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Equity Issuance in Mexico.

Arun Kumar Tandon

Louisiana State University and Agricultural & Mechanical College

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EQUITY ISSUANCE IN MEXICO

A Dissertation

**Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor in Philosophy**

in

**The Interdepartmental Program in Business Administration
(Finance)**

by

Arun Kumar Tandon

B.A. (Hons), University of Delhi, 1987

M.B.A., Utah State University, 1991

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Abstract

This dissertation examines the equity issuance process from an international perspective. Specifically, it examines the underpricing, long run stock price performance and operating performance of Mexican ADR IPOs compared to that of domestic Mexican IPOs. This study also examines the share price response to global seasoned equity offerings by Mexican firms. Mexican IPOs and global seasoned equity issues by Mexican firms are further distinguished based on the nature of the foreign tranche, that is whether it is a Level III (public offering) or a 144A (private placement) issue. This distinction is maintained throughout the study owing to the differences and the unique nature of these markets.

ADR IPOs and ADR seasoned equity offerings are generally undertaken by large, well established Mexican firms and underwritten by prestigious underwriters. In addition, ADR issues incur substantial costs such as listing fees, increased disclosure of information, and costs incurred in complying with SEC rules and regulations. There are also benefits of an international listing such as increased investor recognition, an enlarged investor base and a higher degree of monitoring and certification.

This study uses data provided by the Mexican stock exchange over the period of 1989 to 1996 and finds that ADR IPOs of Mexican firms show modest underpricing and no long run stock price underperformance or decline in operating performance subsequent to the issue, in contrast to the findings for IPOs in the U.S. These findings are consistent with the well-established nature of Mexican firms that go public as well as the institutional features of ADRs. Global seasoned equity offerings and Mexican firm commitment domestic issues show the negative share price response usually associated with seasoned equity offerings in the United States.

Chapter 1: Introduction

With the continuing globalization of the financial world, there has been increased interest in American Depositary Receipts (ADRs) and foreign securities in general.¹ The dramatic increase in the trading of foreign stocks in the United States (US) provides a good indication of this sustained trend in the globalization of investing. In June 1993, ADRs accounted for about 7.5 percent of the nearly \$2.25 trillion worth of shares traded on the New York Stock Exchange (Murray, 1994). More specifically, in 1993 the volume of trading for ADRs on US exchanges totaled 6.3 billion certificates, a 47 percent increase over 1992 and the dollar volume was \$200 billion, a 60 percent increase over 1992 (Ramos, 1994).

In light of the above, it is not surprising that interest in emerging markets has grown considerably in the last few years.² The expansion of capital markets in the emerging economies is the result of a simple correlation of needs. As many countries in Latin America, Asia and to a lesser degree in central and eastern Europe, have shifted

¹ Only Canadian firms maintain a direct ordinary listing in the US, which must be on a US exchange.

² The International Finance Corporation (IFC) defines a country as emerging if the per capita income of the country is less than \$7,000. However, by this definition some Asian and African countries such as Singapore, South Africa and Israel would be classified as developed, even though most investors regard them as emerging markets (Hale, 1994). Usually the term emerging markets refers more to the development stage of the stock market. Generally, these markets are characterized by "small market capitalization, high market volatility, economic and political instability, dramatic currency swings, illiquidity and high transaction costs, rapid and unpredictable growth, constant change, and a limited amount of reliable information (Peavy et al., 1994)." In common parlance, it is simply a reflection of the pace of the economic development.

from quasi-state-run economies to market based economies, there has been a need for investment capital to keep pace with their development needs. From the viewpoint of US investors, emerging market investments have become increasingly attractive because of their high potential returns and diversification benefits. The attractive but volatile returns of emerging markets can be seen by looking at countries like Argentina and Mexico, where between 1989 and 1993 the annual returns on common stocks have ranged from -47.0 percent to 260.9 percent and 8.3 percent to 64.6 percent, respectively (Lyle, 1993).

Despite the increasing internationalization of capital markets and the accompanying increased interest in US ownership of foreign stocks, there have been relatively few studies of emerging markets or the effects of international listing on firm valuation in the home markets, mainly due to lack of availability of data. This study focuses on examining the equity issuance process, both for Initial Public Offerings (IPOs) and Seasoned Equity Offerings (SEOs), in the context of international equity offerings. An international equity offering refers to the special case of a domestic offering and an international offering (a US offering in the context of the present study), concurrently. The motivations for the study are threefold.

Firstly, a majority of the theoretical models and explanations of the issues related to the equity issuance process (such as IPO underpricing, long run stock price and

operating performance, and announcement effects of seasoned equity offering) rely heavily on the US institutional and regulatory framework. Clearly then, there is need for further international research to assess the robustness of current theoretical models as well as to question the validity of extending stylized facts (such as IPO underpricing, long run performance, intraday pattern of trading volume, volatility etc.) over to stock markets characterized as *emerging*, which by definition imply significant differences vis-a-vis well developed US capital markets. This discussion is not meant to suggest that the above mentioned stylized facts are isolated US phenomenon but rather that to assess whether the extent and magnitude of these well documented phenomena are country and/or sample period specific.

The following examples illustrate this point. In contrast to the well documented average first day return of about 15 percent for IPOs in the US and United Kingdom (countries with heavy IPO activity), initial returns have varied from 78.5 percent to 166.6 percent for Brazil and Malaysia, respectively (Ritter (1987), Aggarwal et al., (1993), Dawson (1987)). Another illustration of the inadequacy or the lack of applicability of certain models as explanations of emerging markets can be seen by considering the litigation hypothesis (Hensler (1996), Hughes and Thakor (1992)) that has been put forth as an explanation for the observed underpricing of IPOs. Even

though studies by Tinic (1988) and Hensler (1996) among others find empirical support for the litigation hypothesis in the context of the US it is questionable whether the same hypothesis can be used to explain underpricing in Mexico or other Latin American countries where there is little history or probability of legal retribution being imposed on the parties involved in the issuance of IPOs (Hensler, Herrera and Lockwood (1995)).

Secondly, it is only recently that IPOs or equity issuance in general have made a significant appearance in Latin America or much of the emerging economies, unlike the US and the UK which have had active equity markets (both primary as well as secondary) for a long time. It is only since the 1980s that the spread of liberal economic ideas, coupled with the economic stalemate and bureaucratic inertia of state directed investment, has led to major reforms and privatization programs in many developing countries. This is a departure from the long standing tradition of the state acting as a macro-entrepreneur with its emphasis on sovereign borrowing rather than direct funding of firms (Glen and Pinto, (1994)).

In the context of Mexico, the focus of the present study, it was only in the late 1980's that there was a shift in government policy leading to the privatization of banks and many government owned industries, spurring the private sector (Mexican economic background is discussed in greater detail in chapter 2). Consequently, there have been few

published studies of the Bolsa Mexicana de Valores (the official name of the Mexican stock exchange), underscoring the need for further research. This lack of research is also partly due to lack of availability of data. In fact, the earliest data maintained by Bolsa de Valores on a computerized basis dates only from 1989. Furthermore, the Bolsa de Valores is of particular interest given its size and status as one of the leading emerging markets, the increasing interest of international investors, and the recently enacted North American Free Trade Agreement (NAFTA).

Thirdly, this study reexamines the *going public* process as well as seasoned equity issuance in the context of globalization, a perspective that is both timely as well as relatively unexplored. Much of the extant literature on IPOs and seasoned equity issuance is based on events occurring only in the home country of the issuing firm without the presence of a foreign tranche. Yet there is a growing trend in both the IPO and seasoned equity process toward internationalization, that is, a domestic equity offering that includes an international offering (outside the home country), concurrently. In the case of a Mexican firm going public, the company has the choice of making a purely domestic offering or simultaneously raising capital outside the home jurisdiction by conducting an American Depositary Receipts (ADR) offering. Further, the firm has a choice of making a 144A (private placement) offering or a Level III sponsored ADR offering, which differ in terms of

exchange listing and trading venue, requirements to comply with US Generally Accepted Accounting Principles (GAAP), the level of continuing disclosure, and the firm's ability to raise capital subsequently (the different ADR programs are discussed in chapter 3).

Similarly, a seasoned equity issuance could be a rights offering, a purely domestic offering, or an ADR offering. Moreover, a firm has a choice of making a Level II ADR offering (which is simply an exchange listing but does not permit any capital raising activity) prior to upgrading to a Level III offering at the time of the seasoned equity issuance. The integration of markets implied by the above events raises interesting and important questions which this study hopes to answer. What type of firms are more likely to engage in international equity offerings? Can any firm characteristics be identified that increase the likelihood or influence a company's decision to issue equity abroad? Is there a separating equilibrium or pooling equilibrium in terms of firm quality with respect to the place of offering (domestic or global) and the type of international offering (Level III sponsored program versus 144A private placement issue)? Are there differences in underpricing, aftermarket stock price and operating performance of these companies, and are the empirical results consistent with the notion of a self selection process.

