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The effects of a monopolistic market structure on the assessment of privatized companies: The Colombia case[1]

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ABSTRACT

The purpose of this study is to determine whether companies privatized in Colombia during the 1990s had a substantial increase in productivity and profitability as a result of management changes that must have occurred or, on the contrary, these companies continued to have similar performance levels. The latter contradicts the assumption that new owners would implement substantial strategic changes - as international experience shows. If this is the case, then it would be fit to raise the following question: "What circumstances may have encouraged new owners not to make any substantial changes to the business strategies for their recently acquired companies?" A possible answer to this question is that, on the one hand, the approaches of the government to the privatization process, particularly with regard to the screening of purchasers, and on the other hand, the level of concentration of the resulting market structure after privatization could account for the difference in the behavior of new entrepreneurs vs. international practice. If the negotiating process of these companies was not transparent enough or the resulting market structure was not competitive enough, then there might not be insufficient incentives for new owners to behave more efficiently.

Keywords: privatization; Colombia; estate-owned companies; Wilcoxon´s test, use

JEL: D4; D6; M0; L1; L2.

I. INTRODUCTION

This article is the result of a research study conducted in order to assess the financial performance and productivity of companies privatized in Colombia during the 1990s. It provides a comparison of the effect of privatization in Colombia with empirical international evidence provided by other researchers on this subject, and verifies the effects that privatization has had on performance indicators, investment, and productivity of companies and the benefits for company shareholders and consumers in different countries.

Most of these research studies (see references in *Section III: Literature Review* below) have been conducted with privatized companies that operate in competitive environments. Thus, product pricing is the result of competition, which encourages and improves productivity. This study revealed that most of these companies in Colombia do not actually operate in sectors where they have other competitors.

Therefore, the significance of this study lies on the fact that it provides an analysis in a still unexplored field, thus contributing to expanding existing knowledge (acquired from previous research studies) of the behavior of privatized companies and avoiding the simplification that usually comes with generalization.

In conducting this study, information was gathered regarding financial indicators and productivity rates for 23 companies privatized in Colombia in the 1990s, covering a 2-year period before and after privatization. In order to correct any inflation effects and bias, all this data was standardized and deflated. Similar to other studies, a non-parametric test was used (Wilcoxon´s approach) to review and decide whether these information samples reflect two different kinds of processes, i.e. a management approach prior to privatization, and another approach implemented after privatization, or privatization has given rise to substantial changes in the management approach.

This study is organized into eight different sections, the first of which is this introduction. Section 2 discusses the political and technical rationale for privatization. Section 3 contains a list of bibliographic references, and Section 4 presents the methodology, including a description of data used in this study. Section 5 discusses the

criteria for reviewing and formulating different hypotheses, and Section 6 shows the results. Lastly, conclusions are presented in Section 7, and final notes and recommendations are provided in Section 8.

II. POLITICAL AND TECHNICAL RATIONALE FOR PRIVATIZATION.

Though in Great Britain privatization processes date back to the late 1970s, it was in the 1990s when most privatizations occurred, particularly in Eastern European and Latin American countries. In Colombia the privatization process began in the early 1990s when a vast majority of estate-owned companies were transferred to the private sector in that decade. At the present time there are only a few companies that are still in possession of the government: companies in the oil industry; some banks that were nationalized during the financial crisis in the late 1990s, which are now in the process of returning to the hands of the private sector; some local public utility companies; and national telecommunications companies.

The issue of privatization continues to raise controversy nowadays. Some view privatization as a new liberal policy fueled by the World Bank and the International Monetary Fund [Stiglitz, J. (2000), Wortzel, H. y Wortzel, L. (1989)] which is aimed at transferring investments - once owned by governments and nationals - to the private sector, especially to the equity of multinationals. Many of these companies engage in either the provision of utilities or the manufacture of certain commodities with a rather social orientation. Some believe that there are no economic or political justifications for privatizing companies that operate as natural monopolies because privatization would entail transferring the benefits of a monopoly to a group of private shareholders, which would be detrimental to the rest of society [Atkinson and Stiglitz (1980)].

Others see privatization as an indispensable result of the development that society has had with respect to the role of the estate [Alesina, A. and Drazen, A. (1991), Barberis, N., et al. (1996), Boardman, A. and Vining, A. (1989), Boycko, M. et al. (1996), La Porta et al. (1997), Millward, R. (1982), and Shleifer, A. and Vishny, R. (1994)]. A large number of new constitutions in countries around the world or reforms to old constitutions passed after the 1970s delegate new duties upon government agencies and institutions, adopt a market-based economy, and thus set forth the guidelines for

competition in the provision of public, financial and other services. They also provide an open window so that both production and distribution activities, which used to be within the exclusive scope of the duties of the governments, can be undertaken by private individuals.

For many, privatizations are a logical result of the government's failure as an entrepreneur. They believe that the government somehow lost direction when the governments of western countries began to become involved as entrepreneurs during the 1950s in the time of the former Soviet Union. This involvement occasionally and particularly limited the goals set for social welfare in developing countries to the funds that remained in the public budgets after estate-owned companies received all required funding. It is argued that estate-owned companies fostered inefficiency, partly because governments used these companies to pay back political favors, thus increasing the payroll unnecessarily and also because there was no awareness of efficient production, considering that most of these companies operated in monopolistic markets. Some research studies also point out that corruption and payback of favors to the private sector are closely linked to the employees of estate-owned companies.

Lastly, some researchers have come to the conclusion that keeping estate-owned companies up-to-date with the pacing of current technologies was not one of the government´s priorities at the time. Therefore, this resulted in a loss of competitiveness of these and other customer companies in the international arena, which evidently put economic activities in different regions or countries in a seriously disadvantageous position.

This situation became more obvious in the time when economic opening processes took place, especially in developing countries, leading the private sector to demand efficiency from the government. Efficiency would enable private companies to have equal opportunities to compete on the international market and not lose their domestic market share to international competitors who would profit from a higher efficiency in the procurement of commodities or basic services.

There are clear examples that illustrate inefficiency, corruption, bureaucratization, and technological delay in several sectors run by the Colombian government such as power

generation, water supply, telecommunications, banking services, fuel distribution, automobile industry and goods.

The productivity lag in Colombia in the 1980s led local companies to clash strongly with foreign companies that entered the market in the early 1990s. Foreign companies owned more capital and had higher productivity levels. Therefore, local companies in the 1990s were forced to go through a restructuring process, of which the privatization process was a supplementary mechanism that not only facilitated a prompt restructuring of industrial equipment and services, but also encouraged private investment in public infrastructure.

In addition to this, after 1996, the Colombian economy entered a recession period which, added to an unusual increase in public spending and a considerable increase of fiscal deficit and public debt, led the government to take this situation as an incentive to put its companies out for sale. Some authors view this circumstance as an incentive for privatization [Gala (1994), Megginson (1994), and Boubakri et Cosset (1998)]. They also note that political parties tend to accept harsh economic measures, such as privatization, when the social costs of a crisis reach the highest levels [Alesina and Drazen (1991), and Drazen and *Grillo (1990)]*.

III. LITERATURE REVIEW

Studies of the efficiency of the estate as an entrepreneur in the 1980s and in the early 1990s were followed by studies about the privatization of companies and its related consequences in the late 1980s and during the 1990s. A summary of some of the main studies is provided below:

A. Political Issues

A number of studies associate the main outcome of the privatization process with a change of company goals because the main purpose of estate-owned companies is to optimize social benefits. Once privatized, however, these companies primarily seek the optimization of their shareholders´ profits [Procianoy and Fontoura (2001), Bailey (1986), Bishop and Kay (1989), Kikeri (1994), and Galal (1992)]. Improving productivity becomes an imperative upon privatization as a means to optimize the value of the company and, in turn, the shareholders´ profits. This is contrary to the purpose of

estate-owned companies which seek the optimization of social benefits [Haskel and Sanchis (1995), Barberis, Boycko, Schleifer, and Tsukanova (1996)].

