Financial performance and stock prices into delisting companies in MSE
(Desempeño financiero y precios de las acciones en companias delistadas en la BMV)

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Abstract. After the adoption of new regulations in Corporate Governance practices and Transparency following the trend of international financial markets, Mexican Stock Exchange has decreased in number of public companies during the last three decades we explored a comprehensive list of delisted companies during the same period to analyze and understand the motives and reasons of the deregistration process in Mexico. Delisted companies in MSE has experienced low financial performance and unexpected stable stock prices, our results are related with systemic flaw in regulation, insider information and the opportunity to the MSE to increase in size and number of public companies.

Resumen. Después de la adopción de nuevas regulaciones enfocadas a mejor gobierno corporativo y transparencia, la Bolsa Mexicana de Valores ha seguido la tendencia mundial en ambos conceptos sin embargo el número de compañías listadas ha decrecido en las últimas tres décadas. Exploramos las razones y motivos detrás del proceso de cancelación de registro de las compañías en México durante ese mismo periodo para entender mejor su funcionamiento. Encontramos que dichas compañías han tenido un desempeño financiero bajo y un inesperado precio de la acción estable, los resultados sugieren de que es probable que exista fuga de información a nivel sistema y la oportunidad de poder hacer crecer el número y tamaño de las compañías públicas.

Introduction

During the last three decades Mexican Authorities have developed a series of economic policies to increase the importance of the country around the globe. Economic policies related with better and more secure Banking system, improvements in regulation toward how public companies release information to the investors and allowing to international investors to compete in specific strategic industries. All these policies apparently should increase the size and the importance of the Mexican Stock Exchange (MSE) to promote local companies and to allow to the economy to increase at different economic rate.

But apparently the (MSE) have been struggled to increase the size and the number of public companies traded into local financial markets. Previous research studies suggest that MSE is losing track to increase the number of investors, the number of companies traded into it and local public companies have increased financial distress over the last three decades.

All previous studies related with Mexico and emerging markets have concentrated in companies actually traded into the financial markets and findings have been related to regulation and law enforcement. Also previous studies suggest that can be insider problem at system level.

The purpose of this research is to understand how event study methodology works under specific controlled group of companies (delisted companies) in emerging market context, also how variations of the same statistical tool can improve research results and finally how different event window analysis can varies the final research conclusions.

Specifically to Mexico, we wanted to explore why the MSE is getting smaller and asses if there is systemic flaw regarding information and transparency, but we opted to use specific controlled group of companies, our study is related only to delisted companies traded into the MSE during the last three decades. Our research study concentrates in companies entered into delisting process; during this process we assessed the financial performance from firm perspective and stock performance using two different variations of event study methodology.

Theoretical framework and previous empirical experience.

Mexico is in working process to be a developed country, Mexican Authorities have implemented a series of economic policies and financial reforms to compete against other emerging markets options, for United States it is the second larger importer and Mexico receives almost half of the Foreign Direct Investment from US. This process can be explained because the support of the global financial markets integration, the efficient use of the economic factors around the globe such labor, transportation and cost of raw materials, Mexico is the country with more free trade agreements than any other country in the world. See (Wolf, 2004).

Also MSE is different because during the last decade has been implemented and improving regulation towards the investors and transparency, but also during this process MSE as whole has been losing financial performance and increased financial stress, see(Garcia, 2011) Following same line,(Aguilera, Kabbach-Castro, Lee, & You, 2011) emerging economies deals with different ownership structures compared with developed countries, local companies have been adopted new regulatory and accountability structure to assure access to future cash flows improving governance practices and transparency.

Emerging markets like Mexico increased the use of financial debt to protect themselves against the multinational corporations, they opted to use more debt to be competitive rather than equity because share control rights, tax purposes and bankruptcy protection process see (Céspedes, González, & Molina, 2010).

According with (Macey, O'Hara, & Pompilio, 2008) there is a direct correlation between the number of delisted companies measured by year and the index financial market concentration where the firm is traded, in our case MSE is concentrated in few companies, companies such AMX, WALMEX, FEMSA, GMEXICO, TLEVISA, GFNORTE, ALFA, CEMEX, PENOLES and GMODELO accounts 80% of the total MSE index due to the size, trade and relative importance. Moreover, in the same order each accounts, 27%, 12%, 9%, 7%, 7%, 5%, and the rest almost 130 companies combined only 20% or less.

Emerging markets should be studied differently because a series of economics variables interacts miscellaneous in intensity and consistency compared with developed countries, for example regulation, transparency and governance practices transforms firms in a distinctive way because the law enforcement and efficiency, (López de Silanes, La Porta, Shleifer, & Vishny, 1998), also firms are administered differently because firm ownership structure, local management practices, consumer preferences and business opportunities are tackled differently (Khanna & Palepu, 1997) finally the combination between how law is enforced, how business are administered and how business opportunities are undertaken deals with the economic and financial performance of the firm, according with (Khanna & Rivkin, 2001) performance measured by financials or stock performance varies along different financial markets and depends basically of the firm situation.

There are several factors why a firm decided to be private again. One logical reason is related with financial and economic performance under the financial market context, according with(Modigliani & Miller, 1963) typically when a firm experienced poor financial performance or there is unclear financial future investors can opt to sell the stock, remove or promote management changes and also liquidate all assets. These kind of responses are not typical in emerging markets, due to ownership structure, mostly of the firm investors or main shareholders perform dual functions inside the firm, as shareholders and managers at the same time.

Another typical reason is the corporate control, financial markets facilitates the environment to transfer or to exchange wealth in easy, efficient and rapid form. When a corporation is public, it can access additional capital to transform and compete under competitive environment, but when a firm is public is also expose to business control, potential acquisitions and mergers by the near competitors. It is also common that public company can be acquired or controlled in undervalue conditions by private equity funds. But all these conditions works perfectly when a company ownership is distributed majorly by outside investors, not in a company with limited dispersed ownership which is the case of the MSE. Under this context (Zingales, 1995) analyzed this problem and found an important contribution regarding the relationship between original owner IPO, level of disperse ownership and the reasons of why a company decided to go back private again.