Debates over the degree of market fragmentation/integration as well as over the costs and benefits of a cross-border listing (including 144A private placement) make the potential impact of international listing on various stock characteristics (such as valuation effects, risk, return, volatility, bid-ask spread, liquidity, information flow, and the price discovery process etc.) controversial issues amongst researchers (Lau et al. 1994, Cheung and Lee 1995). Segmentation of markets due to information constraints, differences in tax structures, or regulatory barriers create incentives for firms to adopt policies that mitigate associated negative effects. Foerster and Karolyi (1996) divide investment barriers into direct and indirect costs. Direct costs comprise higher transaction costs, restrictions on foreign ownership of capital, and tax related issues such as withholding taxes, capital gains tax etc. Indirect costs arise from higher monitoring costs due to less stringent disclosure environment or a lack of information on securities.

Errunza and Losq, (1985) develop an asset pricing model in terms of a two country mildly segmented market scenario. In their model, country 1 securities can be purchased by investors in either country 1 or country 2. However, country 2 securities are restricted and can only be purchased by investors in country 2. Their results show that country 2 securities would command a positive *super* risk premium unlike country 1 securities that would be

priced as if markets were completely integrated. An international listing for a country 2 security would lead to a lower equilibrium expected return as the super risk premium would disappear (due to, among other reasons, lower transaction costs, lower information costs from more disclosure of information as well as more production of information from increased analyst coverage, and improved liquidity resulting from multiple market makers leading to a lower bid-ask spread). This is consistent with Merton's (1987) investor recognition hypothesis and Amihud and Mendelson's (1986) liquidity hypothesis. Stapleton and Subrahmanyam (1977) show that faced with a segmented market, managers of such firms will try to counter the negative effects of segmentation by direct foreign investment, mergers with foreign firms, or dual listing. In the context of the present study, Mexican securities would be viewed as country 2 securities.

Even though there are no explicit investment barriers that prohibit US investors from purchasing Mexican securities, absence of sufficient and reliable information could cause them to view the securities in this manner. This would be in accordance with Klein and Bawa (1977) and Merton (1987) who show that it may be optimal for investors to exclude from their portfolios securities on which they possess limited information. Thus, in completely integrated capital markets dual listing of a firm's stock on a foreign exchange would not be expected to have a

significant effect on the stock characteristics in the home country any more than would be the case if the capital markets were either completely or mildly segmented.

In addition to the degree of market segmentation, further confounding the issue is the tradeoff involved in the costs and benefits associated with an international listing. The benefits of an international listing include increased investor recognition, international valuation, an enlarged ownership base, access to more extensive capital markets and a higher degree of monitoring and certification. There are substantial costs associated with international listing that include listing fees, greater disclosure of information, costs incurred in complying with different standards of disclosure, an increase in litigation potential due to more stringent rules and regulations and stricter enforcement in the US. In fact, firms have a choice in terms of selecting the particular market (such as NYSE, the London market, or other exchanges) for an overseas listing. The US, with the highest disclosure requirements in the world, may not be the optimal location for some firms in other countries to list on (Siconolfi, 1992). It is plausible that some firms might obtain the benefits of an international listing and convey an unambiguous signal of quality by listing their shares on an exchange other than NYSE, for example the London stock market (Cheung and Lee, 1995).

The above discussion implies that the net effect of an overseas listing on shareholder wealth is an open question unlike the typical case of a first exchange listing in a home country which would be considered a positive signal conveying managers confidence in the future prospects of the firm.³ This suggests that the effects of an international listing should be analyzed on a case by case basis (that is, by country) as marginal gains from such a listing are sensitive to degree of market integration, associated costs and benefits (as discussed above), and the regulatory and institutional framework of the countries involved. Thus, it is unclear whether there are positive returns from an additional listing (and more specifically an international listing) and this question can only be answered by empirical research.

The previous research that is closest in spirit to the proposed study is in the area of valuation effects of international listings.⁴ The chronology of events in a listing involves a formal application, acceptance or

³ Studies by VanHorne (1970), Ying et al. (1977), Fabozzi (1981), McConnell and Sanger (1984, 1987) and Grammatikos and Papaioannou (1986) among others investigate the effect on stock returns of a firm changing its domestic trading venue, as would be the case when a firm moves from the over-the-counter market to one of the organized exchanges such as the New York Stock Exchange (NYSE) or the American Stock Exchange. The empirical findings of these studies show that the market reacts positively to the listing announcement during the pre-listing period. However, the price decline during the post-listing period seems to largely offset the initial gain.

⁴ There is a line of research that has examined issues such as changes in liquidity, bid-ask spread, volatility, order flow and other microstructure issues in the context of international listing. However, due to the different nature and direction of these studies they are not discussed in this paper. Along the same lines some studies have investigated issues related to information flow and price discovery but in the context of dual domestic listing (that is, stocks

rejection by the exchange, followed by the actual listing and commencement of trading. Most previous studies use the first trading date as the event date, a deviation from typical event studies that focus on detecting abnormal returns around definitive announcement dates. The time-period involved in establishing an ADR program and the start of trading ranges from approximately 7 weeks for a 144A program to 9 weeks for a Level I ADR program, with Level II or Level III being the most time consuming, requiring nearly 14 weeks (An information guide to Depositary Receipts, 1995). It is more meaningful to discuss the extant literature in terms of studies that have looked at US firms listing abroad versus studies that have examined foreign firms' listing in the US since for the reasons listed above the valuation effects of an international listing, a priori, are expected to depend upon the domicile of the stock.

Among the most prominent studies that have examined stock price reactions to US firms listing their shares abroad is the study by Howe and Kelm (1987). The focus of their study is the cumulative abnormal returns (CARs) starting 90 days prior to the actual listing and extending 40 days after the event. Their sample includes a total of 158 listings (includes first, second, and third listing) by US firms on 16 exchanges abroad. They argue that by focusing on CARs rather than simply abnormal returns (ARs),

that are traded on more than one *domestic* exchange.

they are able to make inferences about the net effect of the entire listing process. They find significant negative CARs returns during the pre-listing period (application and approval phase) as well as during the post-listing period.⁵

The surprising direction of the results is perhaps well expressed by the authors themselves, "Corporate managers who are concerned with the financial well-being of their common shareholders should *avoid* foreign listings. Thus conclusion is perhaps counterintuitive and definitely runs contrary to the current trend of the "internationalization" of financial markets. However, given the robustness and significance of the results, the benefits of listing appear to be noticeably outweighed by the costs." They attribute the negative stock price reaction to indirect costs associated with the regulatory uncertainty firms expose themselves to when they list overseas, although they never support this assertion. However, Reilly et al., (1990) examine US firms listings on the Tokyo Stock Exchange and find weak positive abnormal returns around the application and significant negative abnormal returns on the day of the actual listing. In contrast, Lee (1991) investigates US firms listings on the London and Toronto stock exchanges and do not find evidence of any valuation effects associated with the listing.

⁵ The presence of negative returns in the post-listing period even for studies that find positive abnormal returns in the pre-listing period can be best characterized as anomalous with no satisfactory theoretical explanation (Alexander et al., 1987, Jayaraman et al., 1993).

More recently, Lau et al., (1994) reexamine the question of whether international stock listings benefit stockholders by examining a sample of 108 US firms that had a foreign listing involving 8 countries (15 foreign stock exchanges). They detect no abnormal returns around the application date, and they find significant positive CARs 11 days surrounding the acceptance day, although single-day ARs are insignificant. Similar to previous studies, they discount the absence of one-day ARs based on the fact that "Since the application and acceptance dates are rarely published in newspapers and are not widely known to investors, the absence of one-day abnormal returns may not necessarily imply that listings have no valuation consequences." Like earlier studies, they find a significant negative abnormal return on the first trading date, which they term a *transient negative valuation impact*. Their results also indicate a negative post-listing valuation impact that remains significant 125 trading days after the listing as measured by CARs (the significance of the post-listing results is only driven by strong negative CARs on two exchanges, Tokyo and Basel). They characterize their results as *weak* evidence supporting the notion that foreign listing is beneficial to stockholders.

The following studies also examine the impact of listing but with the important difference that they consider the case of foreign stocks listing in the US instead of vice-versa. Alexander et al., (1988) using

monthly returns find positive significant CARs in the pre-listing period (where $t=0$ denotes the month the security starts trading in the US), insignificant CARs in the listing period, and significant negative CARs in the post-listing period. Partitioning their sample into Canadian firms and non-Canadian firms (13 Canadian stocks and 21 ADRs from Japan, Australia and other countries) they find this effect to be more pronounced for non-Canadian firms than Canadian firms. They conjecture that this difference may be due to relatively less segmentation between the Canadian and the US market compared to non-Canadian markets and the US market or alternatively due to the higher covariance of the Canadian market with the US market. Jayaraman et al., (1993) find positive abnormal returns on the day of listing (day 0 is the listing date for the ADR) and no negative post-listing performance, results that again are different from and inconsistent with earlier studies. Their sample consists of mainly Japanese and British firms. Foerster and Karolyi (1996) document the effect of foreign listing on shareholders wealth. Their sample consists mainly of Canadian and European (particularly British) firms. Their findings of significant average abnormal returns in the pre-listing and listing period, and negative performance afterwards are similar to the results of Alexander et al., 1988. The inconsistency of the above results implies that the valuation effects of an international listing remain

ambiguous, a point widely acknowledged and mentioned in the aforementioned literature.