Some authors have also argued that governments generally encourage privatization processes either when the economy is experiencing difficulties or when the estate is running on a deficit [Galat (1994), Megginson (1994), and Boubakri and Cosset (1998)]. In the latter case, the estate is encouraged to move to privatization because the funds obtained from selling the companies can be used for financing public spending or reducing public debt.

On the other hand, other studies show that privatization is aimed at decreasing corruption levels in some public companies where managers see corruption as a regular practice that ensures effective performance of the companies. In other cases, excessive personnel recruitment is an accepted mechanism to secure political support in the future and achieve favorable changes in the regulations [Schleifer and Vishny (1994)]. Privatized companies, on the contrary, are able to eliminate corruption because they need to increase competitiveness and efficiency levels. To this end, they also adopt codes of conduct towards the different stakeholders in the presence of transparent government codes [Picot and Kaulman (1989), Vining and Boardman (1992), and La Porta and López de Silanes (1997)]. Additionally, after privatization, it is the companies´ shareholders who are held liable for the actions of the company managers. The government will not back them up to cure the detrimental effects of any improper management decisions as it used to be the case prior to privatization.

B – Economic and Productivity Issues

The privatization process has also shown to bring about an increase in the levels of investment on privatized companies [Procianoy and Fontoura (2001), and Kikeri et al. (1992)]. Therefore, governments have viewed privatization as a sound option to avoid the allocation of government funds to the modernization of estate-owned companies. International experience shows that new company owners become interested in obtaining an attractive profitability level from their capital investments [D‘Souza and Megginson (1999), and Procianoy and Fontoura (2001)]. Some studies, however, point out that there is a reduction in the degree of leverage of privatized companies. This is

due to the fact that governments no longer provide debt payment securities which may increase financing costs to new entrepreneurs [Megginson et al. (1994), Boubakri and Cosset (1998), Procianoy and Fontoura (2001), Bradley, Jarrel and Kim (1984)]. Nevertheless, private companies have a wide range of opportunities to access capitals markets to place bonds, stock, or ADR's, which provide sources of capital at a lower cost than that of regular credits [Procianoy and Fountura (2001), Megginson et al. (1994), Boubakri and Cosset (1998), and D'Souza and Megginson (1999)].

Other authors contend that the government tends to provide inefficient subsidies for the manufacture of products of questionable value in estate-owned companies in order to maximize employment and achieve other socially desirable objectives [Boycko et al (1996)], thus rewarding inefficiency and lowly profitable investments. Evidence shows that, having transferred ownership, these companies conduct a process to select goods and services in the first two years following privatization. This selection process enables the companies to remove unprofitable goods and services from their portfolios, thereby improving the generation of profits [Shleifer and Vishny (1994), Galal et al. (1992), Bishop and Kay (1989), and Kikeri et al. (1994)].

Studies show that there is a significant productivity increase in the companies after privatization. Indicators such as the percentage of profits on sales; working capital turnover, and total assets; costs per employee, sales per employee; profit per employee; and the increase of company value substantially improve after privatization. This proves the hypothesis that management changes work as a new "*approach*" to operating companies. Thus, the mean or the median of these indicators is different from the one that companies had before privatization [Megginson, Nash and Randenborg (1994), Pinheiro (1996), La Porta and López de Silanes (1997), Boubakri and Cosset (1998), and Procianoy and Fontoura (2001)].

Privatization tends to encourage employees in order to increase sales and cut down on costs. This entails increasing productivity rates by improving management and allocation of resources, including human talent, assets, and technology [Procianoy and Fontoura (2001), Pinheiro (1996)]. Having undergone a privatization process, companies showed an improved performance rate of approximately 85%, which led to a

substantial increase of profits and profitability [Procianoy and Fontoura (2001)]. Some studies report that, as a result of the increased value of privatized companies, there is an increase in the distribution of dividends among shareholders after privatization [Procianoy and Fontoura (2001), and D'Souza and Megginson (1999)].

Nevertheless, the employment rate does not grow when there is a substantial improvement of labor productivity. Estate-owned companies may either employ excessive labor as a mechanism to secure political support [Schleifer and Vishny (1994)] or tend to subsidize production inefficiently to maximize employment generation and achieve other socially desirable objectives [Boycko et al. (1996)]. Consequently, many employees are forced to leave their jobs because privatization has no room for excessive labor. Having reviewed a sample of 6,300 privatized companies in Eastern European countries, it was found that the employment rate dropped by 20% [Claessens and Djankov (1998)]. A similar effect was observed in both Brazil and Mexico [Pinheiro (1996), and La Porta and López de Silanes (1997)].

C – Issues related to market competitiveness

In assessing privatized companies, it is critical to consider the structure of the market in which these companies operate. The assumption that the owners of privatized companies are willing to make investments and improve productivity may not always be true for companies operating in low-competitive markets. This situation has provided the foundation for arguments that advocate for estate-owned companies in developing countries when markets are relatively small and regulation of natural monopolies is rather difficult [Atkinson and Stiglitz (1980)]. Some authors believe that the presence of competitors is more important than privatization when it comes to achieving production efficiency [Vickers and Yarrow (1991), Kay and Thompson (1986), Millward (1982), and Wortzel and Wortzel (1989)], but there are exceptions. A study of privatized companies in Canada [Vining and Boardman, (1992)] revealed that, although the authors who conducted the study did not rule out the significance of competition, there was no evidence to show that competition played a major role in the improved performance or efficiency of private and estate-owned companies. It is worth noting that Canada has strong regulatory mechanisms in place to offset the effects of the lack of competition that certain economic sectors have to deal with.

Some authors affirm that although estate-owned companies would have an efficient performance if they operated in markets where competition was available because then there would be an incentive to achieve lower unit costs, even if the cost differentials were small. Therefore, the ownership of these companies would not be a relevant issue associated with efficiency [Millward (1982), Worzel and Worzel (1989), and Borscherding (1988)]. However, as mentioned in the introduction above, in general, these studies have been conducted in competitive environments [Procianoy and Fontoura (2001), Boardman and Vining (1989), Picot and Kalmaun (1989), Boubakri and Cosset (1998)] so there is not sufficient evidence of the effects of privatization on economies, in which goods and services are traded on markets that are highly focused on the supply side. This has occurred to public utility companies and financial institutions that have undergone privatization in countries such as Colombia.

In the case of utility companies, the existing natural monopolies make it difficult for service users to be able to select the most convenient provider. Financial institutions, on the other hand, face an inelastic demand for financial services and a high concentration of ownership in the banking sector, which creates no incentives for bankers to improve the services they provide, which would call for major investments on technology in order to decrease costs. Therefore, banking services and agency fees are high in a relatively inelastic demand for credit, which is normal in Colombia, considering that the capitals markets are weak.

IV. METHODOLOGY AND DISCUSSION OF DATA

A. The sample

The purpose of this study was to conduct an evaluation of the effect that privatization processes have had on several economic sectors, including mining, manufacturing, banking, and public utilities in Colombia and compare this effect against evidence provided by a plethora of international studies. To this end, a number of variables from the balance sheets and profit & loss statements of 23 companies privatized in the period from 1990 to 2000 were reviewed. Gathering this information was possible thanks to the valuable cooperation of different entities such as: the recently dissolved Institute to foster industrial activities (IFI), the archives of the Ministry of Finance, the Chambers

of Commerce headquartered in the major cities in Colombia, several companies which are directly involved, and the Superintendences of Corporations, Household Public Utilities, Banking Services, and Industry and Commerce.