Following same line, also when a company decides to go public the particular conditions of the IPO, ownership structure and competitive conditions of the firm determines the future ownership of the firm, basically depends if under initial public offer the new investors are active or passive shareholders see (Mello & Parsons, 1998). A public company with active shareholders can change how the firm is running and how strategic decision are made.

A final variant under financial and corporate control arise at this point, when a company is public the particular financial conditions of the firm when initially is public and under delisted process the competitive and economic conditions are also important factors to understand, public companies can realizes that after the IPO the competitors, financial leverage, stock liquidity, insider stock positions can be an important variables that can determine the ownership future of the firm see (Brau, Francis, & Kohers, 2003).

Public companies are committed to release qualitative and quantitative information to the public investors, it's requires to produce in a systematic way business information that can affect the future of the firm and how the firm is actually managed, but this additional particular process to produce business information raises internal costs and can reduce the economic efficiency of the business (Leland & Pyle, 1977) and (Subrahmanyam & Titman, 1999). The MSE context under this particular conditions suffered two major overhaul regulations, the first was concern in governance practices and transparency in 2001 (Comision Nacional Bancaria y de Valores, 2000) and additional minority investors protection and business information requirements in 2005 (Comision Nacional Bancaria y de Valores, 2005).

Sometimes the stock price of the public companies doesn't reflect the economic value of the firm, this happens because the particular financial and economic conditions of the financial markets, also because particular conditions of the industry due to new regulations, more or less competition, foreign investment and even foreign exchange rate. But not only macroeconomic conditions affects the stock price, the financial conditions of the firm, ownership stock dispersion, how strategic decisions were made by the company or simple from investors perspective because unlike future of the company. All these factors can trigger a process where the stock price can be under low trade and undervalue position for a long period of time,

under these circumstances agents or principals can decide to be autonomous again (Boot, Gopalan, & Thakor, 2008).

Mexican authorities have implemented a series of economic environmental conditions to promote in size and in number the MSE, for example it has open the foreign investment to the financial and banking sector, it has open the economy to almost any country and finally it has improved the governance and investors protection to promote adequately the financial markets. But after the last two decades the MSE is one of the most financial market that is declined the speed and size of the operations.

Table 1 shows a comparative data between different Latin American countries in terms of number of companies listed and the longevity of the public companies. MSE compared with Colombia is almost half the size in listed companies when is almost three times the economy size. Also the mortality is faster compared with Brazil, where 50% of the public companies has been listed in the last 20 years compared with 31% in the MSE.

Table 1. *Listed public companies, experience and growth*

Country	Listed*	Before 1990	Between 90-00	Between 00-10	Between 11-12
Mexico (1)	136	31	64	28	13
	100%	23%	47%	21%	10%
Brazil (2)	522	210	52	224	36
	100%	40%	10%	43%	7%
Colombia (3)	223	51	50	117	5
	100%	23%	22%	52%	2%

* # of public companies traded in the stock exchange in 2012.
 (1) from the official site www.bmv.com.mx
 (2) from the official site www.bmfbovespa.com.br
 (3) from the official site www.bvc.com.co

Besides the experience and longevity of the MSE, there is another important factor to account, the index participation is one measure to assess how potential the stock exchange can increase and how is dispersed across all industries, for example during 2012 Brazil accounts almost 40 companies that concentrates 80% of the index participation, Chile 17, Peru 25 and Argentina 8. MSE accounts less than 10 public companies.

Methodology, financial and qualitative data.

This research study has double purpose, by one hand we wanted to explore how different variations of event study can improve the research technique into emerging market country and also at the same time we wanted to know more about the context around delisted companies.

Using different event study technique, how different variations in terms of longitudinal analysis, parametric, nonparametric, arithmetic and logarithmic can varies research results in emerging country context. Also Studying the context around the delisted companies can arise the questions about; What is the Financial Market (investors) reaction when a company decides to be delisted?, Using stock price performance and event study technique how investors reacts specifically during several windows periods?

Event study methodology is a powerful tool to measure stock abnormal returns, early studies suggest the importance of how information or event can affect the stock performance, financial markets tends to react according with the information and balance stock prices according with the investor's perceptions, (Ball & Brown, 1968) and later (Fama, Fisher, Jensen, & Roll, 1969), the methodology has been widely accepted and applied into empirical field to determine how information is related with stock prices movements, during the last three decades the event studies have evolve and refined to be applied in wide different economic environments.

Previous empirical studies suggest that event study methodology varies among how the event and data is produced inside the singularity event, also varies if the data collected fit into the normal distribution or using nonparametric stock returns. For example previous empirical work using Nasdaq daily returns suggested that parametric event study methodology was outperformed using rank test event study or nonparametric data to identify abnormal stock returns (Corrado, 1989). In the same line, event test methodology also can varies among different stock exchange markets, for example (Bartholdy, Olson, & Peare, 2007) suggested that when the stock exchange is small there are several important factors to account, the number of event's to analyze, the level of abnormal performance and the use of nonparametric test data to identify abnormal returns.

The intrinsic mechanic of the event study requires to use the market model index to compare and identify abnormal returns, some variations have

been studied to analyze the results and conclusions, for example empirical studies using equal market weight index in United States and Asia-Pacific data outperformed the value market weight index (Corrado & Truong, 2008) results depends widely how the stock exchange is widely disperse and weight distributed also same results using arithmetic returns were outperformed by using logarithm data.

Several empirical studies have been performed using different stock exchanges, using parametric and nonparametric data to assess the statistical tool and using arithmetic and logarithm data. But there is few or none empirical evidence in how the event study methodology using different variants works under delisting process in emerging markets.

Our research study was divided into two steps, the first step required to identify the contextual environment where the company was delisted such firm financial performance and reasons to go private again. Then to understand the financial market perspective the second step required to use several variants of the event study methodology, variants such parametric and nonparametric test data, using arithmetic and logarithm data and different periods of analysis.

Delisted companies where defined for those who cannot longer participate as public company into the MSE, several factors accounts for all the companies that have been delisted from the MSE, the process can be initiated by the authorities or by the company itself, the period of analysis covered from 1980 to 2012.We used extensively Economatica data base, also we required the official web MSE site and El Financiero financial newspaper, and everything related with firm financial data we excluded the inflation effect in all calculations.