The objective of this study is to investigate many of the important issues raised above in the context of the Mexican Stock Market. The Mexican Stock Market is particularly suited for the purposes of this study for several reasons. Firstly, Mexican ADRs account for a significant percentage of the total number of ADRs currently traded in the US. Also, Mexican ADRs account for a significant percentage of share trading volume and dollar trading volume, ranking among the top five countries and accounting for the largest percentage of share and dollar trading volume by country. Secondly, the importance of ADRs as a separate asset class and their impact on the underlying Mexican securities is indicated by the fact that ADRs represent on an average 60 percent of total foreign investment in the Mexican equity market over the period of 1991 to 1996. Total foreign investment as a percentage of the market capitalization of Bolsa has ranged from 25 percent to 30 percent over the same period. Lastly, the trading hours of the Bolsa and NYSE overlap to a great extent which permits an examination of effects of an international listing on the underlying stocks in isolation without the additional confounding effects of extended trading hours.

More specifically, this study examines the performance of IPOs in Mexico distinguishing between those that are purely domestic versus those that include an international

offering, a focus that is maintained throughout the paper. A cross-sectional regression framework is used to identify variables that account for underpricing as well as to examine and test the robustness of existing models that have been developed to explain the underpricing phenomenon. This study also investigates the well documented deterioration in the long-run stock price as well as operating performance following an initial public offering. Finally, seasoned equity offerings (both domestic as well as international) are analyzed using event study methodology to examine the impact of international cross listing on shareholder wealth.

The remainder of the dissertation is organized as follows. Chapter 2 presents a description of the Mexican Stock Market and its various institutional details. It also includes a discussion of the distinguishing features of Mexican companies as well as important rules and regulations pertaining to them. Chapter 3 is an overview of the different depositary programs that can be established by a foreign firm in the US. Chapter 4 discusses the data used in the study. Chapter 5 reviews the relevant literature on IPOs followed by empirical results on underpricing, long-run stock price performance, operating performance and factors explaining underpricing. Chapter 6 addresses the issue of international cross-listing on shareholder wealth. Concluding remarks and a brief summary appear in chapter 7.

Chapter 2: Mexican Stock Market

2.1 Introduction

The Mexican Stock Exchange was founded in 1894. In 1976 the institution adopted its current corporate name: Bolsa Mexicana de Valores, S.A. de C.V. (BMV), currently the only exchange in the country (although the Securities Market Act of 1975 permits the existence of one stock exchange in each city, subject to meeting certain requirements). BMV is a private organization, constituted as a (variable capital) corporation, and its stockholders are brokerage firms or financial intermediaries (registered with the National Registry of Securities and Intermediaries), each of which has an equal share of the capital.

The brokerage firms are the only entities authorized to trade on the exchange.⁶ Presently, there are 27 Mexican brokerage firms that trade on the Bolsa. In keeping with the spirit of reforms that began in 1989 that aimed at building a deregulated and competitive framework for the Mexican financial system, participation by foreign brokers was allowed in 1993. As a result of this change in policy more than 100 international financial institutions have applied to set up brokerage operations, since April 1994. As of June 1995, 20 foreign firms had been accepted by the Mexican Treasury, including Bank of Tokyo, Baring Brothers, Deutsche

⁶ A brokerage house carries out operations on its own account and on behalf of third parties, that is, it acts both as a dealer and a broker. However, brokerage house officials are prohibited from owning shares.

Bank, Goldman Sachs, Lehman Brothers, Morgan Stanley and Swiss Bank. In the second half of 1995 BMV authorized three new brokerage firms, Santander, Merrill Lynch and Bankers Trust, to operate on the trading floor. The trading hours for BMV are 9:30 a.m. - 4:00 p.m. (US Eastern Time) from Monday to Friday, throughout the year with the exception of holidays authorized by the National Securities Commission. A trading session is divided into seven trading periods and five recesses of five minutes each. The first trading period is preceded by the entry of bid and ask quotations. During the last trading period for the day all types of transactions are allowed, except entry of bids.

The Mexican stock market is one of the largest emerging markets and is far more developed than the other stock markets in Latin America, despite the fact that trading in stocks represents less than 2% of trading by value on the Mexican securities market from 1988 to 1994.⁷ At the end of March 1995, there were 193 companies (excluding mutual funds) listed on the Bolsa, with a market capitalization of approximately US \$107 billion.

The dollar capitalization of the Mexican stock market increased 3,500% during the 1985-1992 period, a growth broadly in line with the increase in macroeconomic stability and financial liberalization. However, BMV is characterized by a high degree of market concentration (a feature common to

⁷ Total trading includes the amount of trading in the capital market and the money market.

most emerging markets). In 1991, the top 10 listed companies on BMV accounted for more than 50% of the market capitalization. The comparable market concentration in mature markets generally represents less than 25% of total market capitalization. Presently, Telefonos de Mexico alone accounts for about 25% of the total market capitalization. In 1994, the five most actively traded equity issues represented approximately 55% of the total volume of equity issues traded on the Mexican Stock Exchange.

Total value traded in 1994 was U.S \$84.01 billion, an increase of 34.87% over 1993. The volume of shares traded was 23.85 billion, a decline of 15.27% over 1993, with an average daily traded value of approximately U.S \$336 million and an average daily trading volume of 83.35 million shares. Some important summary statistics and market capitalization behavior are presented in Table 2.1, Figure 2.1, and Figure 2.2.

2.2 Main Mexican Equity Securities

2.2.1 Stocks

Mexican companies can issue common as well as preferred stock. Each company may issue several different series of stock, each with different rights or shareholders base. In comparison, most companies in the United States issue just one class of common stock.⁸ Following is a description of the different categories of stock:

⁸ Traditionally, the NYSE has discouraged companies from creating dual or multiple classes of stock with unequal voting rights although there are exceptions such as Ford (Class B), Citizens Utility (Class A and Class B) and General Motors (GM Classic, Class E and Class H).

Table 2.1

Stock Market Data

• Equity Market	1989	1990	1991	1992	1993	1994	1995	1996
Number of Companies	203	199	207	199	190	206	185	193
New Listings	2	5	19	24	24	21	-	-
Market Capitalization (in US\$ million)	26,562.71	40,939.86	101,718.65	138,749.07	200,613.34	129,850.36	90,939	106,780
Trading Value (in US\$ million)	6,161	12,103	31,499.94	44,566.24	62,357.82	84,101.50	34,646	43,134
Market Capitalization (in Mexican M\$ million)	71,507.88	120,919.97	312,670.92	433,313.35	623,887.42	641,460.79	698,797	838,682
Trading Value (in Mexican M\$ million)	--	--	--	137,902	194,422	281,554	221,024	327,028
Daily Average (in US\$ million)	25	49	127	178	248	336	--	--
Trading Volume (in million of shares)	7,404.96	10,673.19	28,337.42	34,986.40	28,144.11	23,843.36	22,164.67	24,463.88
Daily Average (in million of shares)	29.86	43.04	72.17	95.15	83.35	89.52	88.66	97.08

