131,898	39.7%	0	0	0.0%	276	2,852,641
22 Metal-mechanical products	54	120,046	5.1%	53	767,573	32.4%	12	1,480,847	62.5%	0	0	0.0%	119	2,368,467
9 Clothes	76	194,818	8.8%	70	1,131,455	50.9%	8	895,874	40.3%	0	0	0.0%	154	2,222,147
8 Textiles and fabrics	31	80,590	3.7%	36	601,051	27.6%	15	1,495,727	68.7%	0	0	0.0%	82	2,177,368
56 Radio and television	40	64,240	3.0%	15	175,021	8.1%	3	470,560	21.8%	2	1,451,282	67.2%	60	2,161,102
14 Editorial and printing	64	143,554	6.7%	48	745,723	34.6%	14	1,268,244	58.8%	0	0	0.0%	126	2,157,521
25 Other manufacturing	66	155,142	7.3%	71	1,062,823	50.0%	7	907,548	42.7%	0	0	0.0%	144	2,125,512

Table A.1b: Firms by sector in order of total assets (continued…)

Sector	Small/medium No of firms	Small/medium Assets (COP mn)	Small/medium % of Total	Major No of firms	Major Assets (COP mn)	Major % of Total	Large No of firms	Large Assets (COP mn)	Large % of Total	Largest 100 No of firms	Largest 100 Assets (COP mn)	Largest 100 % of Total	Total No of firms	Total Assets (COP mn)
23 Vehicle manufacturing	29	86,034	4.2%	36	666,454	32.5%	2	348,697	17.0%	2	951,091	46.3%	69	2,052,276
48 Machines and equipment	41	89,787	4.4%	43	731,424	36.0%	10	1,209,319	59.6%	0	0	0.0%	94	2,030,530
43 Cattle farming	99	243,559	13.1%	89	1,311,421	70.6%	4	303,072	16.3%	0	0	0.0%	192	1,858,052
62 Civil construction	80	163,377	8.8%	55	777,729	42.0%	8	909,103	49.1%	0	0	0.0%	143	1,850,209
64 Oil and gas derivatives	25	71,285	3.9%	28	548,932	30.1%	11	1,201,399	66.0%	0	0	0.0%	64	1,821,616
19 Mineral products	22	58,779	4.1%	18	396,559	27.4%	4	506,507	35.0%	1	484,435	33.5%	45	1,446,279
18 Glass and glass products	1	1,191	0.1%	8	179,143	15.1%	2	187,207	15.8%	1	818,592	69.0%	12	1,186,132
39 Other community services	61	118,612	11.5%	35	481,232	46.7%	4	431,276	41.8%	0	0	0.0%	100	1,031,120
31 Accommodation	46	111,776	11.5%	32	417,754	43.1%	5	440,659	45.4%	0	0	0.0%	83	970,189
63 Construction preparation	63	135,264	14.2%	55	667,060	69.9%	2	152,399	16.0%	0	0	0.0%	120	954,722
45 Forestry	5	14,346	1.8%	5	114,579	14.0%	5	687,334	84.2%	0	0	0.0%	15	816,259
16 Rubber products	9	23,178	3.0%	7	127,338	16.3%	1	286,747	36.7%	1	344,247	44.0%	18	781,510
46 Other products	14	33,438	4.8%	17	197,906	28.6%	3	461,373	66.6%	0	0	0.0%	34	692,716
38 Health and social services	22	25,445	3.7%	6	45,193	6.6%	6	610,722	89.6%	0	0	0.0%	34	681,359
60 Information systems	25	53,377	10.3%	24	319,628	61.7%	2	145,244	28.0%	0	0	0.0%	51	518,249
65 Food retail	27	58,626	13.5%	18	216,449	49.8%	2	159,722	36.7%	0	0	0.0%	47	434,797
54 Storage	64	128,897	31.4%	22	281,529	68.6%	0	0	0.0%	0	0	0.0%	86	410,426
24 Manufacturing of OMT	2	2,489	0.6%	5	54,610	13.4%	3	350,708	86.0%	0	0	0.0%	10	407,807
7 Tobacco	0	0	0.0%	0	0	0.0%	0	0	0.0%	1	346,223	100.0%	1	346,223
37 Education	10	23,055	6.8%	0	0	0.0%	1	316,698	93.2%	0	0	0.0%	11	339,753
47 Publication of periodicals	6	9,770	3.0%	12	165,379	50.7%	2	151,128	46.3%	0	0	0.0%	20	326,277
59 Fishing	12	21,407	6.9%	8	120,198	38.8%	2	168,249	54.3%	0	0	0.0%	22	309,854
42 Other agricultural sectors	19	43,759	14.6%	16	255,201	85.4%	0	0	0.0%	0	0	0.0%	35	298,960
4 Extraction of other minerals	17	36,321	13.0%	10	160,480	57.6%	1	82,040	29.4%	0	0	0.0%	28	278,841
11 Shoes and footwear	7	14,742	5.4%	12	144,115	52.3%	2	116,679	42.3%	0	0	0.0%	21	275,537

Note: OMT stands for other means of transportation.