We must mention some potential circumstances that includes our research and were impossible to control during our research study. The time frame of study included two major financial economic crisis suffered by the Mexican economy, during 1988 and 1995. We not altered any financial or stock prices during that periods because no company was delisted during any of those years. Also the economic cycle of Mexico varies across the time frame analysis and should be part of the financial performance and stock performance, but every single event for each company was identified in a wide open disperse time, the average delisting year for all population was

2004, year with average economic grow. The average IPO year for the delisted companies was 1993 two years before the economic crisis.

Also there were a major overhaul reforms to the banking and financial system during 1995 and 1996 due to Tequila effect, also the MSE experienced major changes in transparency and regulations to the public companies in 2001 and 2005 to assimilate regulation to United States and Canada as part of the NAFTA trade process, we accepted that these events may affected our research.

For the first step (See Figure 1 and 2) and to understand the contextual environment of the firm, we used the theoretical reasons mentioned in the previous section, we wanted to explore the reasons of why the companies were delisted classifying the reasons in four theoretical explanations, and under this contextual analysis we explored the firm financial performance using 18 months previous to the delisting process.

Figure 1. *Investors reaction to delisted process research methodology and methodology and knowledge*
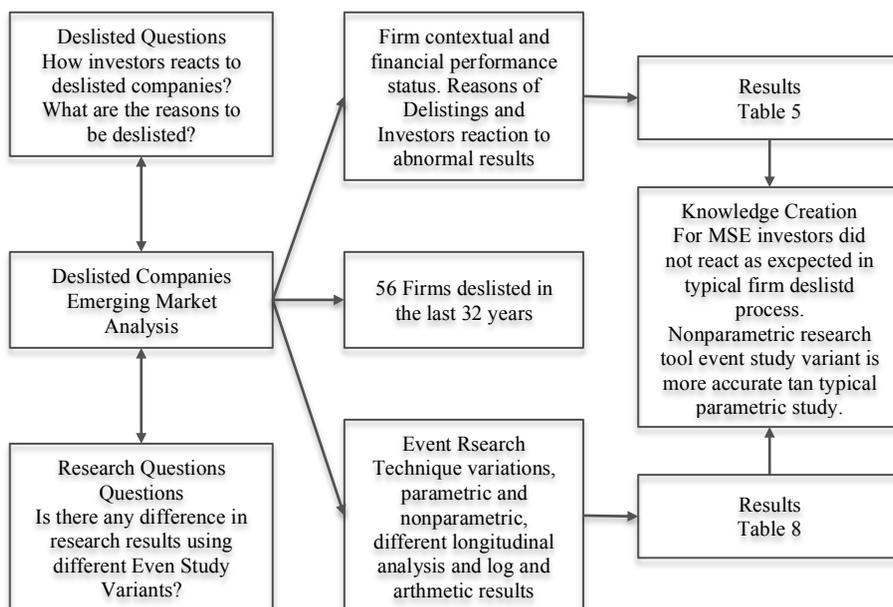
Figure 2. *Research methodology, foundations and references*
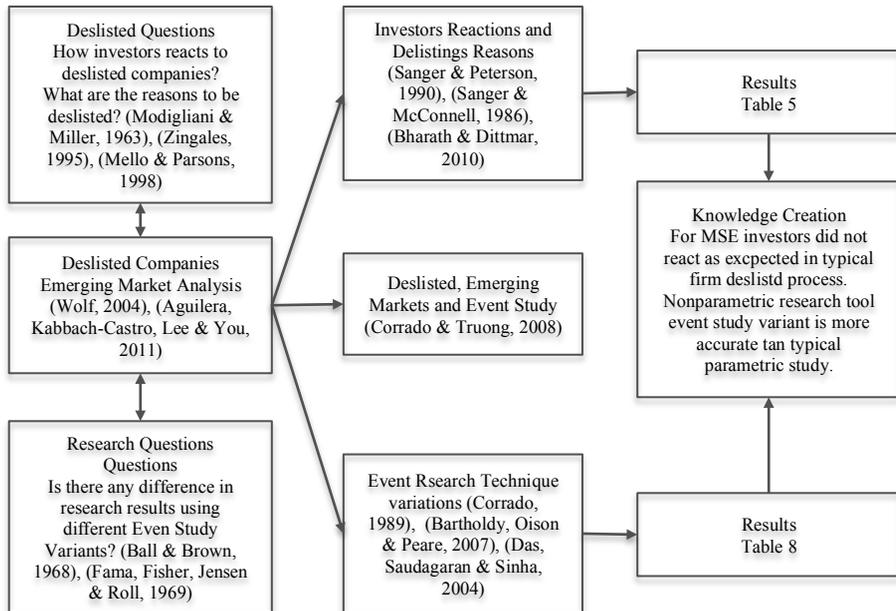
We defined the reasons following previous literature and for our research, Acquisition was defined to those companies where the control was transferred to another different company or the same company acquired again its own public shares, self-buyout, Delisted and compliance were defined to those companies where did not released financial information according with the regulation, also whether the company wanted to be delisted or the authorities delisted due to information, regulation, legal problems, higher cost to inform to the financial market and/or low liquidity. Finally we classified Merger to those companies where one or more entities becomes one, mainly all merged companies were related within the same parent hold company or related subsidiary. Restructuring was related with those companies where the financial performance becomes an important issue to keep the company operating within the financial markets.

Previous studies where the stock exchange are more robust in number and transactions reasons of delisting can be divided in more subcategories, where companies were suspended, duplicated, converted or with dual purposes can be widely used, these reasons can be studied in more deep

manner, see (Macey, O'Hara, & Pompilio, 2008) and (Bharath & Dittmar, 2010) we concentrated our research analysis due to the size and because we found only few reasons of delisting in four major categories. We initially identified 77 companies but we discarded those companies where the stock price or financial data were absence to complete the research, finally our universe of delisted firms were consisted in 56 firms across all industries and between 1980 and 2012. Table 2 describes in detail the delisted list of companies by firm, industry and economic sector.