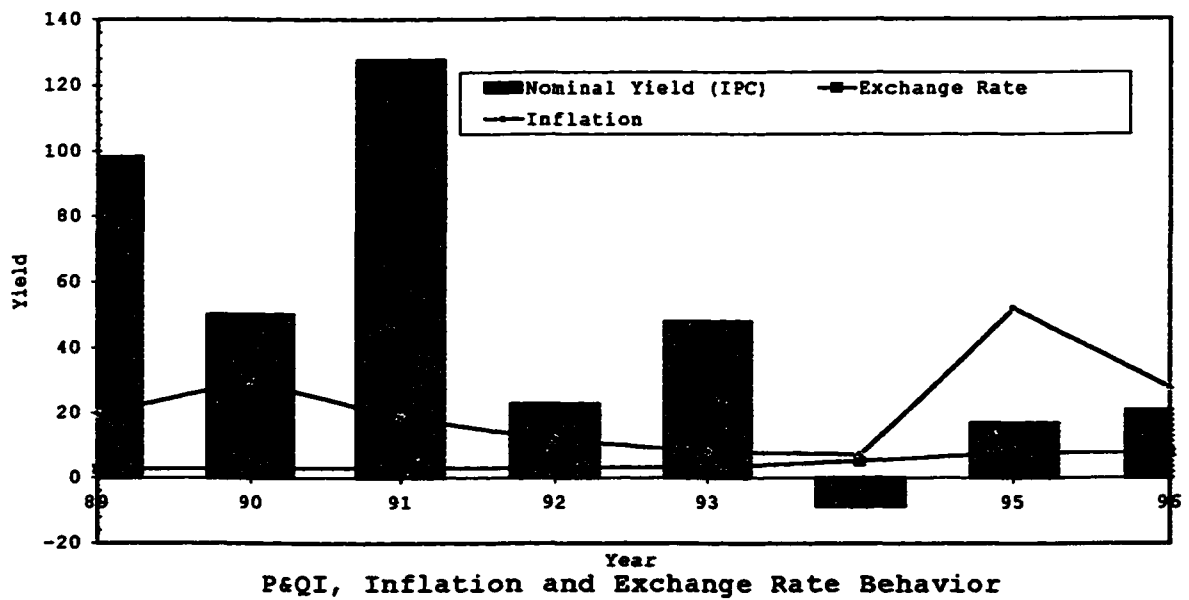
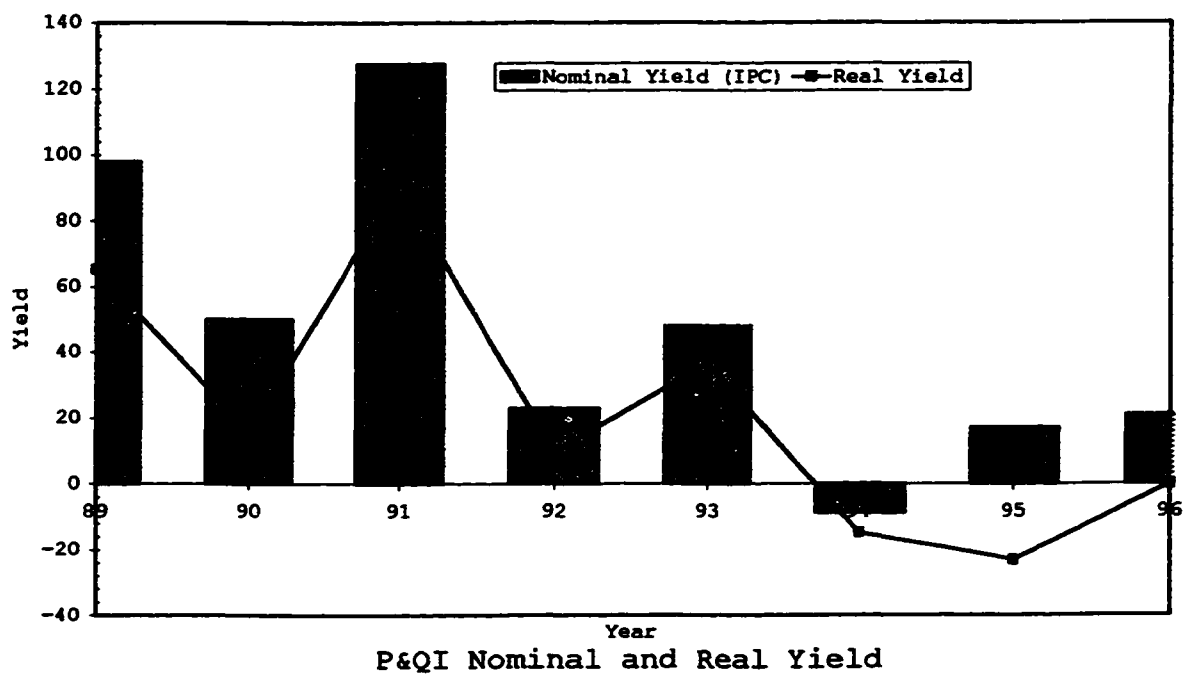


Figure 2.1

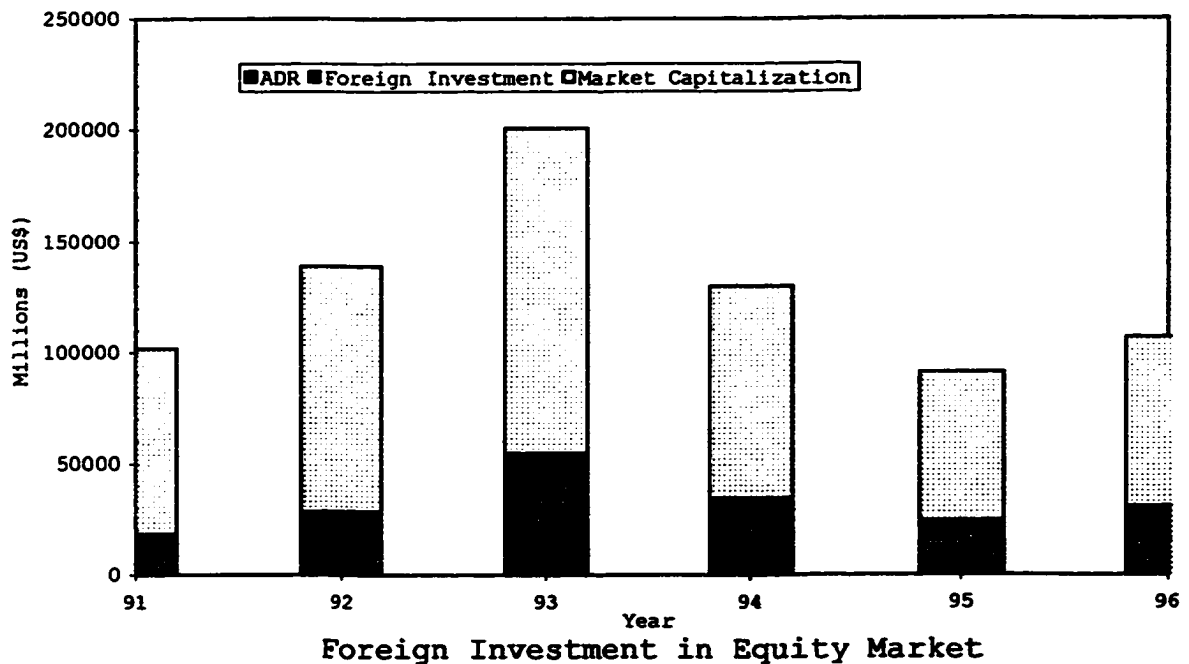
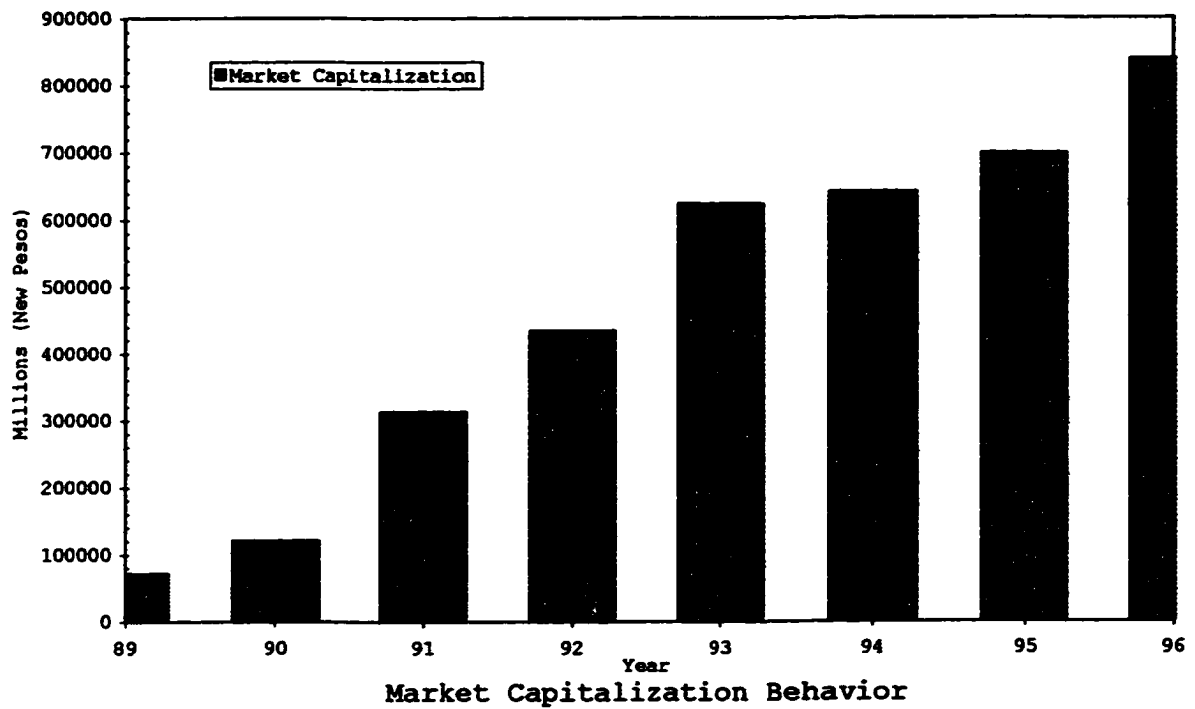


Figure 2.2

- "A" shares have full economic and corporate rights and can be directly owned only by Mexican nationals. They account for at least 51 percent of company voting rights.