These 23 companies belong to four different sectors of the Colombian economy as detailed below: i) Banking sector (Banco Tequendama, Banco Popular, CORPAVI, Banco de los Trabajadores, Banco del Comercio and Bancolombia); ii) Manufacturing sector (Cementos Boyacá, Ferticol, Quibi, Colclincker, and Fatextol); iii) Public utility sector (Acuaviva, Acuacar, Emcartago, Corelca, ISA, Empresas públicas de Barranquilla, Electrocosta and Electricaribe); iv) the mining sector (Prodesal del Cauca S.A., Colgás de Occidente S.A., Surtigás, and Carbocol). Information about these companies is listed in Chart No. 2.

This study did not include companies that were either privatized after the year 2000 or those that resulted from government granted franchises for the provision of services such as the sea ports and some airports, where there was no transfer in the ownership of assets. Similarly, it was also necessary to exclude those companies for which information prior to the privatization process was not available. Chart No. 1 shows a large number of the companies that went private in Colombia in the 1990s.

It is worth noting that all the 23 companies included in this study are now operating in sectors under conditions of serious competitive restrictions in Colombia. All of them hold a high level of power on the market. Utility companies such as water, power, and gas supply companies operate as natural monopolies because the users were not in the position of being able to select a another service provider at the time when the information was gathered. Manufacturing companies such as cement and agricultural fertilizer manufacturers operate in duopolistic sectors. Mining companies are monopolies engaged in the exploitation of minerals and energy sources. Banks are in a highly concentrated sector, in which one of the bank owners alone holds 25% of the ownership stock, and the three main groups of owners account for 80% of the sector. This condition needs to be taken into account in analyzing the evaluation of the hypotheses because, as mentioned earlier, this is a fundamental characteristic that differentiates the conditions of competitiveness in the market for companies included in studies for which no international information is available.

Chart No. 1: Companies privatized in Colombia (1990-2000)

Companies		SECTOR	Date sold	Amount U.S. million
BEFORE	AFTER			
Prodesal del Cauca S.A.	Prodesal del Cauca S.A.	**Mining**	1991	3.5
Colgas Occ. S.A.	Colgas Occ. S.A.	**Mining**	1999	0.08
Surtigas	Surtigas	**Mining**	1999	0.22
CARBOCOL	Cerrejon Zona Norte	**Mining**	2000	433
PROCARBON	PROCARBON	**Mining**	1991	0.0153
Promigas	Promigas	**Mining**	1997	2.95
Gas Natural	Gas Natural	**Mining**	1997	17.46
Invercolsa	Invercolsa	**Mining**	1999	Not available
Gases Guajira	Gases Guajira	**Mining**	1993	Not available
FOSFOBOYACA S.A	FOSFOBOYACA S.A	**Mining**	1990	Not available
Terpel Sabana	Terpel Sabana	**Mining**	1993	8.34
Terpel Bucaramana S.A	Terpel Bucaramana S.A	**Mining**	1993	9.78
Terpel del Centro S.A	Terpel del Centro S.A	**Mining**	1993	0.28
Terpel Sur S.A	Terpel Sur S.A	**Mining**	1993	8.27
Terpel Norte S.A	Terpel Norte S.A	**Mining**	1993	0.9
CORFIDESARROLLO	CORFIDESARROLLO	**Financial Services**	1993	4.8
COKOSILK S.A	COKOSILK S.A	**Financial Services**	1997	0.8
Papelcol	Papelcol	**Manufacturing**	1990	32.3
Álcalis Betania	Álcalis Betania	**Manufacturing**	1997	19
Cementos Boyacá	Cementos Boyacá	**Manufacturing**	1991	NA
Ferticol	Ferticol	**Manufacturing**	1992	NA
Quibi	Quibi	**Manufacturing**	1996	0.6
Colclincker	Colclincker	**Manufacturing**	1990	3,8
COPESCOL	COPESCOL	**Manufacturing**	1991	1,5
CICOLSA	CICOLSA	**Manufacturing**	1990	N/A
AICSA S.A	AICSA S.A	**Manufacturing**	1990	0.4
ING. RISARALDA S.A	ING. RISARALDA S.A	**Manufacturing**	1990	1.9
RIOCLARO S.A	RIOCLARO S.A	**Manufacturing**	1990	4,4
C.C.A	C.C.A	**Manufacturing**	1990	NA
COSEDA	COSEDA	**Manufacturing**	1991	0,4
ASTIVAR	ASTIVAR	**Manufacturing**	1991	0,2
TEXPINAL	TEXPINAL	**Manufacturing**	1991	5.6
PROVICA	PROVICA	**Manufacturing**	1991	0.1
CONASTIL	CONASTIL	**Manufacturing**	1992	1.5
PENNWALT	PENNWALT	**Manufacturing**	1992	1.8

Source: (1) Pombo, Carlos and Ramírez, Manuel"Privatization in Colombia: A plant performance analysis".Universidad del Rosario. Bogota 2001 (2) Privatizations and franchises in Colombia. 1990-2001.CONFIS, July 2001.

Chart No. 1 (continued): Companies privatized in Colombia (1990-2000)

Companies		SECTOR	Date sold	Amount US million
BEFORE	AFTER			
FRIGOPESCA	FRIGOPESCA	Manufacturing	1994	3.2
INTELSA	INTELSA	Manufacturing	1995	0.2
COSECHAR	COSECHAR	Manufacturing	1995	Not available
FATEXTOL	FATEXTOL	Manufacturing	1993	0.8
Cerromatoso	Cerromatoso	Manufacturing	1997	154
NITROVEN	NITROVEN	Manufacturing	1997	20.3
EMPALMIRA	ACUAVIVA	Utilities	1997	Not available
Empresas Públicas de Barranquilla	Triple A	Utilities	1997	Not available
EMCARTAGENA	ACUACAR	Utilities	1995	Not available
EMCARTAGO	Emcartago Teléfonos de Cartago Cartagüena de Aseo	Utilities	1997	Not available
ISA	ISA ISAGEN	Utilities	1996	Not available
Archipielago´s Power and Light Company	San Andrés Power & Light	Utilities	1998	Not available
ElectroBolivar Electrosucre Electrocórdoba ElectroMagangué	ELECTROCOSTA	Utilities	1998	1,035
ElectroGuajira ElectroCesar ElectroMagdalena ElectroAtlántico	ELECTRICARIBE	Utilities	1998	
C.V.C	EPSA	Utilities	1995	622
Betania	Betania	Utilities	1996	506
Chivor	Chivor	Utilities	1996	641
Termocartagena	Termocartagena	Utilities	1997	18
Termotasajero	Termotasajero	Utilities	1998	16
CORELCA	Corelca Transelca	Utilities	1998	185
CORPAVI	COLPATRIA	Banking	1994	622
Banco de los Trabajadores	Banco Mercantil de Colombia S.A.	Banking	1992	5
Banco del Comercio	Banco de Bogotá	Banking	1992	61
Banco Popular	Banco Popular	Banking	1996	274
Banco Tequendama	Banco Tequendama	Banking	1997	33
Latincorp	Banco Uconal - Banco del Estado	Banking	1992	20
Banco Central Hipotecario	Banco Central Hipotecario	Banking	1994	156
Proexpo	Bancoldex	Banking	1994	1
Bancolombia	Bancolombia	Banking	1994	326

Source: (1) Pombo, Carlos and Ramírez, Manuel"Privatization in Colombia: A plant performance analysis".Universidad del Rosario. Bogota 2001 (2) Privatizations and franchises in Colombia. 1990-2001.CONFIS, July 2001.

The collection of data focused on the main financial and operational indicators of each company, two years before and two years after the privatization process took place. Then, this information was used for conducting a statistical study to evaluate the historical performance of these companies in each of these 2-year periods and to prove the hypothesis that management changes that occurred after the privatization process

translated into substantial changes in the financial and productive results of the companies. This information was used in the Wilcoxon signed-rank test that compared the means (or medians) of two random samples of the same population before and after undergoing a given "process"[3], i.e. the change in the management approach. The results of the Wilcoxon test are shown in Schedule 1, Table 1. Both standardized and deflated variables of each company in the sample are listed in Schedule 2, Table 1.