Table A.1c: Firms by sector in order of total assets (continued…)

Sector	Small/medium No of firms	Assets (COP mn)	% of Total	Major No of firms	Assets (COP mn)	% of Total	Large No of firms	Assets (COP mn)	% of Total	Largest 100 No of firms	Assets (COP mn)	% of Total	Total No of firms	Assets (COP mn)
41 Sales of fuels and lubricants	39	68,810	27.5%	16	181,619	72.5%	0	0	0.0%	0	0	0.0%	55	250,429
26 Electricity generation	7	11,269	4.9%	8	91,348	40.1%	1	125,150	54.9%	0	0	0.0%	16	227,767
10 Leather	8	25,475	13.2%	9	110,829	57.4%	1	56,626	29.4%	0	0	0.0%	18	192,930
32 Cargo transportation by land	24	52,555	28.0%	6	53,878	28.7%	1	81,383	43.3%	0	0	0.0%	31	187,817
12 Wood products	12	31,877	30.0%	7	74,247	70.0%	0	0	0.0%	0	0	0.0%	19	106,124
50 Transportation by air	4	5,518	5.3%	5	99,113	94.7%	0	0	0.0%	0	0	0.0%	9	104,632
66 Tourism activities	30	50,202	48.2%	3	54,005	51.8%	0	0	0.0%	0	0	0.0%	33	104,207
52 Other passenger transport.	13	17,620	41.8%	3	24,553	58.2%	0	0	0.0%	0	0	0.0%	16	42,173
49 Transportation by sea	6	12,424	100.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	6	12,424
33 Mail delivery	1	808	11.1%	1	6,471	88.9%	0	0	0.0%	0	0	0.0%	2	7,279

Table A.2a: Foreign and domestic firms by sector in order of total assets of foreign firms

Sector	Foreign majority-owned			Foreign minority-owned			Domestic firms			Total	
	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)
55 Telecommunications	45	6,282,700	48.1%	13	4,895,349	37.5%	48	1,892,253	14.5%	106	13,070,301
29 Wholesale	255	7,365,072	42.5%	26	585,403	3.4%	881	9,359,132	54.1%	1,162	17,309,607
34 Investment activities	58	2,830,448	6.9%	21	5,078,117	12.4%	346	33,194,907	80.8%	425	41,103,472
15 Chemical products	77	6,984,457	66.3%	14	561,078	5.3%	145	2,996,658	28.4%	236	10,542,193
3 Oil and gas extraction	37	6,437,171	99.1%	1	16,447	0.3%	4	44,786	0.7%	42	6,498,404
53 Pipelines	3	4,563,370	97.8%	0	0	0.0%	1	103,374	2.2%	4	4,666,745
5 Food industry	47	3,622,009	22.2%	12	844,549	5.2%	268	11,834,065	72.6%	327	16,300,624
2 Coal and derivatives	6	3,986,250	93.7%	0	0	0.0%	13	266,449	6.3%	19	4,252,698
6 Drinks	5	2,223,282	14.3%	1	826,914	5.3%	41	12,490,620	80.4%	47	15,540,817
13 Paper	8	2,642,240	40.5%	6	286,265	4.4%	27	3,592,208	55.1%	41	6,520,712
21 Steel and basic metals	4	2,511,011	71.9%	1	42,787	1.2%	34	937,032	26.8%	39	3,490,830
20 Cement and concrete	3	2,252,878	20.8%	2	155,073	1.4%	29	8,421,834	77.8%	34	10,829,785
30 Retail	44	1,394,133	15.2%	14	251,034	2.7%	362	7,553,284	82.1%	420	9,198,452
64 Oil and gas derivatives	43	1,557,905	85.5%	3	29,447	1.6%	18	234,264	12.9%	64	1,821,616
23 Vehicle manufacturing	6	1,308,092	63.7%	10	213,028	10.4%	53	531,156	25.9%	69	2,052,276
22 Metal-mechanical products	15	843,797	35.6%	10	519,439	21.9%	94	1,005,230	42.4%	119	2,368,467
35 Real estate	49	674,114	17.3%	13	614,873	15.8%	346	2,597,963	66.8%	408	3,886,950
17 Plastics products	24	1,059,517	35.3%	6	148,820	5.0%	119	1,789,183	59.7%	149	2,997,520
48 Machines and equipment	19	913,147	45.0%	6	193,700	9.5%	69	923,683	45.5%	94	2,030,530
25 Other manufacturing	26	993,588	46.7%	5	60,083	2.8%	113	1,071,842	50.4%	144	2,125,512
8 Textiles and fabrics	15	546,211	25.1%	7	496,270	22.8%	60	1,134,887	52.1%	82	2,177,368
61 Other business activities	77	808,143	25.8%	12	224,372	7.2%	290	2,097,419	67.0%	379	3,129,934
1 Agriculture for exports	42	764,008	19.0%	12	267,297	6.7%	300	2,982,991	74.3%	354	4,014,296
28 Vehicle sales	19	740,019	25.9%	6	200,104	7.0%	251	1,912,518	67.0%	276	2,852,641
18 Glass and glass products	4	896,524	75.6%	1	34,004	2.9%	7	255,605	21.5%	12	1,186,132