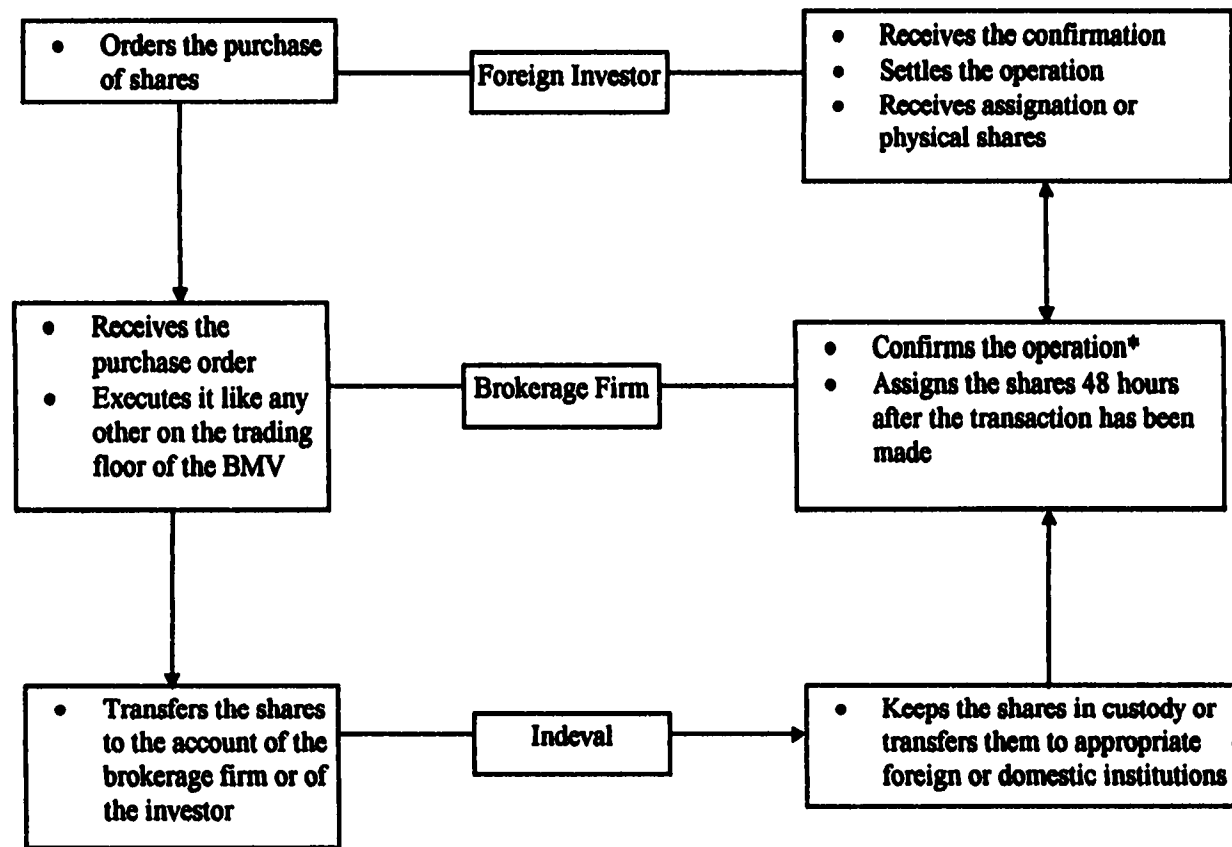
- Free Subscription Shares - "B" shares can be owned by foreigners (unless the company is a financial group or multiple banking institution) as well as Mexicans and convey the same rights as the "A"s. These represent around 40 to 49% of the total capital stock, although there are cases in which the proportion rises to more than 50%. Individuals can own only up to ten percent of the shares outstanding. The steps involved in the purchase or sale of free subscription shares are shown in Figure 2.3. Both series A and B shares can be further divided into:

Series I (1 or F) - shares corresponding to the fixed portion of the capital.

Series II (2 or V) - shares corresponding to the variable portion of the capital.

As per company statutes, each firm must maintain a minimum level of capital, the fixed part of which cannot be changed without the approval of the shareholders at an extraordinary meeting. The variable part changes whenever a company conducts a rights issue or a stock repurchase. However, both series I and series II carry equal rights.

- Limited Voting Shares - Foreign investors may acquire series "C" or "L" stocks, which convey fundamental economic rights and some very reduced voting rights. Series "C"



*The operation can also be confirmed by Indeval

Figure 2.3

Free Subscription Shares

shares are limited to 30% of total capital. Series "L" is similar to Series "C", but carries no voting rights.

The series classification presented above is not the most comprehensive; a variety of other series designations exist and are presented in Table 2.6. The basic premise behind the series classification is to ensure domestic control of Mexican firms, a policy followed in some other developing countries that also seek to restrict or control foreign equity investment.

2.2.2 Certificates of Ordinary Participation (CPOs)

Foreign investment on the Bolsa in most stocks is formally permitted up to 49%. However, in practice this percentage is often not available for new investment because equity may already be held by a foreign partner. This practical restriction led in 1989 to the revision of rules for stock investment. The new regulation to promote Mexican investment and regulate foreign investment, published in May 1989, significantly broadened the options for foreign investment. Effective November 1989, foreign investors can buy stock intended exclusively for Mexican nationals (Series "A") through Certificates of Ordinary Participation issued by trusts or neutral funds. CPOs are negotiable instruments issued by a Mexican Trust, presently managed by National Financiera (NAFINSA), a Mexican development bank, certifying that series "A" shares of listed company are held in the trust.⁹ Following execution of a purchase order for series

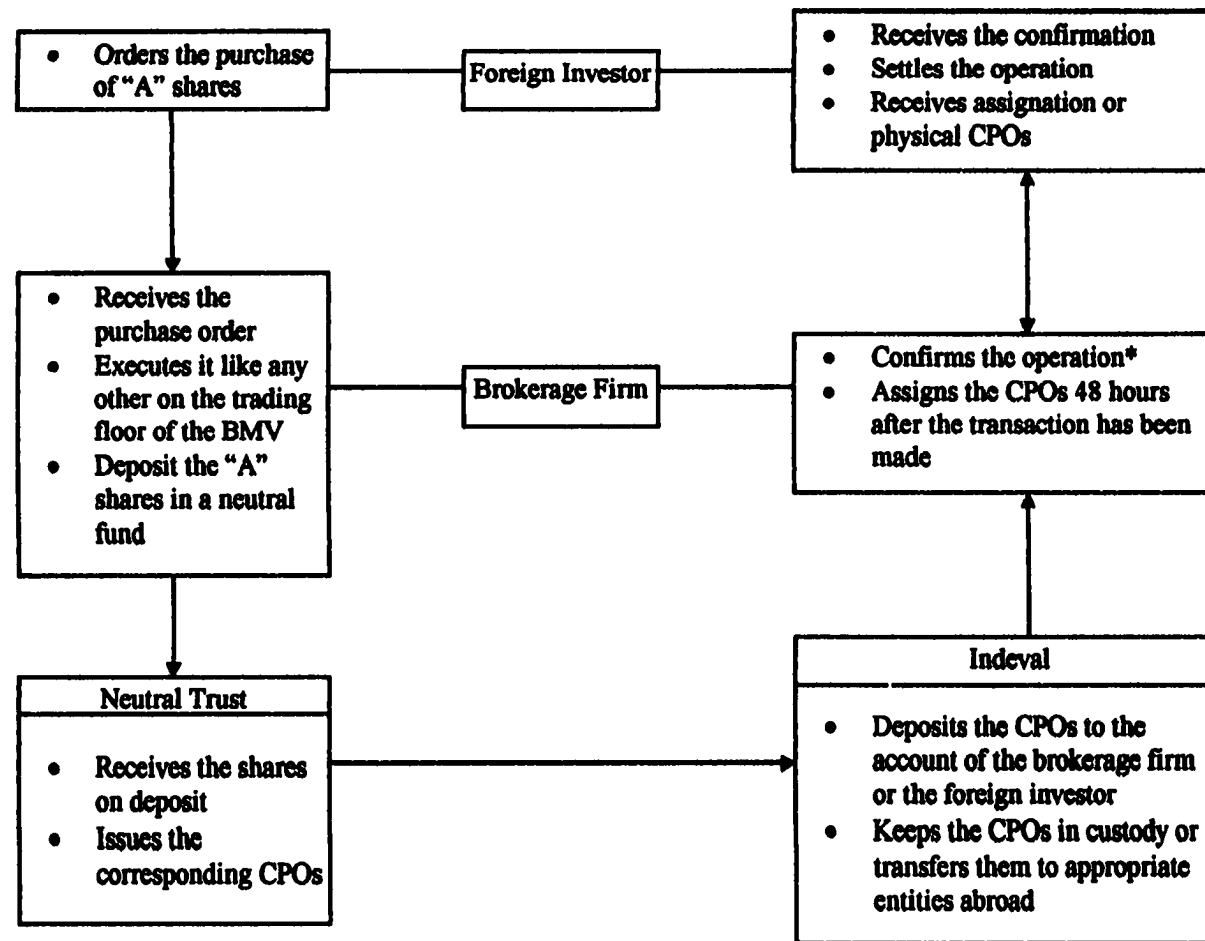
⁹ It is required that the companies whose shares participate in the trust

"A" shares by a foreign investor, the stock is deposited in the trust which then issues the corresponding CPOs. The CPOs are then deposited in the account of the brokerage firm or the foreign investor with S.D. Indeval (Instituto para el Deposito de Valores).¹⁰ In the case of a sell order, the stock is taken out of the trust for sale, and the CPO outstanding against it is canceled. CPOs have the same economic rights as the underlying shares but no voting rights. A schematic presentation of the steps involved in the purchase or sale of a CPO is presented in Figure 2.4. The holder of the CPO is obliged to adhere to the majority.