Chart No. 2: Companies privatized (included in this study) in Colombia in the time period from 1990 to 2000

PRIVATIZED COMPANIES		Date sold	Sector
Before	After		
Colclincker	Colclincker	1990	Industrial
Prodesal del Cauca S.A.	Prodesal del Cauca S.A.	1991	Mining
Cementos Boyacá	Cementos Boyacá	1991	Industrial
Ferticol	Ferticol	1992	Industrial
Banco de los trabajadores	Banco mercantil	1992	Banking
Banco del comercio	Banco de Bogota	1992	Banking
FATEXTOL	FATEXTOL	1993	Industrial
EMCARTAGENA	ACUACAR	1994	Utilities
CORPAVI	COLPATRIA	1994	Banking
Bancolombia	Bancolombia	1994	Banking
Quibi	Quibi	1996	Industrial
ISA	ISA ISAGEN	1996	Utilities
Banco popular	Banco popular	1996	Banking
Empresas Publicas de Barranquilla	Triple A	1997	Utilities
EMPALMIRA	ACUAVIVA	1997	Utilities
EMCARTAGO	Emcartago Telefonos de Cartago Cartagueña de Aseo	1997	Utilities
Banco Tequendama	Banco Tequendama	1997	Banking
CORELCA	Corelca Transelca	1998	Utilities
ElectroBolivar ElectroSucre ElectroCórdoba ElectroMagangué	ELECTROCOSTA	1998	Utilities
ElectroGuajira ElectroCesar ElectroMagdalena ElectroAtlantico	ELECTRICARIBE	1998	Utilities
Colgas Occ. S.A.	Colgas Occ. S.A.	1999	Mining
Surtigas	Surtigas	1999	Mining
CARBOCOL	Cerrejon Zona Norte	2000	Mining

[3] In this case, "process" refers to the year when the company was privatized.

B – Methodology

In order to ensure that the analysis of results from this study was consistent with international experience, information was reviewed based on the methodology of a statistical procedure followed by other authors [Megginson and others (1994), Pinheiro (1996), and Procianoy and Fontoura (2001)] to accept or reject the hypothesis that the transfer of ownership from estate-owned companies to private companies brings along a substantial change in the management approach.

The hypothesis was proven using the Wilcoxon signed rank test on the medians of the samples of financial and productivity data from privatized companies, two years before and two years after privatization.

In general terms, the Wilcoxon signed-rank test is a non-parametric test[4] that allows determining whether or not there is a difference in the medians of two given samples. Thus, the purpose of this test is to compare the means (or medians) of two random samples of a given population before and after a "process"[5]. The test enables one either to prove hypotheses associated with the assumption that changes observed in financial and productivity variables reflect a new management approach or otherwise to show that management policies continue to be similar after a company is sold.

The samples of the aforementioned companies reviewed in this study consist of the following information: assets, liabilities, patrimony, operating profit, net sales, operational costs and expenses, headcount, cash flow, leverage, level of indebtedness, sales per employee, net profit per employee, cash flow per employee, average cost per employee, and profitability of assets (two years before and two years after privatization), expressed in par value. Then the data were standardized to reduce the impact of the different sizes of the companies. Similarly, data were deflated[6] to incorporate the effects of inflation and ensure that they reflected actual performance.

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[4] Non-parametric tests are used when i) the distribution of population is unknown; and ii) inference is based on hypotheses that are valid for a wide range of distributions.

[5] In this study, this reflects the change of management approach that occurs in the year *t* when ownership is transferred from estate-owned companies to private companies.

[6] Based on data as of December 2003

Data associated with both standardized and deflated variables are shown in Schedule 2, Table 1.

Information for this study was gathered via electronic mail, telephone, facsimile or personal visits to the companies, Superintendences of Industry and Commerce, Household Public Utilities, and Banking, including the Chambers of Commerce in the cities where the companies are registered. This was a hard task because, in some cases information prior to the privatization of the companies was not readily available. Because of this, it was necessary to exclude several companies from this study.

V. CRITERIA FOR ANALYZING AND FORMULATING HYPOTHESIS

The main hypothesis raised by this research project lies on the assumption that there is a difference in the medians of random samples of financial and productivity information, before and after privatization. This difference would imply that the medians come from two different samples after undergoing a given "process", i.e. privatization, which implies a substantial change in the management approach. The mean performance of a given variable, e.g. sales per employee, in any given period $(t+1)$ after privatization takes the performance of the mean for the same variable in the period $(t-1)$ before privatization, as in the model that it is compared against [Barber and Lyon (1996)]. Therefore, for each variable under study, the atypical performance (DA) of a company in the period after privatization is determined by the difference between performance in that period and performance in the equivalent period before privatization $(DA_{j,t+1} = D_{j,t+1} - D_{j,t-1})$, whereas *j* is the name of the variable and *t* is the period in which privatization took place.

It is necessary to analyze the validity of the null hypothesis (H_O), which assumes that the difference between the mean performance before and after privatization equals zero, i.e. that there is no statistically significant difference. This would imply that there was no fundamental change in the management approach before and after privatization.

The alternate hypothesis (H_A), on the other hand, assumes that the difference in the mean performance of the variables reviewed before and after privatization is not zero, i.e. that the difference is statistically significant, which would imply that there is a fundamental difference in the management approach before and after privatization.

To prove the null hypothesis (Ho), the (2-tailed) Wilcoxon test was used, whereas D was the mean of indicator *j* at a given time *t*. Hypotheses in this study were formulated as follows:

H_O: There are no changes in the performance indicators of privatized companies $((D_{j,t+1} = D_{j,t-1})$. Said in other words, the privatization "process" had no effects on the performance indicators.

H_A: Privatization resulted in a change in the performance indicators of these companies, i.e. the privatization process had an impact on the performance $(D_{j,t+1} \neq D_{j,t-1})$

Consequently, the hypotheses raised by this study are aimed at determining whether or not the privatization process that took place in Colombia in the time period from 1990 to 2000 had an impact on the: (1) growing rate; (2) productivity and performance; (3) leverage; 4) profitability, and (5) profits of the companies (see Chart No.3)

The configuration of the analyzed sample allows using the Wilcoxon standard statistical test, which is necessary to assess the influence of privatization on the performance of the companies.

Chart No. 3: Variables considered in reviewing the hypotheses raised by this study

Hypothesis	Variable	Description
Growing rate	**VNT**	Net sales
	UTO/VNT	Operational profit /net sales
Productivity & Performance	**VPE**	Sales per employee
	UTNPE	Net profit per employee
	CTOPE	Average cost per employee
	FJEPE	Cash flow per employee
	NDE	Headcount
Leverage	**PTT/PTL**	Total liabilities /Patrimony
	NLE	Level of indebtedness
	ACT	Total assets
	PTT	Total patrimony
	PTL	Total liabilities
Profitability	**RTA**	Profitability of assets
Profit	**UTO**	Operational profit
	UTN	Net profit

VI. RESULTS OF HYPOTHESIS PROOFS

The results associated with proving the hypothesis discussed in this study are shown in Schedule 1, Table 1. The terms used for describing each variable are also listed in the same schedule in Table 2.

A – The variables associated with the hypothesis of productivity, performance, and growing rate.

The differences in the mean variables[7] used for evaluating the hypotheses of productivity, performance, and growing rate, before and after privatization, were not significant[8], thus ditching the null hypothesis (H_0) that assumed that these differences were equal to zero. This could be construed as a lack of sufficient evidence to affirm that the mean values of these variables differ from each other and, therefore, it would be unacceptable to state that there was a change in the management approach related to the

[7] Net sales, operational profit on net sales, sales per employee, net profit per employee, average cost per employee, cash flow per employee, and headcount.