Table 2. *Cancelled stocks from the Mexican Stock Exchange (1980-2012)*

#	Name	Class	Sector NAICS|last available	Sector|Económica
4	Agro Ind Exportador	A	Crop Production	Agri & Fisheries
15	Campus S.A.	A	Greenhouse, Nursery, and Floriculture Production	Agri & Fisheries
61	Savia	A	Oilseed and Grain Farming	Agri & Fisheries
45	Hylsamex	L	Steel Product Manufacturing from Purchased Steel	Basic & Fab Metal
70	Tubos de Acero Mex	Ord	Steel Product Manufacturing from Purchased Steel	Basic & Fab Metal
76	Verzatec	Ord	Steel Product Manufacturing from Purchased Steel	Basic & Fab Metal
60	Regioem B		Paint, Coating, and Adhesive Manufacturing	Chemical
14	Bufete Industrial	CPO	Heavy Construction	Construction
38	Giconsa	Ord	Heavy Construction	Construction
56	Planeacion Y Proyec	B	Heavy Construction	Construction
3	Acer Latinoamerica		Computer and Peripheral Equipment Manufacturing	Electric Electron
10	Banamex Accival GF	O	Banks (Depository Credit Intermediation)	Finance and Insurance
11	Banco Compartamos	O	Banks (Depository Credit Intermediation)	Finance and Insurance
12	BBV-Probursa GF	B	Banks (Depository Credit Intermediation)	Finance and Insurance
35	Gfbbva Bancomer	B	Banks (Depository Credit Intermediation)	Finance and Insurance
36	Gfbital	L	Banks (Depository Credit Intermediation)	Finance and Insurance
48	Ixe Gpo Financiero	O	Banks (Depository Credit Intermediation)	Finance and Insurance
8	Argos Embotelladora	B	Beverage Manufacturing	Food & Beverage
19	Continental Grupo	Ord	Beverage Manufacturing	Food & Beverage
27	Embot Valle Anahuac	B	Beverage Manufacturing	Food & Beverage
39	GModerna	A	Other Food Manufacturing	Food & Beverage
49	Maizoro Sa de Cv	Ord	Grain and Oilseed Milling	Food & Beverage
54	Pepsigx (Gemex)	CPO	Beverage Manufacturing	Food & Beverage
75	Valle Jugos Del	B	Beverage Manufacturing	Food & Beverage
7	Apasco S.A.	Ord	Cement and Concrete Product Manufacturing	Nonmetallic Min
9	Axis Sistemas	B	Administrative and Support Services	Other
22	Diana Editorial	B	Newspaper, Periodical, Book, and Database Publishers	Other
24	Dixon Ticonderoga		Other Miscellaneous Manufacturing	Other
26	Ece S.A.	Ord	Food Services and Drinking Places	Other
31	Gaccion	B	Real Estate	Other
64	Situr Grupo	B	Traveler Accommodation	Other
63	Sidek Grupo	A	Traveler Accommodation	Other
72	Union de Capitales	B	Management of Companies and Enterprises	Other
77	Video Visa Gpo	Ord	Other Amusement and Recreation Industries	Other
28	Empaques Ponderosa	B	Pulp, Paper, and Paperboard Mills	Pulp & Paper
13	Biper S.A de C.V.	B	Telecommunications	Telecommunication
16	Carso Global Teleco	A1	Telecommunications	Telecommunication
47	Iusacell Gpo	Ord	Telecommunications	Telecommunication
71	Unefon	A	Telecommunications	Telecommunication
21	Covarra Grupo	Ord	Fabric Mills	Textile
53	Parras Cia Indus	Ord	Fabric Mills	Textile
66	Synkro Industrias	A	Apparel Knitting Mills	Textile

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Table 2. *Cont.*

#	Name	Class	Sector NAICS|last available	Sector|Economática
66	Synkro Industrias	A	Apparel Knitting Mills	Textile
20	Control de Farmacia	B	Health and Personal Care Stores	Trade
25	Duty Free Sa de Cv		Other General Merchandise Stores	Trade
29	Ferrioni, S.A. de C	A	Clothing and Clothing Accessories Stores	Trade
30	Fotoluz Corp	B	Sporting Goods, Hobby, and Musical Instrument Stores	Trade
32	Gcorvi	A	Grocery and Related Product Wholesalers	Trade
40	Gomo	Ord	Electrical Goods Wholesalers	Trade
41	Gprove Quim	B	Chemical and Allied Products Wholesalers	Trade
42	Gsalinas Y Rocha	B	Furniture Stores	Trade
43	Gsanborns	B-1	Other General Merchandise Stores	Trade
50	Maq Diesel S. A.	B	Machinery, Equipment, and Supplies Wholesalers	Trade
51	Nadro S.A.	B	Farm Product Raw Material Wholesalers	Trade
73	Universidad CNCI	B	Electronics and Appliance Stores	Trade
74	US Commercial	B-1	Electronics and Appliance Stores	Trade
23	Dina Grupo	Ord	Motor Vehicle Manufacturing	Vehicle & Parts

Besides the reasons of delisting process, we researched the financial context of the firm using previous financial performance of the firm, we calculated financial performance of the firm applying the Return of Assets (ROA) and the Return of Equity (ROE) both calculations denotes the ability of the firm to be profitable as business or investment. Table 3 denotes the results related with the context and firm performance before the delisted process.