In addition to CPOs against series A stock Mexican firms can also issue stock representative of their capital in series "N" which can be subscribed by neutral trusts. The fiduciary participation certificates or CPOs issued against these neutral shares (N) represent only pecuniary rights and can be acquired by foreign individuals or institutional investors. The neutral shares are not taken into account in

make or intend to make new investments to expand their activities. Most firms comply with this requirement.

¹⁰ S.D. Indeval is the Central Securities Depositary of Mexico. Its functions include custody, administration, transferring, clearing and settlement of securities. More specifically, it is responsible for collection of dividends (either cash or stock), interest, splits, etc. corresponding to the securities held on deposit on behalf of its participants. Currently, S.D. Indeval keeps all equities and money market instruments traded on the Bolsa with the exception of Federal Government issues which are kept by the Central Bank (Banco de Mexico). S.D. Indeval is also in the process of establishing links with foreign institutions similar to itself, such as Cedel and Euroclear (two of the most important clearing agents in Europe) with the aim of facilitating the settlement and clearing process for international transactions. In October 1987, the institution was privatized and became S.D. Indeval, S.A. de C.V.; prior to that it operated as a decentralized government organization.



*The operation can also be confirmed by Indeval

Figure 2.4

Certificates of Ordinary Participation (CPOs)

determining the proportion of the equity interests of foreign investors in the capital stock of issuing companies.

2.2.3 Mutual Funds and American Depositary Receipts (ADRs)

Other alternatives for investing in Mexican stocks include common-stock mutual funds listed on the Bolsa, offshore mutual funds listed outside Mexico, and American Depositary Receipts (ADRs). Foreigners may own up to 49% of a stock mutual fund, with no one investor permitted to hold more than 10% of the fund regardless of nationality. The equity funds (Fondos Comunes) must manage their portfolios within certain parameters in order to diversify risk and offer adequate liquidity. The common stock funds cannot invest more than 10% of their capital in the securities of any one company; they can acquire no more than 30% of the capital of a single company; and between 10% and 20% of their capital must be in securities with high liquidity (discussed later) and no less than 50% in equity.¹¹ Common stock funds can be constituted as open or closed-end funds; however most of them have adopted the former mode.

Another category of managed portfolio available to investors is a Venture Capital Fund (Sincas). Venture capital funds are relatively new in the market and as the name suggests provide venture capital, management, and technological skills to small and medium sized companies. SINCAS must be constituted as closed end funds but unlike

¹¹ Although common stock mutual funds primarily invest in stocks they may also invest in money market and fixed income securities (somewhat similar in concept to Balance Funds).

closed end funds the price of SINCA's is determined by Valuation Committees and not supply and demand. It should be pointed out that fixed-income funds (Renta Fija) are much larger in number as well in terms of assets under management. Equity funds are in second place followed by venture capital funds. The portfolios of fixed income funds are highly concentrated in money market instruments, mainly government issues. There are two kinds of fixed income funds, one for individual investors and the other for corporate investors. Both money funds (fixed income funds) as well as stock funds are managed either by brokerage firms or banks.

Offshore mutual funds and ADRs represent perhaps the easiest means for foreign investors to access Mexican securities. Some of the internationally listed funds whose portfolios consist entirely of Mexican securities include the Mexican Fund (listed on NYSE in 1981), Mexico Equity and Income Fund (listed on NYSE in 1990) and the Emerging Mexico Fund (listed on NYSE in 1990). Additionally, there are also international equity funds such as Latin America Equity Fund and Latin America Inv., that focus on Latin America and invest partially in Mexican securities. Besides the ease of transacting in a familiar market place the shares of these funds have a highly liquid secondary market in contrast to the sale of stock on a relatively illiquid foreign stock exchange.

The most popular alternative for foreign investment in Mexican stock is through ADRs of Mexican companies traded

in the United States. Of the US \$34.40 billion total foreign investment in the Mexican stock market at the end of 1994, 61.53% corresponds to ADRs. There are currently 63 Mexican companies with ADRs traded in the US. A breakdown of the level of foreign investment in ADRs vis-a-vis other alternatives available for foreign participation is presented in Table 2.2 (Table 2.3 also presents related information). ADRs are negotiable instruments traded in the US, issued by an American depositary bank certifying that equity of a non-U.S. corporation is held by the depositary's custodian abroad (ADRs are discussed in greater detail later). In the case of Mexican equity securities there are two kinds of ADRs:

- Traditional ADRs, certifying the deposit of non-"A" shares.
- ADRs for CPOs, certifying the deposit of CPOs issued by a Mexican trust.

A more detailed sketch of the different parties and the steps involved in the transaction of a Mexican ADR is presented in Figure 2.5 and Figure 2.6.

2.2.4 Financial Sector

The above discussion applies to all companies listed on the Bolsa except those in the financial services sector. More specifically, there is a separate series classification for banks, brokerage firms, and financial groups. The important events that have affected the financial sector over the last decade or so merit special attention in order to better

Table 2.2
Foreign Investment in Equity Market

	Dec. 1991	Dec. 1992	Dec. 1993	Dec. 1994	Dec. 1995	Dec. 1996
ADR's	13,733.46	21,153.95	33,959.55	21,162.85	15,223.50	15,108.14
Mexico Fund	499.33	619.00	1,363.65	765.58	750.27	920.17
Free subscription shares	2,960.96	5,096.98	12,906.07	8,079.01	5,884.28	11,418.62
Neutral Fund	1,348.76	1,798.08	6,380.61	4,348.43	2,620.28	3,506.59
Second-tier market	--	--	4.05	23.73	31.29	--
Warrants	--	--	18.11	15.55	5.96	0.95
Total Stock Market	18,542.51	28,668.01	54,632.04	34,395.15	24,515.58	30,954.47
Total Debt Instruments	5,466.28	14,206.97	21,849.73	17,167.10	--	--
Total Foreign Investment in the Securities Market	24,008.79	42,874.98	76,481.77	51,562.25	--	--

Table 2.3**Selected Economic Indicators and Foreign Investment in the Stock Market.**

Year	Nominal Yield	Real Yield	Inflation	Exchange Rate (Peso/\$)	Foreign Investment as a % of Market Capitalization	ADRs as a % of Foreign Investment
1989	98.04	65.45	19.70	2.68	--	--
1990	50.10	15.52	29.90	2.959	--	--
1991	127.65	91.63	18.80	3.075	18.23	74.06
1992	22.91	9.84	11.90	3.119	20.66	73.79
1993	47.92	36.95	8.00	3.106	27.23	62.16
1994	-8.72	-14.73	7.10	5.05	26.49	61.53
1995	16.96	-23.05	52.00	7.68	26.96	62.10
1996	20.97	-0.05	27.80	7.869	28.99	48.81