[8] For significance levels of 1%, 5%, and 10%.

productivity, performance, and growing rate of companies after privatization.

The results revealed that the levels of net sales, operational profit on net sales, sales per employee, net profit per employee, average cost per employee, cash flow per employee, and headcount of the companies analyzed in the sample did not experience any substantial changes after the privatization process that took place in the 1990s in Colombia. This conclusion may be the result of one of two possible scenarios that might have occurred during the privatization process that took place in the period under review, i.e. (1) the negotiation process of the companies was not transparent enough or (2) the structure of the resulting market was not competitive enough (either monopolies or duopolies), so it provided no incentives for new company owners to seek higher productivity rates.

B- The variables of the hypothesis of Profitability, Profits, and Leverage

The results of the Wilcoxon test also showed that some of the variables - such as total assets, total patrimony, total liabilities, profitability of assets, and operational profit - used for evaluating the hypothesis of profitability, profits, and leverage were not significant, which means that there is not sufficient evidence to affirm that there is a change in the management approach after the privatization process.

Nevertheless, the tests yielded significant[9] results for two variables, i.e. total liabilities over patrimony (leverage) and net profit, thus rejecting the null hypothesis (H_0) and accepting the alternate hypothesis (H_1). This implies that the differences in the means of these variables are in fact different from zero and, therefore, are the result of a change in the management approach after privatization.

In short, only two out of the fifteen[10] variables considered in this study (see Chart No.3) turned out to be significant, i.e. net profit (UNT) and leverage (PTT/PTL). The rest of the variables, particularly those associated with productivity and performance of the companies were not significant. This enables us to draw the conclusion that

[9] 1% significance for PTL/ PTT and 5% for UTN.
[10] Variables that encompassed five different hypotheses.

management activities that shaped those variables did not have a substantial improvement after privatization. As mentioned earlier, a possible explanation for this is that the companies that comprise the sample operate in either monopolistic or duopolistic markets, and thus, there is not sufficient competition in their markets that could encourage substantial changes to improve productivity and performance. A number of studies conducted by other authors in other parts of the world (see list in Section III) reflect the results of statistical tests used with companies that operate under competitive market conditions.

On the other hand, the significant result of the Wilcoxon test for the net profit of the privatized Colombian companies, which were included in this study, is consistent with international experience in that the level of net profits is higher for private companies than for public companies. The reason for this maybe that, when a public company becomes private, the managers show a greater deal of interest in the generation of profits than in other factors such as social or governability issues for which estate-owned companies care so much. Other studies listed above provide evidence of this [Porcianoy and Fontoura (2001), Bailey (1986), Bishop and Kay (1989), Kikeri (1994), Galal (1992), Haskel and Sanchis (1995), Barberis, Boycko, Shleifer y Tsukanova (1996)]. In addition to this, the theory of companies in monopolistic markets argues that managers dispose of tools that enable them to increase the prices to make them suitable for an optimal production volume in such a way that marginal costs equal marginal revenues. This allows optimizing profits even when production performance is not optimal.

The leverage level (*total liabilities/total patrimony*) of the companies in the sample was higher after privatization probably because the new owners needed to make a greater investment on assets (financing it with liabilities) in order to adjust the production capacity to the demand for goods or services. This increased investment might have led new owners to take loans that increased their debt levels, and in turn, their leverage level. This result is not consistent with the results of other authors listed in the literature above because, according to their studies [Bradley, Jarrel and Kim (1984), Porcianoy and Fontoura (2001), Megginson and others (1994), Boubakri and Cosset (1998), and D‘Souza and Megginson (1999)], the privatization process causes a reduction in the leverage level of the companies. When the government no longer holds ownership of

privatized companies, the debt payment securities are no longer in place. Thus, new owners have to look for other sources of funding such as cash calls, which are some of the most inexpensive options. Because of their reluctance to the placement of shares as a fund raising alternative, Colombian entrepreneurs decide either to take loans with financial institutions or to issue bonds, which increases leverage as shown by the results of the Wilcoxon test.

VII. CONCLUSIONS

This study looks into some financial and productive variables of 23 Colombian companies - privatized in the time period from 1990 to 2000 - engaged in four different economic sectors (i.e. manufacturing, public utilities, mining, and banking) operating in monopolistic or low- competitive markets. Based on the analysis of these variables, it provides a comparison of the performance of the companies both before and after privatization.

The performance of the companies included in this study is consistent with the results from international authors with regard to the net profit variable, which represents a change in the management approach after privatization. Leverage played a significant role in the Colombia case, which differs from the results of studies by international authors. This is probably due to the fact that Colombian companies tend to show a preference to finance the growth of their assets with debt (instead of issuing shares) which can lead them to incur higher costs. However, since these companies operate in low competitive markets, the financing costs are easily passed on to the pricing of goods and services without affecting the generation of profits.

Notwithstanding the above, this study showed that the thirteen variables associated with productivity, performance, growing rate, and profitability did not experience any substantial changes after privatization. This result is opposite to the findings presented in large number of international studies. Therefore, there is not sufficient evidence to affirm that these variables have a different behavior before and after privatization. According to the economic theory of companies, the explanation for this finding (which differs from other studies reported) could lie in the fact that, unlike the companies reviewed in other studies mentioned above, these companies operate in non-competitive markets. Thus, the lack of competition translates into a factor that discourages

productivity improvement and thus, there are no significant changes in technological upgrade or the adoption of more efficient management and production processes for the goods or services offered by these companies - at least during the first two years following privatization. Consequently, local consumers would not receive the same kind of benefit that consumers have in other countries listed in the above mentioned literature. This situation could also bring about comparative disadvantages if one measures the competitiveness level of Colombian tradable goods that may require some products or services from these privatized companies as production supplies.

In this case, the estate plays a critical role as a regulator of a market with a large concentration of company ownership and natural monopolies to achieve a balance that not only compensates the customers of goods and services, but also follows strategies that lead to democratizing ownership and splitting companies into independent businesses according to their different characteristics and specialties, thus securing competitiveness.

Likewise, the state needs to establish clear rules to ensure that the transfer of ownership to the public sector takes place under transparent conditions and bidding processes that define the terms for participation and the restraints that the participants have in order to prevent the current concentration of ownership.

VIII. FINAL NOTES AND RECOMMENDATIONS

In general, the economic and financial results of companies, including privatized companies, are subject to many external and internal variables that are different from changes in the management approach. These variables hinder the classification of management approach changes as good or poor when only these changes are considered in evaluating the performance of a company.

Evidently there are other factors that also have an impact on performance such as the way in which privatization is conducted and the transparence of the privatization process to guarantee that new owners are selected in a process that ensures optimal skills for managing the companies.

Secondly, when the market structure that results from privatization is clearly monopolistic or has a high bias of market power - as it occurred with several companies that were privatized in Colombia in the 1990s -, it will not raise much interest among new entrepreneurs to improve the performance of privatized companies because they could optimize their profits without having to improve the conditions of production, particularly if their products have a very limited number of substitute products such as public utilities, financial facilities, cement or mining, all of which are highly concentrated in Colombia.

This is the most important contribution of the research that gave rise to this paper. It shows that privatization lose effectiveness in order to benefit the users of services or products offered by privatized companies if, prior to privatization, the estate does not take appropriate actions to implement structural changes that guarantee competitiveness on the market. This could ultimately generate a feeling of discontent towards privatizations as it happens in Colombia now, especially towards the privatization of public utility companies.

Thirdly, either the financial crisis or the contraction of the demand could have affected the financial and productive variables of companies privatized after 1996 or those companies with a performance that conforms to that of companies after 1996 when Colombia entered an economic recession period. This would have had a major impact, particularly on the financial sector, and the consumer goods and construction industries.

A further study could be conducted to isolate these external factors of privatization in order to achieve a more precise general analysis of privatized companies. However, it is at a microeconomic level where a larger number of research studies could be conducted to analyze each of the privatized companies and draw conclusions about the effects that these companies have had on the market, customer satisfaction, and benefits to the society.