Table 3. *Reasons for delisted, stock price and financial performance*

#	Name	(1)	(2)	(3)	(4)	270*	180*	120*	90*	(5)	(6)	(7)
1	Acer Latinoamerica	1996	2000	4	$5.98	$3.36	$3.52	$3.84	$4.18	-10.0%	-49.5%	mar-00
2	Agro Ind Exportador	1996	2005	2	$0.06	$0.09	$0.08	$0.07	$0.07	-42.6%	-208%	ago-05
3	Apasco S.A.	1981	2004	4	$118.0	$90.2	$95.8	$101.9	$106.8	3.2%	30.7%	jun-04
4	Argos Embotelladora	1998	2003	2	$16.00	$21.46	$20.83	$19.88	$19.86	10.8%	14.6%	jul-03
5	Axis Sistemas	1995	1998	4	$3.40	$2.80	$2.82	$2.89	$2.96	7.7%	18.3%	nov-98
6	Banamex Accival GF	1991	2001	1	$15.58	$17.12	$18.54	$20.13	$21.04	2.6%	20.7%	jul-01
7	Banco Compartamos	2007	2011	1	$67.50	$83.53	$80.59	$77.93	$78.36	17.5%	35.5%	oct-11
8	BBV-Probursa GF	1995	2000	1	$0.97	$1.10	$1.14	$1.08	$1.02	0.6%	6.8%	ago-00
9	Biper S.A de C.V.	1997	2007	2	$230.0	$242.6	$239.9	$236.9	$234.0	28.1%	418.0%	oct-07
10	Bufete Industrial	1993	1999	3	$5.50	$15.41	$14.09	$12.76	$12.40	-8.8%	-68.7%	jul-99
11	Campus S.A.	1998	2005	2	$0.12	$0.12	$0.12	$0.12	$0.12	12.8%	15.1%	jul-05
12	Carso Global Teleco	1996	2010	1	$64.00	$61.63	$61.97	$61.90	$62.03	4.2%	22.5%	jun-10
13	Continental Grupo	1991	2011	4	$43.23	$35.30	$36.51	$37.72	$39.23	14.5%	18.3%	ene-11

(1) Correspond the year of the company IPO

(2) Is the delisting year

(3) Is the primary reason of delisting, #1 correspond to Acquisition, #2 correspond to Delisted, Compliance and Low Operation, #3 is related to Restructuring and #4 is Merger

(4) Event day stock price and

(*) Stock price during diferent periods in days

(5) Return on Assets ROA average previous 18 months

(6) Return on Equity (ROE) average previous 18 months

(7) delisted month and year

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Table 3. *Cont.*

#	Name	(1)	(2)	(3)	(4)	270*	180*	120*	90*	(5)	(6)	(7)
14	Control de Farmacia	1994	2003	2	$4.50	$7.50	$6.90	$6.12	$5.32	-2.2%	-4.4%	jul-03
15	Covarra Grupo	1997	2001	3	$0.60	$0.76	$0.75	$0.75	$0.69	-8.7%	-37.8%	jun-01
16	Diana Editorial	1998	2006	1	$0.80	$0.79	$0.79	$0.79	$0.79	-4.2%	-13.8%	may-06
17	Dina Grupo	1993	2001	3	$0.25	$0.95	$0.55	$0.36	$0.32	-39.0%	-329%	ago-01
18	Dixon Ticonderoga	1994	2006	2	$7.85	$6.98	$6.96	$7.04	$7.10	4.0%	7.3%	nov-06
19	Duty Free Sa de Cv	1997	2001	1	$8.00	$8.02	$8.00	$8.00	$8.00	20.4%	53.3%	abr-01
20	Ece S.A.	1997	2001	3	$0.10	$0.18	$0.15	$0.15	$0.14	-31.3%	-107.9%	abr-01
21	Embot Valle Anahuac	1993	2000	1	$5.90	$5.05	$5.05	$5.69	$6.12	-0.3%	-0.6%	ago-00
22	Empaques Ponderosa	1996	2005	2	$0.90	$0.67	$0.65	$0.67	$0.70	-158.2%	-199.3%	ene-05
23	Ferrioni, S.A. de C	1994	2000	1	$4.90	$2.25	$2.23	$2.38	$2.54	10.7%	10.6%	abr-00
24	Fotoluz Corp	1994	1998	2	$0.10	$0.12	$0.11	$0.10	$0.10	-3.0%	-234.1%	may-98
25	Gaccion	1997	2005	1	$9.50	$6.46	$6.86	$7.54	$8.15	1.1%	2.2%	mar-05
26	Gcorvi	1996	2007	1	$3.69	$8.11	$7.72	$7.08	$6.23	2.0%	7.4%	jul-07
27	Gfbbva Bancomer	1991	2004	1	$3.69	$9.44	$9.72	$10.12	$10.34	1.6%	12.5%	mar-04
28	Gfbital	1991	2002	1	$11.65	$7.45	$8.07	$8.69	$9.40	0.4%	5.8%	nov-02
29	Giconsa	1994	2000	1	$4.85	$5.35	$5.52	$5.49	$5.49	-8.4%	-30.2%	dic-00
30	GModerna	1987	2009	1	$82.90	$80.87	$81.90	$82.65	$82.69	8.7%	12.6%	ene-09
31	Gomo	1997	2008	2	$0.27	$0.76	$0.73	$0.70	$0.68	-1.2%	-2.7%	jul-08
32	Gprove Quim	1998	2004	1	$3.00	$3.01	$3.01	$3.01	$3.01	-3.0%	-5.6%	abr-04
33	Gsalinas Y Rocha	1991	1999	3	$2.27	$5.83	$5.01	$3.98	$3.29	0.1%	-44.8%	feb-99
34	Gsanborns	1999	2006	1	$25.69	$21.68	$22.73	$22.65	$22.56	10.6%	21.9%	ago-06
35	Hylsamex	1994	2005	1	$36.00	$33.90	$36.38	$36.98	$37.01	16.9%	34.3%	oct-05
36	Iusacell Gpo	1994	2010	1	$48.99	$47.05	$48.07	$49.23	$49.03	-16.4%	-176.1%	may-10
37	Ixe Gpo Financiero	1994	2010	4	$15.43	$14.46	$15.39	$15.75	$15.68	0.3%	3.8%	jun-10
38	Maizoro Sa de Cv	1996	2003	1	$6.20	$2.33	$2.40	$2.51	$2.62	-1.3%	-2.6%	abr-03
39	Maq Diesel S. A.	1996	2007	1	$25.89	$15.36	$18.64	$22.11	$23.25	11.0%	28.1%	mar-07
40	Nadro S.A.	1985	2004	1	$6.70	$5.54	$5.79	$6.09	$6.08	6.0%	13.1%	oct-04
41	Parras Cia Indus	1981	2008	3	$0.40	$1.33	$1.30	$1.24	$1.18	-18.0%	-511.0%	oct-08
42	Pepsigx (Gemex)	1990	2002	1	$17.45	$12.41	$14.30	$16.00	$16.44	4.6%	10.4%	oct-02
43	Planeacion Y Proyec	2003	2006	2	$24.05	$16.62	$16.63	$16.69	$16.75	3.6%	8.4%	may-06
44	Regioem B	1989	2004	2	$2.95	$2.06	$2.12	$2.19	$2.23	2.1%	3.5%	may-04
45	Savia	1989	2005	2	$0.80	$0.88	$0.94	$1.02	$1.03	-71.7%	-127.5%	abr-05
46	Sidek Grupo	1980	1999	2	$0.17	$0.28	$0.18	$0.11	$0.10	-17.9%	-138.1%	mar-99
47	Situr Grupo	1991	1999	2	$0.18	$0.14	$0.13	$0.10	$0.09	-19.8%	-338.1%	mar-99
48	Synkro Industrias	1966	1998	3	$1.20	$1.21	$1.21	$1.21	$1.21	-25.2%	-48.7%	mar-98
49	Tubos de Acero Mex	1956	2002	1	$15.62	$16.63	$17.33	$17.17	$17.04	5.4%	8.9%	dic-02
50	Unefon	2000	2005	2	$3.00	$3.01	$2.98	$2.94	$2.92	24.5%	139.7%	jul-05
51	Union de Capitales	1991	2002	4	$0.60	$0.65	$0.61	$0.60	$0.60	-339%	-340%	dic-02
52	Universidad CNCI	1997	2011	1	$0.32	$0.30	$0.30	$0.30	$0.30	-0.6%	-2.2%	nov-11
53	US Commercial	2002	2007	1	$1.30	$1.30	$1.27	$1.27	$1.28	-85.7%	-630%	dic-07
54	Valle Jugos Del	1994	2007	1	$64.0	$47.9	$58.1	$65.5	$65.7	-10.9%	-47.9%	jul-07
55	Verzatec	2006	2008	1	$7.95	$7.36	$7.20	$7.12	$7.04	4.5%	7.2%	feb-08
56	Video Visa Gpo	1994	2001	3	$0.80	$1.00	$0.95	$0.94	$0.93	-47.8%	-94.1%	abr-01