Table A.2b: Foreign and domestic firms by sector in order of total assets of foreign firms (continued…)

Sector	Foreign majority-owned			Foreign minority-owned			Domestic firms			Total	
	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)
9 Clothes	16	763,854	34.4%	5	150,257	6.8%	133	1,308,036	58.9%	154	2,222,147
16 Rubber products	4	648,270	83.0%	1	37,264	4.8%	13	95,976	12.3%	18	781,510
19 Mineral products	5	304,074	21.0%	5	249,917	17.3%	35	892,288	61.7%	45	1,446,279
14 Editorial and printing	14	406,271	18.8%	4	140,320	6.5%	108	1,610,930	74.7%	126	2,157,521
27 Recidential construction	15	481,235	10.6%	0	0	0.0%	273	4,053,954	89.4%	288	4,535,189
62 Civil construction	15	171,693	9.3%	5	276,797	15.0%	123	1,401,718	75.8%	143	1,850,209
24 Manufacturing of OMT	4	197,312	48.4%	1	176,519	43.3%	5	33,976	8.3%	10	407,807
39 Other community services	15	283,730	27.5%	3	24,980	2.4%	82	722,409	70.1%	100	1,031,120
60 Information systems	25	262,769	50.7%	1	11,518	2.2%	25	243,962	47.1%	51	518,249
43 Cattle farming	14	131,745	7.1%	5	80,930	4.4%	173	1,645,377	88.6%	192	1,858,052
31 Accommodation	4	150,107	15.5%	2	48,965	5.0%	77	771,116	79.5%	83	970,189
65 Food retail	7	180,257	41.5%	0	0	0.0%	40	254,540	58.5%	47	434,797
54 Storage	21	156,696	38.2%	3	15,137	3.7%	62	238,594	58.1%	86	410,426
26 Electricity generation	9	164,638	72.3%	0	0	0.0%	7	63,129	27.7%	16	227,767
56 Radio and television	6	146,741	6.8%	4	14,618	0.7%	50	1,999,742	92.5%	60	2,161,102
46 Other products	3	101,837	14.7%	3	43,887	6.3%	28	546,992	79.0%	34	692,716
63 Construction preparation	9	39,122	4.1%	6	66,066	6.9%	105	849,535	89.0%	120	954,722
11 Shoes and footwear	2	61,668	22.4%	2	36,717	13.3%	17	177,152	64.3%	21	275,537
38 Health and social services	3	92,219	13.5%	1	5,177	0.8%	30	583,964	85.7%	34	681,359
59 Fishing	3	31,318	10.1%	1	55,281	17.8%	18	223,255	72.1%	22	309,854
10 Leather	0	0	0.0%	1	56,626	29.4%	17	136,304	70.6%	18	192,930
41 Sales of fuels and lubricants	3	52,450	20.9%	1	3,906	1.6%	51	194,074	77.5%	55	250,429
50 Transportation by air	3	53,853	51.5%	0	0	0.0%	6	50,778	48.5%	9	104,632
4 Extraction of other minerals	4	35,151	12.6%	2	6,384	2.3%	22	237,307	85.1%	28	278,841
47 Publication of periodicals	3	22,877	7.0%	1	1,639	0.5%	16	301,762	92.5%	20	326,277

Note: OMT stands for other means of transportation.

Table A.2c: Foreign and domestic firms by sector in order of total assets of foreign firms (continued…)

Sector	Foreign majority-owned			Foreign minority-owned			Domestic firms			Total	
	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)	% of Total	No of firms	Assets (COP mn)
42 Other agricultural sectors	4	12,256	4.1%	1	357	0.1%	30	286,347	95.8%	35	298,960
12 Wood products	1	6,487	6.1%	1	5,777	5.4%	17	93,861	88.4%	19	106,124
66 Tourism activities	3	8,803	8.4%	0	0	0.0%	30	95,404	91.6%	33	104,207
37 Education	3	7,246	2.1%	0	0	0.0%	8	332,507	97.9%	11	339,753
49 Transportation by sea	3	4,305	34.6%	0	0	0.0%	3	8,119	65.4%	6	12,424
45 Forestry	0	0	0.0%	0	0	0.0%	15	816,259	100.0%	15	816,259
7 Tobacco	0	0	0.0%	0	0	0.0%	1	346,223	100.0%	1	346,223
32 Cargo transportation by land	0	0	0.0%	0	0	0.0%	31	187,817	100.0%	31	187,817
52 Other passenger transport.	0	0	0.0%	0	0	0.0%	16	42,173	100.0%	16	42,173
33 Mail delivery	0	0	0.0%	0	0	0.0%	2	7,279	100.0%	2	7,279