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SCHEDULE

SCHEDULE 1: WILCOXON TEST RESULTS

Table No. 1: Non-parametric Wilcoxon signed-range test using the mean values of data two years before and two years after privatization.

Hypothesis	Variable	Type	No. of companies	Mean ranges	Summation of ranges	Z		Asympo.Sig. (2-Tailed)
Growing rate	VNT	Negative range	7	14.86	104	-1.034	****	0.301
		Positive range	16	10.75	172			
		Ties	0					
		Total	23					
	UTO/VNT	Negative range	15	11.73	176	-1.156	****	0.248
		Positive range	8	12.5	100			
		Ties	0					
		Total	23					
Productivity and Performance	VPE	Negative range	9	12	108	-0.912	****	0.362
		Positive range	14	12	168			
		Ties	0					
		Total	23					
	UTNPE	Negative range	9	11.22	101	-1.125	****	0.26
		Positive range	14	12.5	175			
		Ties	0					
		Total	23					
	CTOPE	Negative range	13	9.23	120	-0.547	****	0,584
		Positive range	10	15.6	156			
		Ties	0					
		Total	23					
	FJEPE	Negative range	16	10.25	164	-0.791	****	0,429
		Positive range	7	16	112			
		Ties	0					
		Total	23					
	NDE	Negative range	9	12,67	114	-0,73	****	0.465
		Positive range	14	11.57	162			
		Ties	0					
		Total	23					

(*) Ho is rejected with a 10% level of significance
(**) Ho is rejected with a 5% level of significance
(***) Ho is rejected with a 1% level of significance
(****) Not significant

Table No. 1 (continued): Non-parametric Wilcoxon signed-range test using mean values of data from two years before and after privatization.

Hypothesis	Variable	Type	Number of companies	Mean range	Summation of ranges	Z		Asympo. (2-Tailed)
Profitability	RTA	Negative range	14	10,43	146	-0,243	****	0,808
		Positive range	9	14,44	130			
		Ties	0					Sig.
		Total	23					
Profits	UTO	Negative range	10	10,8	108	-0,912	****	0,362
		Positive range	13	12,92	168			
		Ties	0					
		Total	23					
	UTN	Negative range	4	20	80	-1,764	**	0,078
		Positive range	19	10,32	196			
		Ties	0					
		Total	23					
Leverage	PTT/PT_	Negative range	5	16,4	82	-1,703	**	0,089
		Positive range	18	10,78	194			
		Ties	0					
		Total	23					
	NLE	Negative range	13	11,77	153	-0,456	****	0,648
		Positive range	10	12,3	123			
		Ties	0					
		Total	23					
	ACT	Negative range	12	10,83	130	-0,243	****	0,808
		Positive range	11	13,27	146			
		Ties	0					
		Total	23					
	PTT	Negative range	17	11	187	-1,49	****	0,136
		Positive range	6	14,83	89			
		Ties	0					
		Total	23					
	PTL	Negative range	17	9,88	168	-0,912	****	0,362
		Positive range	6	18	108			
		Ties	0					
		Total	23					

(*) Ho is rejected with a 10% significance level
(**) Ho is rejected with a 5% significance level
(***) Ho is rejected with a 1% significance level
(****) Not significant

Table No 2: Terminology

Hypothesis	Variable	Description
Growing rate	**VNT**	Net sales
	UTO/VNT	Operational profit/net sales
Productivity and Performance	**VPE**	Sales per employee
	UTNPE	Net profit per employee
	CTOPE	Average cost per employee
	FJEPE	Cash flow per employee
	NDE	Headcount
Leverage	**PTT/PTL**	Total liabilities/patrimony
	NLE	Indebtedness level
	ACT	Total assets
	PTT	Total patrimony
	PTL	Total liabilities
Profitability	**RTA**	Profitability of assets
Profits	**UTO**	Operational profit
	UTN	Net profit

Schedule No. 2

Table No. 1: Data used
PRIVATIZED COMPANIES (Before - After)

EMPRESAS PRIVATIZADAS		Fecha	ACT		PTL		PTT		UTO	
Antes	Despues	Venta	t-1	t+1	t-1	t+1	t-1	t+1	t-1	t+1
Colclincker	Colclincker	1990	-0,5935	-0,4840	-0,5903	-0,6052	-0,3324	-0,2478	-0,2191	-0,2095
Prodesal del Cauca S.A.	Prodesal del Cauca S.A.	1991	-0,6039	-0,6609	-0,6499	-0,7019	-0,3031	-0,5382	-0,3405	-0,2100
Cementos Boyacá	Cementos Boyacá	1991	-0,5257	-0,4829	-0,4884	-0,6145	-0,3027	-0,3294	-0,1444	-0,2091
Ferticol	Ferticol	1992	-0,6639	-0,6750	-0,6552	-0,6930	-0,4033	-0,5799	-0,3694	-0,2100
Banco de los trabajadores	Banco mercantil	1992	-0,5823	-0,4449	-0,5385	-0,4125	-0,3968	-0,5155	-0,3492	-0,2098
Banco del comercio	Banco de Bogota	1992	0,2895	2,3606	0,6212	2,5373	-0,2051	1,1711	-0,1151	-0,1968
FATEXTOL	FATEXTOL	1993	-0,6679	-0,6713	-0,6606	-0,6898	-0,4040	-0,5761	-0,3029	-0,2100
EMCARTAGENA	ACUACAR	1994	-0,5785	-0,6590	-0,4489	-0,6796	-0,5149	-0,5635	-0,1843	-0,2097
CORPAVI	COLPATRIA	1994	0,0483	-0,0438	0,3416	0,0861	-0,3162	-0,4220	-0,0791	-0,2081
Bancolombia	Bancolombia	1994	1,0531	1,7194	1,4671	1,9142	0,2018	0,6875	0,7280	-0,1923
Quibi	Quibi	1996	-0,6686	-0,6786	-0,6611	-0,6968	-0,4048	-0,5819	-0,3343	-0,2100
ISA	ISA ISAGEN	1996	2,1677	2,2373	0,4143	0,9741	4,0134	3,7881	3,9473	-0,1950
Banco popular	Banco popular	1996	1,8153	1,6975	2,4597	2,0096	0,3992	0,4459	0,1710	-0,2032
Empresas Publicas de Barranquilla	Triple A	1997	-0,5581	-0,5272	-0,5287	-0,5362	-0,3601	-0,4936	-0,1015	-0,2075
EMPALMIRA	ACUAVIVA	1997	-0,5514	-0,6561	-0,6478	-0,6658	-0,1785	-0,5825	-0,1469	-0,2098
EMCARTAGO	Emcartago Telefonos de Cartago Cartagueña de Aseo	1997	-0,6243	-0,6500	-0,6466	-0,6837	-0,3325	-0,5322	-0,3318	-0,2097
Banco Tequendama	Banco Tequendama	1997	-0,2168	-0,2066	-0,0996	-0,1329	-0,2498	-0,4281	-0,1356	-0,2099
CORELCA	Corelca Transelca	1998	1,4960	0,0540	0,9610	-0,2422	1,8397	0,4650	-1,4558	-0,2234
ElectroBolivar ElectroSucre ElectroCórdoba ElectroMagangué	ELECTROCOSTA	1998	-0,4886	0,2463	-0,4368	-0,0489	-0,3440	0,5977	-0,6066	-0,2172
ElectroGuajira ElectroCesar ElectroMagdalena ElectroAtlantico	ELECTRICARIBE	1998	-0,5288	0,4514	-0,5429	0,0713	-0,2690	0,9044	-0,5224	-0,2171
Colgas Occ. S.A.	Colgas Occ. S.A.	1999	-0,6763	-0,6714	-0,6688	-0,6973	-0,4101	-0,5619	-0,3321	-0,2099
Surtigas	Surtigas	1999	-0,6142	-0,6193	-0,6339	-0,6670	-0,3294	-0,4836	-0,2182	-0,2092
CARBOCOL	Cerrejon Zona Norte	2000	2,2730	-0,6355	2,6333	1,1747	-0,3974	-0,6237	1,4427	4,5872