(1) Correspond the year of the company IPO
(2) Is the delisting year
(3) Is the primary reason of delisting, #1 correspond to Acquisition, #2 correspond to Delisted, Compliance and Low Operation, #3 is related to Restructuring and #4 is Merger
(4) Event day stock price and
(*) Stock price during diferent periods in days
(5) Return on Assets ROA average previous 18 months
(6) Return on Equity (ROE) average previous 18 months
(7) delisted month and year

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For the second step and to understand the financial market context and how the outside investors perceived the firm, we used event study methodology to identify the abnormal returns of the stock price. The final stock price were more related when the company or the authorities released the information regarding the delisting process entered by the company, in this case the final stock price either was the final price that was traded on the market or the stock price day where the company stop traded in the financial market, we called to this particular final stock price the Event Day. Before the event day we tracked the stock price 270, 180, 120 and 90 days in order to identify if there were substantial abnormal return or losses during different periods.

For the second step we divided the entire data base in two subset of calculations, using logarithmic returns and arithmetic returns in stocks and market prices. Both data bases were calculated under different periods of time, using 90, 120, 180 and 270 days. For each subset of databases logarithmic and arithmetic we calculated the kurtosis, skewness, and the ordinary least square (OLS) market model and the assessment of the abnormal returns under parametric and nonparametric data.

To assess the abnormal returns using different windows periods we used the following formula to calculate the Abnormal Return *ARo* (Fama, Fisher, Lawrence, Jensen, & Roll, Richard, 1969):

$$ARo = Ro - (a - b \; X \; RMo) \tag{1}$$

Where the stock returns *Ro* is subtracted from the expected return market model, we used ordinary least square market model to calculate the parameters, *a* is denoted as the interception, and *b* the slope and *RMo* as the market return. Returns were calculated using the following formula: *Ro = Logarithm (Stock Price t / Stock Price (t-1)) and RMo = Logarithm (Market Index t / Market index (t-1)).* For arithmetic returns we calculated *Ro = ((Stock Price t – Stock Price (t-1)) / Stock Price (t-1)) and for RMo = ((Market Index t –Market Index (t-1)) / Market Index (t-1)).*

For each period of analysis, we calculate the market model OLS under the same period of time. For the parametric data set we used the following formula to access the excess returns (Patell, 1976).

$$T = \frac{1}{\sqrt{m}} \; \sum_{j=1}^{m} \frac{Aj,0}{\sqrt{Var \, (Aj,0)}} \tag{2}$$

Where the **m** is the size sample, **Aj,0** is the abnormal return on the event date and **Var (Aj,0)** is the variance under the window event. For the nonparametric subset of data we used the classical formula (Corrado, 1989) where **K** denotes the rank of the excess return or abnormal return, **n** is the number of days and **S(K)** is the standard deviation.

$$T = \frac{1}{n} \sum_{i=1}^{n} \frac{\left(K - \frac{n}{2}\right)}{S(K)} \tag{3}$$

Below is the number of expected abnormal results by firm, for each firm we used parametric, nonparametric, logarithm and arithmetic returns and 90, 120, 180 and 270 days before the event day, total calculations by firm were 16 using different event methodologies variations. The total calculation for the 56 companies were 896. Our particular research design permitted us to conclude that our null hypothesis for each firm is:

Ho: For each firm, there is no relation between the event day of the delisted announcement and changes in the stock price returns during the same day.

Table 4. *Data sets*

Calculations and Data Sets	Parametric Data					Nonparametric Data				
Event Methodology days	270	180	120	90	Total	270	180	120	90	Total
Data Set Logarithm Returns	56	56	56	56	224	56	56	56	56	224
Data Set Arithmetic Returns	56	56	56	56	224	56	56	56	56	224

Results and discussions.

The main purpose of this research is to understand why the MSE is getting smaller, using a unique universe of companies we wanted to explore ex-post the reasons and motives of why Mexican companies are opted to be private again, we explored the potential answers using two different perspectives to our universe of delisted firms, first we studied the context and the previous firm performance of the company to understand which kind of situation the companies faced before the decision to go private again. The second tool that we used to find potential answers was related to the event study methodology using different statistical variations to identify the abnormal returns under different time frame and statistical corrections.

For the first step and to understand the context around the firms, we discovered that 25 out 56 companies were losing money either as business or as investment, using ROA and ROE average for the last 18 months previous to the delisted day announcement. See details by firm in Table 3.