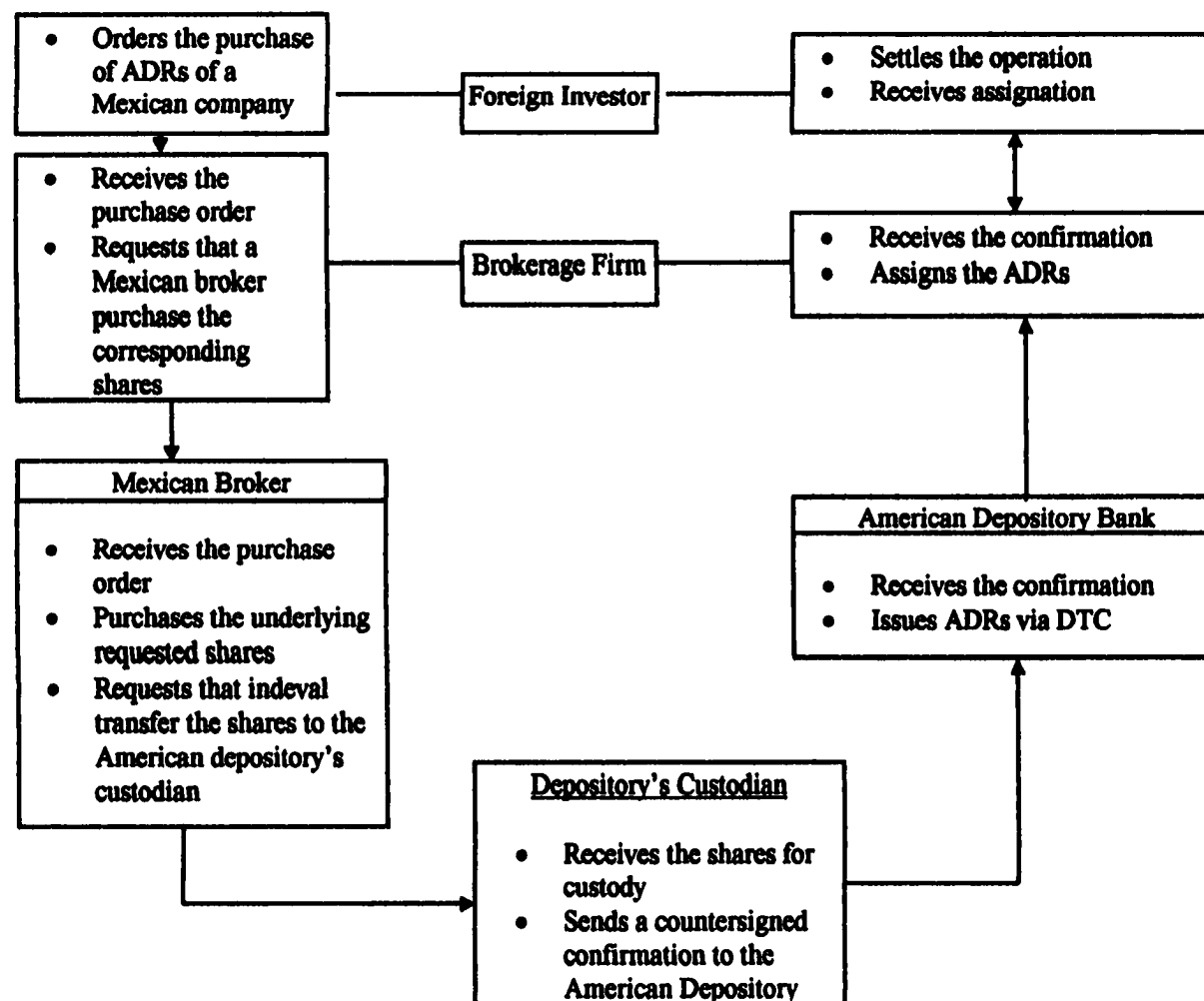


Figure 2.5

**American Depositary Receipts (ADRs)
Case A: New or Additional Issue**

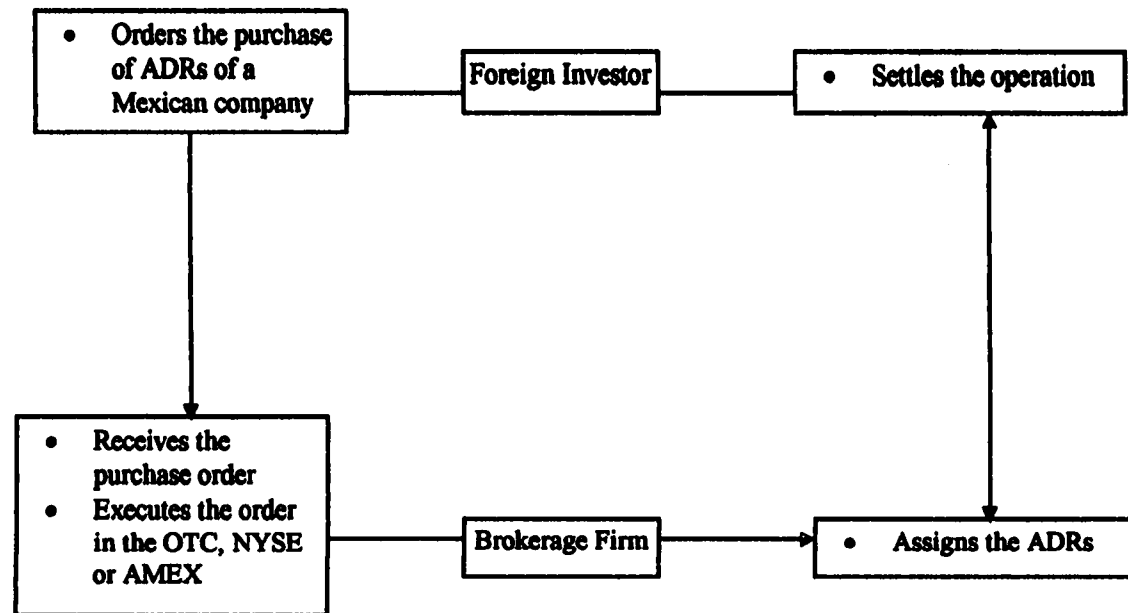


Figure 2.6

Case B: ADRs are available in Secondary U.S. Markets

understand the evolving financial system of Mexico. In 1982, Mexico nationalized its commercial banks in response to the country's debt crisis. As a first step towards reprivatization, the government allowed private ownership of up to 34 percent of the banks. In 1987, 34 percent of the banks' ordinary capital was issued on the Mexican Stock Exchange. This was done using Equity Participation Certificates (CAP), a credit certificate that represents bank stock. CAPs are divided into three categories:

- Series "A" which represents at least 66 percent of ordinary capital and may be owned only by the Federal government.
- Series "B" which represents the rest of the bank's ordinary capital and which may be owned by Mexican individuals and corporations.
- Series "C" which represents non-ordinary capital and may be acquired by foreigners as well as Mexicans but confers no corporate rights.

As Mexico shifted from a quasi-state-run economy to a market based economy, the privatization of the commercial banks was a natural step. Following a constitutional amendment and the enactment of the law on Credit Institutions, between June 1991 and July 1992 the government auctioned off controlling interest in all 18 banks.¹² In a

¹² It should be noted that in 1992 the government still maintained an 8.9% interest in the banking system which will presumably be sold off. Interestingly, many of the buyers were former owners who had formed brokerage firms, insurance companies or leasing companies following the nationalization of the banks in 1982.

further attempt to demonstrate its commitment to open market reforms, in June 1993 the Mexican government took steps to make the Banco de Mexico, Mexico's central Bank, an autonomous entity. Despite the increase in the shareholding base, over 130,000 shareholders in 1993 compared to some 8,000 before nationalization in 1982, a considerable concentration of economic power remains. This concentration is demonstrated by the fact that three banks, Banamex, Bancomer and Serfin, account for nearly 60% of all loans and deposits and an even higher share of the industry's profits. An important element of the present banking sector is the 7 government-run development banks. The development banks are public institutions, established by the Federal government, to channel resources into projects in accordance with economic policy and social developmental priorities. Prominent among these are Nacional Financiera and Banco de Comercio Exterior, institutions that support the development and financing of medium and small sized industry, and export related industry, respectively.

In July 1990, a new law to regulate financial groups was adopted. This law allows the integration of financial groups through a holding company that must comprise at least three of the following financial entities: multiple service banks, brokerage firms, insurance companies, foreign exchange houses, mutual fund management investment companies, bonding companies, financial leasing companies, financial factoring companies, and general depository warehouses. The

integration of intermediaries from the banking sector, the securities industry, and companies engaged in offering supplementary financial services benefits both the providers and users of these services by (i) increasing the efficiency and competitiveness of the financial system and (ii) allowing clients of these financial groups to have the option of concentrating diverse financial services into one single account (with the ensuing benefits in terms of savings in time, paperwork and lower costs). In keeping with the above reforms, Mexico's commercial banks have each been incorporated into one of the eighteen financial groups.¹³ With the continued reshaping of the Mexican financial system and the government stepping away from its long standing role as a macro-entrepreneur there will eventually be three series of stocks for banks and financial groups:

- "A" shares, which will represent 51% of capital and can be acquired only by Mexican individuals, the Federal government and development banks.
- "B" shares, which can represent up to 49% of capital and may be purchased by Mexican institutional investors such as investment funds and insurance companies, and by those eligible for ownership of "A" shares.

¹³ An example of an aforementioned financial holding company is Grupo Financiero Bancomer comprised of the following entities:

Bancomer (99.98%)	Bank
Casa de Bolsa Bancomer (99.98%)	Brokerage House
Arrendadora Monterrey (100.00%)	Leasing
Almacenadora Bancomer (63.81%)	Warehouse
Factor de Capitales (100.00%)	Financial Factoring

Moreover, in addition to Grupo Financiero Bancomer itself being listed on the Bolsa, its subsidiaries Bancomer and Casa de Bolsa Bancomer are also listed on the exchange.

- "C" shares, which can represent up to 30% of capital and may be acquired by both Mexicans as well as foreigners (excluding foreign government and official entities), but with a limit of no more than five percent held by any single individual or institutional owner (twenty percent with prior government approval).

2.2.5 Price and Quotation Index (IPC)

The IPC (Indice de Precios y Cotizaciones - IPC) is the main index for the Mexican Stock Exchange. It is a market capitalization weighted, industry-composite index, comparable in its methodology to the S&P 500 index. It is calculated from a sample ranging from 35 to 50 of the most active stocks. The selection of the sample group is made every two months, based on the Marketability Index, which takes into account variables such as number of transactions, value traded, days traded, and the variation of prices between one movement and the other. The extreme volatility that typically characterizes emerging markets applies to the Mexican Stock Exchange as can be seen by the nominal yield and real yield as measured by the IPC index, reported in Figure 2.1.

In addition to the General Price and Quotation Index, the Mexican Stock Exchange also publishes sectoral indexes, calculated by the type of economic activity and for the mutual funds.

2.3 Market Structure and Trading Mechanism

Following is a discussion of the different types of orders and order routing and execution that govern the transactions carried out on the Bolsa. As mentioned earlier, all securities transactions are executed through the brokerage firms that operate on the trading floors of the exchange. Further, all transactions involving capital market instruments must be carried out and registered on the trading floor, including block trades.