Deflated and standardized data
(t-1) = two-year average before privatization
(t+1) = two-year average after privatization

Table No. 1: Data used

PRIVATIZED COMPANIES (Before - After)
Date sold - Sales costs and optional costs

EMPRESAS PRIVATIZADAS		Fecha	UTN		VNT		Costo vts y opnales		NDE	
Antes	Despues	Venta	t-1	t+1	t-1	t+1	t-1	t+1	t-1	t+1
Colclincker	Colclincker	1990	0,1271	0,2139	-0,4943	-0,2208	-0,4783	-0,4333	-0,6525	-0,4717
Prodesal del Cauca S.A.	Prodesal del Cauca S.A.	1991	0,0419	0,1978	-0,7054	-0,2282	-0,6738	-0,8021	-0,5543	-0,4384
Cementos Boyacá	Cementos Boyacá	1991	0,0737	0,2201	-0,4351	-0,2171	-0,4368	-0,2547	-0,3281	-0,3077
Ferticol	Ferticol	1992	0,0378	0,1988	-0,7060	-0,2270	-0,6651	-0,7390	-0,6640	-0,3786
Banco de los trabajadores	Banco mercantil	1992	0,0392	0,1962	-0,6673	-0,2230	-0,6286	-0,5346	-0,2956	-0,3520
Banco del comercio	Banco de Bogota	1992	0,2099	0,4410	0,2551	-0,1600	0,3225	2,1293	2,2068	4,0147
FATEXTOL	FATEXTOL	1993	0,0551	0,1984	-0,7050	-0,2266	-0,6857	-0,7167	-0,6188	-0,3957
EMCARTAGENA	ACUACAR	1994	-0,4357	0,2031	-0,4937	-0,2247	-0,5547	-0,6830	-0,2584	-0,2895
CORPAVI	COLPATRIA	1994	0,1579	0,2211	0,2057	-0,2061	0,2558	0,2735	0,4430	0,0056
Bancolombia	Bancolombia	1994	0,8484	0,3724	1,2870	-0,1546	0,9283	2,1760	-0,8010	-0,5658
Quibi	Quibi	1996	0,0556	0,1975	-0,6953	-0,2276	-0,6646	-0,7711	-0,5743	-0,4508
ISA	ISA ISAGEN	1996	2,8025	0,2903	0,6496	-0,1834	0,4982	0,7834	0,5115	-0,0978
Banco popular	Banco popular	1996	0,6806	0,2963	1,7888	-0,1615	1,9374	2,3878	3,5142	1,7905
Empresas Publicas de Barranquilla	Triple A	1997	-0,1062	0,2043	-0,3043	-0,2219	-0,4228	-0,4438	0,1665	-0,0112
EMPALMIRA	ACUAVIVA	1997	0,0772	0,1982	-0,6914	-0,2270	-0,6909	-0,7713	-0,4024	-0,4576
EMCARTAGO	Emcartago Telefonos de Cartago Cartagueña de Aseo	1997	0,0312	0,2024	-0,7427	-0,2277	-0,7109	-0,7921	-0,3435	-0,4555
Banco Tequendama	Banco Tequendama	1997	0,1169	0,1922	-0,1393	-0,2109	-0,1101	0,1154	-0,2779	-0,2687
CORELCA	Corelca Transelca	1998	-2,7531	0,0049	3,0409	-0,2001	3,2726	-0,1514	0,6366	-0,3277
ElectroBolivar ElectroSucre ElectroCórdoba ElectroMagangué	ELECTROCOSTA	1998	0,0727	0,0742	-0,2379	-0,2009	-0,1322	0,2627	-0,1308	0,2318
ElectroGuajira ElectroCesar ElectroMagdalena ElectroAtlantico	ELECTRICARIBE	1998	-0,0417	0,0342	-0,4631	-0,1931	-0,3538	0,6848	-0,2019	0,2916
Colgas Occ. S.A.	Colgas Occ. S.A.	1999	0,0470	0,1997	-0,7515	-0,2244	-0,7279	-0,6022	-0,6474	-0,4465
Surtigas	Surtigas	1999	0,1068	0,2106	-0,4419	-0,2197	-0,4203	-0,3895	-0,3864	-0,3194
CARBOCOL	Cerrejon Zona Norte	2000	-2,2449	-4,5678	1,4474	4,5861	1,1418	-0,7281	-0,3413	-0,2996

Deflated and standardized data
(t-1) = two-year average before privatization
(t+1) = two-year average after privatization

Table No. 1 (continued): Data used
PRIVATIZED COMPANIES (Before - After)
Date sold

EMPRESAS PRIVATIZADAS		Fecha	FJE		NLE		PTL/PTT		VPE	
Antes	Despues	Venta	t-1	t+1	t-1	t+1	t-1	t+1	t-1	t+1
Colclincker	Colclincker	1990	-0,3883	-0,5331	-0,1757	-0,2500	-0,2369	0,1000	0,9009	-0,1962
Prodesal del Cauca S.A.	Prodesal del Cauca S.A.	1991	-0,3883	-0,5371	-1,3871	-0,3089	-0,2554	0,0758	-0,5534	-0,2171
Cementos Boyacá	Cementos Boyacá	1991	-0,3867	-0,5327	0,1825	-0,2434	-0,2222	0,1042	-0,1094	-0,2052
Ferticol	Ferticol	1992	-0,3892	-0,5378	0,1039	-0,1938	-0,2259	0,1676	-0,4091	-0,2155
Banco de los trabajadores	Banco mercantil	1992	-0,2460	-0,3605	0,8657	-0,1565	-0,0732	0,4463	-0,5839	-0,2106
Banco del comercio	Banco de Bogota	1992	0,7212	3,7002	0,7996	-0,1754	-0,1182	0,2319	-0,4258	-0,2132
FATEXTOL	FATEXTOL	1993	-0,3572	-0,4589	-0,2033	-0,1968	-0,2365	0,1606	-0,4939	-0,2146
EMCARTAGENA	ACUACAR	1994	-0,3670	-0,5119	2,6622	-0,2014	-0,3077	0,1516	-0,2937	-0,2138
CORPAVI	COLPATRIA	1994	-0,3574	-0,1480	0,9226	-0,1538	-0,0226	0,4800	-0,0171	-0,2069
Bancolombia	Bancolombia	1994	2,0948	1,7365	0,5867	-0,1722	-0,1821	0,2500	-0,7431	-0,2171
Quibi	Quibi	1996	-0,3893	-0,5380	-0,1741	-0,2036	-0,2369	0,1475	-0,5036	-0,2158
ISA	ISA ISAGEN	1996	-0,1654	0,2786	-1,2040	-0,2392	-0,2537	0,1073	0,2476	-0,1918
Banco popular	Banco popular	1996	3,8357	0,6863	0,6337	-0,1657	-0,1732	0,2987	-0,1880	-0,2095
Empresas Publicas de Barranquilla	Triple A	1997	-0,3220	-0,5002	0,4800	-0,1767	-0,1923	0,2264	-0,3076	-0,2142
EMPALMIRA	ACUAVIVA	1997	-0,3462	-0,5373	-1,6413	-0,1511	-0,2572	0,5625	-0,5979	-0,2141
EMCARTAGO	Emcartago Telefonos de Cartago Cartagueña de Aseo	1997	-0,3762	-0,5365	-0,7065	-0,2444	-0,2434	0,1031	-0,7221	-0,2157
Banco Tequendama	Banco Tequendama	1997	-0,0164	-0,3631	0,5938	-0,1590	-0,1812	0,3774	0,3618	-0,2015
CORELCA	Corelca Transelca	1998	-0,2882	-0,3856	-0,3811	-0,2337	-0,2411	0,1138	1,7550	-0,1835
ElectroBolivar ElectroSucre ElectroCórdoba ElectroMagangué	ELECTROCOSTA	1998	-0,3791	0,8226	0,5799	-0,2232	-0,1700	0,1236	-0,0180	-0,2081
ElectroGuajira ElectroCesar ElectroMagdalena ElectroAtlantico	ELECTRICARIBE	1998	-0,3789	0,5486	-0,2413	-0,2261	-0,2397	0,1201	-0,2908	-0,2063
Colgas Occ. S.A.	Colgas Occ. S.A.	1999	-0,3894	-0,5309	-1,8097	-0,2646	-0,2582	0,0917	-0,7315	-0,2086
Surtigas	Surtigas	1999	-0,3448	-0,4999	-0,8339	-0,2439	-0,2498	0,1035	-0,0368	-0,2080
CARBOCOL	Cerrejon Zona Norte	2000	-0,3755	-0,2614	0,3476	4,5834	4,5777	-4,5438	3,7606	4,5872