The average years that the delisted companies were public last only 9 years, calculated by the average delisted year minus the initial public offer year. See Table 5 where summarizes the context of the delisted firms from Table 3 results. From 56 companies 26 companies suffered from one form of wealth exchange or ownership change, acquisition was the first reason to go private again followed by the transparency or complains to law as public company, delisted reason was either by the firm or by the Mexican authority action.

Table 5. *Summary basic statistics. Reasons for delisted, stock price and financial performance*

Stats / Stock Price	IPO	Delisted	Reason	Event Day**	270*	180*	120*	90*	ROA+	ROE+	Delisted
Average	1993	2004	Acquisition (26 companies)	$18.42	$17.66	$18.06	$18.36	$18.47	-13%	-50%	jun-04
Min	1956	1998	Delisted (16)	$0.06	$0.09	$0.08	$0.07	$0.07	-339%	-630%	mar-98
Max	2007	2011	Restructuring (8)	$230	$243	$240	$237	$234	28%	418%	nov-11
Std Deviation	8.1	3.7	Merger (6)	$37.40	$37.43	$37.51	$37.56	$37.49	53%	154%	N/A

*Days before the event day
** Stock price data for the entire 56 companies
+ Average 18 months previous to delisted month

The average stock price under the event day was $18.42 but previous average stock prices using different periods denotes an anomaly with the data or the system, when a company decides to be delisted then the sole event can trigger positive or negative abnormal returns depending the nature of the delisted process, previous studies confirm the anomaly see (Sanger & Peterson, 1990) and (Sanger & McConnell, 1986), for our particular research study we expected abnormal returns in all companies due to the nature of the analysis, positive if the delisted procedure was related to merger or acquisition event negative because economic or business problem, we were wrong, our data shows that almost one year before the event day the average stock price was $17.66 less than 5% deviation from the event day price , not significant change was identify even at 90 days before the event day.

This particularity motivate us to follow the second step, previous data raised the question how a company with financial loss cannot suffer significant stock price decrease? Under this question we wanted to understand much better the reaction of the financial market and the potential anomaly related with insider information as part of the systemic flow, under event study methodology we designed two data sets using different statistical approaches to find our answers.

The first data set was related to logarithm return calculations, all return calculation using parametric and nonparametric returns were converted to logarithm returns. Table 6 summarizes the overall statistics of the model, details by firm are in Table 7.

Table 6. *Overall statistical results of abnormal returns on delisted firms*

Kurtosis	Skewness	Intercept	Slope	R-Square	Standar Error	Days traded before the event day	Abnormal Returns	P Value
69.6	0.80	0.000	0.18	0.034	0.028	259	0.719	0.662
58.3	0.52	0.000	0.14	0.031	0.029	189	0.913	0.663
46.7	0.50	0.000	0.12	0.033	0.030	132	14.356	0.659
39.4	-0.20	0.000	0.11	0.037	0.031	103	12.500	0.650

Table 7. *Test results using logarithm calculations*

#	Name	Parametric Data Logarithm Returns				Nonparametric Data Logarithm Returns			
		270	180	120	90	270	180	120	90
1	Acer Latinoamerica	0.215	0.076	0.016	-0.075	-0.717	-0.610	-0.576	-0.617
2	Agro Ind Exportador	0.849	0.706	0.607	0.583	0.849	0.706	0.607	0.583
3	Apasco S.A.	1.250	1.038	0.717	0.413	-1.648***	-1.659***	-1.497	-1.567
4	Argos Embotelladora	-15.11*	-12.56*	-31.08*	0.009	1.774***	1.789***	1.815***	-1.044
5	Axis Sistemas	-0.071	-0.086	-0.122	-0.142	-0.128	-0.072	0.053	0.136
6	Banamex Accival GF	-13.33*	-12.97*	-12.20*	-11.38*	1.834***	1.836***	1.891***	1.945***
7	Banco Compartamos	4.26*	3.97*	3.77*	3.47*	-1.787***	-1.805***	-1.840***	-1.863***
8	BBV-Probursa GF	-0.809	-0.744	-0.646	-0.867	1.317	1.312	1.218	1.416
9	Biper S.A de C.V.	-2.99*	-2.51**	-2.05**	-1.79***	1.709***	1.742***	1.743***	1.733***
10	Bufete Industrial	-4.15*	-4.13*	-9.93*	-13.83*	1.719***	1.763***	1.838***	-0.147
11	Campus S.A.	0.028	0.041	0.056	0.062	-0.773	-0.757	-0.869	-0.965
12	Carso Global Teleco	0.313	0.197	0.055	0.050	-1.184	-1.176	-1.323	-1.306

* Significant P Value at 0.01 level
** Significant at 0.05 level
*** Significant at 0.10 level

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Table 7. *Cont.*

#	Name	Parametric Data Logarithm Returns				Nonparametric Data Logarithm Returns			
		270	180	120	90	270	180	120	90
13	Continental Grupo	-1.147	-1.168	-1.129	-1.105	1.500	1.597	1.637***	1.710***
14	Control de Farmacia	-0.046	-0.061	-0.048	-0.034	0.725	0.651	0.548	0.463
15	Covarra Grupo	0.027	0.026	0.073	0.129	-0.207	-0.165	-0.299	0.251
16	Diana Editorial	11.06*	9.46*	7.71*	6.67*	-0.705	-1.237	-1.80***	-1.813***
17	Dina Grupo	-5.44*	-5.07*	-5.43*	-5.95*	1.766***	1.807***	1.851***	1.901***
18	Dixon Ticonderoga	3.83*	3.41*	2.86*	2.68*	-1.790***	-1.702***	-1.681***	-1.689***
19	Duty Free Sa de Cv	0.016	0.012	-0.025	-0.029	-0.723	-0.688	0.829	0.872
20	Ece S.A.	5.91*	7.49*	7.23*	6.33*	-1.862***	-1.806***	-1.842***	-1.882***
21	Embot Valle Anahuac	-0.447	-0.445	-0.396	-0.286	1.487	1.591	1.622***	1.565
22	Empaques Ponderosa	-5.61*	-6.88*	-5.72*	-5.04*	1.736***	1.832***	1.883***	1.906***
23	Ferrioni, S.A. de C	-0.067	-0.099	-0.136	-0.147	0.042	0.123	0.268	0.112
24	Fotoluz Corp	0.003	0.062	0.091	0.027	-0.512	-0.331	-0.379	-0.247
25	Gaccion	-0.081	-0.110	-0.127	-0.148	0.593	0.739	0.815	0.852
26	Gcorvi	2.395**	2.067**	1.727***	1.529	-1.871***	-1.809***	-1.845***	-1.883***
27	Gfbbva Bancomer	-0.819	-0.870	-0.866	-0.823	1.133	1.254	1.330	1.381
28	Gfbital	-0.928	-0.901	-1.175	-1.174	1.471	1.488	1.665***	1.710***
29	Giconsa	-12.92*	-25.67*	-781.2*	-677.0*	1.758***	1.805***	1.851***	1.887***
30	GModerna	-0.035	-0.049	-0.109	-0.122	-1.314	-1.345	1.234	1.181
31	Gomo	0.139	0.168	0.214	0.292	-1.155	-1.194	-1.391	-1.471
32	Gprove Quim	-0.039	0.134	0.191	0.057	1.771***	-1.829***	-1.877***	1.941***
33	Gsalinas Y Rocha	0.111	0.198	0.141	0.241	1.273	-1.569	1.262	-1.521
34	Gsanborns	-0.090	-0.105	-0.099	-0.103	0.125	0.185	0.273	0.286
35	Hylsamex	1.118	1.413	1.953**	2.550*	-1.554	-1.605***	-1.666***	-1.822***
36	Iusacell Gpo	1.162	1.138	1.184	1.474	-1.640***	-1.544	-1.622***	-1.734***
37	Ixe Gpo Financiero	0.062	0.080	0.005	-0.024	-1.168	-1.135	1.272	1.308
38	Maizoro Sa de Cv	1.372	1.151	0.895	0.738	-1.821***	-1.743***	-1.758***	-1.771***
39	Maq Diesel S. A.	-0.165	-0.168	-0.173	-0.214	0.014	0.243	0.028	0.148
40	Nadro S.A.	1.650***	1.572	4.25*	5.10*	-1.723***	-1.669***	-1.786***	-1.860***
41	Parras Cia Indus	-24.40*	-20.83*	-16.96*	-14.66*	1.826***	1.902***	1.985**	2.051**
42	Pepsigx (Gemex)	0.257	0.266	0.318	0.592	-1.199	-1.174	-1.207	-1.373
43	Planeacion Y Proyec	-0.164	-0.182	-0.244	-0.256	1.545	1.560	1.623***	1.580
44	Regioem B	23.03*	19.73*	18.26*	15.80*	-1.838***	-1.768***	-1.784***	-1.799***
45	Savia	-0.616	-0.964	-1.034	-1.157	1.380	1.572	1.648***	1.574
46	Sidek Grupo	3.97*	3.44*	4.79*	4.14*	-1.880***	-1.813***	-1.855***	-1.900***
47	Situr Grupo	3.32*	3.96*	4.08*	4.62*	-1.83***	-1.794***	-1.853***	-1.901***
48	Synkro Industrias	3.53*	3.02*	2.46*	2.13*	-0.043	-0.070	-0.1301	-0.205
49	Tubos de Acero Mex	-2.88*	-2.90*	-2.73*	-2.67*	1.734***	1.793***	1.820***	1.815***
50	Unefon	10.27*	9.65*	12.20*	10.60*	-1.780***	-1.796***	-1.819***	-1.859***
51	Union de Capitales	0.051	0.036	0.011	0.126	-0.581	-0.647	-0.654	-0.678
52	Universidad CNCI	-10.82*	-11.34*	-11.92*	-11.85*	1.792***	1.856***	1.915***	1.967**
53	US Commercial	0.112	0.091	0.083	0.090	-0.660	-0.597	-0.667	-0.629
54	Valle Jugos Del	-0.552	-0.541	-1.547	-1.729***	1.578	1.628***	1.711***	1.804***
55	Verzatec	3.49*	3.49*	3.30*	3.12*	-1.833***	-1.762***	-1.771***	-1.779***
56	Video Visa Gpo	0.128	0.119	0.007	0.000	-1.422	-1.418	1.471	1.568

* Significant P Value at 0.01 level
** Significant at 0.05 level
*** Significant at 0.10 level

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The event study technique permitted us to identify how was the reaction of the financial market towards specific event in one specific firm, our research model was based on the idea that if a company release information regarding the delisted process by definition will affect positively or negatively the stock price see (Das, Saudagaran, & Sinha, 2004), the assumption relays that financial markets will react to such event and then will be created abnormal returns.

Data from Table 8 denotes that under logarithm calculations, using parametric data only 24 firms out of 56 firms were experienced abnormal returns, results improves when we performed nonparametric data jumping to 31 out of 56 firms. These were unprecedented results because denotes that almost half of the universe of firms when they released the delisted announcement to the public investors the financial market did not react as expected. Numbers varies using arithmetic calculations, under arithmetic calculations and using parametric data we found 25 firms and using nonparametric data improves to 33 firms.

Table 8. *Overall results Ho rejected*** using event study*

	Parametric Data*					Nonparametric Data*				
Event periods days	270	180	120	90	Total	270	180	120	90	Total
Using Logarithm Returns **	22	21	23	22	88	24	25	31	26	106
Using Arithmetic Returns **	22	22	24	24	92	25	26	32	27	110

Results confirms previous studies, using nonparametric data set outperform the parametric procedure due to ranked and scaled of the abnormal returns, from 886 potential null Hypothesis only 396 were confirmed that event delisted announcement trigger abnormal returns on the stock prices, we expected 896 or all firms due to the research design. Logarithmic calculations results were more refined and precise compared with arithmetic returns, T Test values were lower and more precise than the counterpart, logarithmic results under nonparametric data also improve compared with parametric data. Our results confirms that can probably exist a systemic flow at MSE level, specifically regarding the insider information, financial market regulation, firm disclosure or regulation toward the delisted process. Investors must include these variables as part of the risk return trade off.

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