Deflated and standardized data
(t-1) = two-year average before privatization
(t+1) = two-year average after privatization

Table No. 1 (continued): Data used
PRIVATIZED COMPANIES (Before - After)
Date sold

EMPRESAS PRIVATIZADAS		Fecha	UTNPE		FJEPE		CTOPE		UTO/VNT	
Antes	Despues	Venta	t-1	t+1	t-1	t+1	t-1	t+1	t-1	t+1
Colclincker	Colclincker	1990	0,5946	0,2593	-0,5432	-0,7564	0,9801	2,2410	0,2022	-0,2097
Prodesal del Cauca S.A.	Prodesal del Cauca S.A.	1991	0,1521	0,2139	-0,5548	-0,8379	-0,5549	-1,1153	-3,2538	-0,2085
Cementos Boyacá	Cementos Boyacá	1991	0,2093	0,2387	-0,5503	-0,8164	-0,1479	0,7597	0,3292	-0,2099
Ferticol	Ferticol	1992	0,1051	0,2157	-0,5672	-0,8496	-0,2844	-0,8284	-0,7248	-0,2135
Banco de los trabajadores	Banco mercantil	1992	0,1512	0,2126	0,5788	0,6581	-0,5910	-0,0416	-0,2926	-0,2111
Banco del comercio	Banco de Bogota	1992	0,2078	0,2292	0,9434	0,8176	-0,4329	-0,5697	0,0328	-0,2040
FATEXTOL	FATEXTOL	1993	0,2027	0,2151	0,1428	-0,0004	-0,5467	-0,6791	0,3031	-0,2127
EMCARTAGENA	ACUACAR	1994	-0,5459	0,2196	-0,4061	-0,6814	-0,4627	-0,7479	0,2646	-0,2094
CORPAVI	COLPATRIA	1994	0,2346	0,2257	-0,4683	0,3808	0,0304	0,4926	0,0746	-0,2088
Bancolombia	Bancolombia	1994	0,1639	0,2150	-0,5744	-0,8535	-0,8008	-1,1187	0,2891	-0,2019
Quibi	Quibi	1996	0,1946	0,2130	-0,5718	-0,8493	-0,4981	-0,8848	-0,1569	-0,2147
ISA	ISA ISAGEN	1996	1,9824	0,2670	0,1744	2,2816	0,1828	1,7747	2,1461	-0,1977
Banco popular	Banco popular	1996	0,2804	0,2260	3,3899	0,0655	-0,1529	0,0580	0,0171	-0,2079
Empresas Publicas de Barranquilla	Triple A	1997	0,0327	0,2178	-0,2919	-0,7294	-0,4685	-0,5645	0,2301	4,5870
EMPALMIRA	ACUAVIVA	1997	0,2240	0,2146	-0,1331	-0,8385	-0,6986	-0,8705	2,0492	-0,2053
EMCARTAGO	Emcartago Telefonos de Cartago Cartagueña de Aseo	1997	0,1358	0,2249	-0,4569	-0,8243	-0,7572	-1,0344	-0,0677	-0,1912
Banco Tequendama	Banco Tequendama	1997	0,2723	0,2102	2,3465	0,2165	0,4393	1,5674	0,1148	-0,2123
CORELCA	Corelca Transelca	1998	-1,4523	-0,0221	-0,2810	0,2505	2,1253	1,4049	-0,3608	-0,2341
ElectroBolivar ElectroSucre ElectroCórdoba ElectroMagangué	ELECTROCOSTA	1998	0,1884	0,1738	-0,5115	2,2271	0,1307	0,0273	-0,5603	-0,2243
ElectroGuajira ElectroCesar ElectroMagdalena ElectroAtlantico	ELECTRICARIBE	1998	0,0522	0,1643	-0,5039	1,4354	-0,1542	0,3708	-0,5615	-0,2216
Colgas Occ. S.A.	Colgas Occ. S.A.	1999	0,1610	0,2179	-0,5744	-0,7431	-0,7816	0,3232	-0,7003	-0,2116
Surtigas	Surtigas	1999	0,2793	0,2283	-0,1361	-0,5731	-0,0186	0,3155	0,1484	-0,2087
CARBOCOL	Cerrejon Zona Norte	2000	-3,8262	-4,5805	-0,4509	1,0203	3,4625	-0,8802	0,4772	-0,1682

Deflated and standardized data
(t-1) = two-year average before privatization
(t+1) = two-year average after privatization

Table No. 1 (continued): Data used
PRIVATIZED COMPANIES (Before - After)
Date sold

EMPRESAS PRIVATIZADAS		Fecha	RTA	
Antes	Despues	Venta	t-1	t+1
Colclincker	Colclincker	1990	0,9726	0,2116
Prodesal del Cauca S.A.	Prodesal del Cauca S.A	1991	0,0606	0,2065
Cementos Boyacá	Cementos Boyacá	1991	0,2806	0,2130
Ferticol	Ferticol	1992	-0,3969	0,2097
Banco de los trabajadores	Banco mercantil	1992	0,0561	0,2071
Banco del comercio	Banco de Bogota	1992	0,2693	0,2117
FATEXTOL	FATEXTOL	1993	0,8107	0,2076
EMCARTAGENA	ACUACAR	1994	-3,8590	0,2163
CORPAVI	COLPATRIA	1994	0,2557	0,2094
Bancolombia	Bancolombia	1994	0,5049	0,2113
Quibi	Quibi	1996	0,8773	0,2014
ISA	ISA ISAGEN	1996	0,9085	0,2092
Banco popular	Banco popular	1996	0,3329	0,2097
Empresas Publicas de Barranquilla	Triple A	1997	-0,9757	0,2097
EMPALMIRA	ACUAVIVA	1997	0,3167	0,2073
EMCARTAGO	Emcartago Telefonos de Cartago Cartagueña de Aseo	1997	-0,1285	0,2134
Banco Tequendama	Banco Tequendama	1997	0,2582	0,2071
CORELCA	Corelca Transelca	1998	-0,9367	0,1943
ElectroBolivar ElectroSucre ElectroCórdoba ElectroMagangué	ELECTROCOSTA	1998	0,2453	0,2013
ElectroGuajira ElectroCesar ElectroMagdalena ElectroAtlantico	ELECTRICARIBE	1998	-0,2892	0,2006
Colgas Occ. S.A.	Colgas Occ. S.A.	1999	0,0485	0,2122
Surtigas	Surtigas	1999	0,8756	0,2169
CARBOCOL	Cerrejon Zona Norte	2000	-0,4875	-4,5873

Deflated and standardized data
(t-1) = two-year average before privatization
(t+1) = two-year average after privatization