The different types of orders that can be issued by an investor to a brokerage firm to initiate a security transaction include: a limit order, an order in which the client sets the maximum price for purchase or the minimum price for sale of specific securities, and a market order, an order in which the client decides to purchase or sell certain securities and leaves it to the broker to carry out the transaction at the best price, according to the quotations reached during the trading session. All orders are registered at the control desk of each brokerage firm with an identifying number, the date, and the time, in order to determine priorities with regard to assignment of transactions.

The trading posts (corros) are the official registration areas for all security transactions. Each trading post is assigned specific securities and no transaction may be registered in a trading post other than the one assigned to it. The six trading posts on the capital

market trading floor handle specific securities according to the following distribution:

Distribution of Transactions by Trading Post

Module	Trading Post	Type of Instrument Traded
1	I	Shares of brokerage firms and banks
	II	Shares of industrial,
2	III	retail and service
	IV	companies
3	V	Fixed-income
	VI	Odd lots (fixed and variable income)

Each trading post is staffed by exchange employees who register transactions and automatically update these movements on the corresponding monitors. It should be noted that the Mexican stock exchange has no specialists at the present time, although this mode has already been authorized and its implementation is actively being studied. The data on prices and quotations for stock issues posted on the monitors include the Stock symbol, Sell bid, Buy bid, Fluctuation parameters, Maximum price, Minimum price, Last price and Lot and Ticks.¹⁴

¹⁴ Other pertinent information available on the monitor network includes information on price and quotation indexes, suspended shares, shares with greatest gains (losses), information on dividend payment and the most heavily traded securities during the trading session etc. The collection, processing, and dissemination of information on trading floor activities and other factors linked with the performance of the securities market is done through SIVA (Sistema de Valores Automatizado or Automated Securities Consulting System). There are also Telerate and Reuters terminals for information on the international markets.

As regards transaction closing, there are several options:

- Open Outcry - By this method, bids to buy and sell are actually called out by the broker, in which the floor broker indicates whether he is buying or selling and specifies the issuer, series, price and quantity. If the number to be bought or sold is not specified, a minimum lot is assumed.
- Firm order transaction - Under this procedure, offers to buy or sell securities are written in the form of a "firm order", indicating issuer, series, quantity and price. The broker fills out a ticket and gives it to Exchange clerks (corro). These bids are registered in chronological order in the trading post to provide access to other floor brokers and priority is given to the best price offered. If the conditions specified in a firm buy order coincide with those of a firm sell order, the transaction is automatically executed or closed. An agent wishing to close a firm order does so by "announcing" at the trading post corresponding to the issue, specifying "buy and close" or "sell and close".
- Cross Order Transaction - When a brokerage firm has buy and sell orders from different clients that coincide as to issuer, series, quantity and price, the floor broker may carry out a cross transaction, which must be reported at the appropriate trading post to a cross judge. The registration procedure is carried out in the following manner: the broker in the corresponding section pushes a buzzer, which is connected to a green light above the trading floor, and announces "cross order" over the microphone, stating the

issuer, series, price and saying "give" or "take" and the number of shares he wishes to cross. The cross judge validates the transaction unless any other broker makes a better offer and wants to take part in the transaction.

- **Negotiated Quoted Order Transaction (or "cama" trades)** - This type of transaction is also known as a firm order with an option to buy or sell, within a certain price fluctuation margin. The floor broker using the open outcry method indicates the issuer, series, quantity and price spreads (without indicating the prices) at which he is prepared to trade. The accepting broker is obliged to trade under the terms announced and at the prices that are fixed at that moment by the broker that made the initial proposal. This is not a common form of trading.

The Exchange implemented an automated trading system called SATO (Sistema Automatizado de Transacciones Operativas) on May 3, 1993. The same year trading of close to 100 stock series was incorporated into SATO. The system's capacity allows it to process up to 10,000 transactions per day. Presently, the online electronic trading system, known as BMV-SENTRA Capitaes, is used to trade warrants, odd lots and approximately half of the stock series listed on the Mexican Stock Exchange. System operates may enter firm and cross orders or look up bids and trades.

2.3.1 Lots and Ticks

Trading units, or "lots" have been defined according to the value or price of each issue, and transactions must be

made in multiples of these amounts. This is necessary to avoid excessive fragmentation and makes it possible to handle standardized volumes. The lots and ticks for equities traded on the Bolsa are defined in Table 2.4, where the tick is the minimum upward or downward movement in the price of a share.

2.3.2 Listing Requirements

The listing, maintenance and disclosure requirements for companies to be listed on the Bolsa are presented in Table 2.5. In July 1993, the second tier market of the Mexican Stock Exchange became operational. This section of the stock market was created to provide capital to medium-sized companies with different listing and maintenance requirements than the main market. More specifically, to be listed on the second tier market, a company only has to have a net worth between 20 and 100 million new Pesos and have shown a profit in the past three years of operations.

2.3.3 Settlement Period and Commission Rates

The only currently permitted operations in stocks are for cash, with a settlement period of two business days after the transaction is executed on the trading floor. Margin operations were suspended following the 1987 crash.

Brokerage fees have been liberalized by the National Securities Commission and since November 1, 1991 transaction commissions are fully negotiable between the brokerage house and their clients. According to talks with officials of *Inverlat* (one of the prominent brokerage houses in Mexico), the following commission structure is a good representation

Table 2.4**Lots and Ticks for Equities**

Price (N\$)		Lot		Tick
Minimum	Maximum	Open Outcry	SATO	Open Outcry and SATO
0.01	0.20	100,000	1,000	0.001
0.21	5.00	10,000	1,000	0.01
5.02	20.00	5,000	1,000	0.02
20.05	50.00	2,000	1,000	0.05
50.10	And up	1,000	1,000	0.10

Table 2.5
Requirements for Listed Companies

Listing Requirements		
	Main Market	Second-Tier Market
Track Record	3 years	3 years
Net Worth	N\$ 100 million	N\$ 20 million
Earnings	Positive sum of last three years net income	Positive sum of three years net income
Public shares offered or subscribed	15% of fully paid capital	30% of fully paid capital
Minimum number of stockholders	200	100
Maintenance Requirements		
Minimum Net Worth	N\$ 50 million	N\$ 10 million
Shares Held by the public	12% of fully paid capital in the market	20% of fully paid capital in the market
Minimum number of stock holders	100	50
Disclosure Requirements		
Financial Statements	Quarterly and for some issuers monthly	Quarterly and for some issuers monthly
Legal Information	Annually or when they have a meeting	Annually or when they have a meeting
Extraordinary Information	At any time	At any time

of the brokerage fees currently charged by different brokerage houses.

Less than N\$ 200,000	1.0% - 1.5%
N\$ 200,000 - N\$ 1,000,000	0.7%
Greater than N\$ 1,000,000	0.3% - 0.5%

Prior to November 1991, the brokerage fees were as follows:¹⁵

Less than \$ 200 million	1.7%
Greater than \$ 200 million	1.0%

2.3.4 Taxation

The tax treatment of nonresidents who invest in securities traded on the Mexican Stock Exchange is very favorable: they are not subject to any tax either on the capital gains or dividends. This is true both for individuals as well as corporate investors. In fact, only interest obtained on private sector instruments is taxed at 4.9% or 15%; the 4.9% tax rate is applicable when the foreign investor is not a resident of a country considered by Mexican legislation as "Tax Haven". There are no exchange restrictions on taking capital, dividends, or interest out of the country.

2.4 Other Important Characteristics

Securities traded on the Bolsa are subject to price fluctuation parameters and trading is automatically suspended for issues that exceed these parameters. For equity instruments, this range of fluctuation is 5% above or below;

¹⁵ As of January 1, 1993 Mexico introduced a new monetary unit called "New Peso" (Nuevo Peso N\$) to facilitate monetary transactions.
1 N\$ = 1,000 \$ (current Pesos)

if this limit is exceeded, trading in the security is suspended for 60 minutes in the first instance and 90 minutes in the second instance in the same trading session. However, these parameters and suspension periods do not apply to issues traded on international markets, so that they may achieve price levels comparable to those on other world stock exchanges. Furthermore, these issues are traded continuously, without recesses, throughout the trading session. Also, it should be noted that a Contingency Fund has been set up by the Stock Exchange and intermediaries to protect investors against the bankruptcy of a brokerage firm.

In 1989, a system for ranking a stock's marketability (indice de bursatilidad - marketability index) was introduced, which divides stocks into 4 categories of marketability (high, medium, low and minimal). Short sales were introduced for the first time in Mexico in April 1991, with operations permitted in stocks with high marketability according to the marketability index. The amount of short sales in 1995 was 2.21 billion N\$ (US\$ 345.95 million), an increase of 32.08% over the previous year, with a trading volume of 189.58 million shares, an increase of more than 95.05% over the number of shares traded in 1994. At the present time, warrants are the only type of derivative products being issued on the Mexican Stock Exchange. Trading of options and futures is expected to begin shortly. Trading of warrants was authorized in September of 1992. The warrants include both the American type as well as the

European type and are on the Bolsa's Price and Quotation Index (IPC) or individual listed stocks. The traded value of warrants in 1995 was 1.07 billion N\$ (US\$ 171.11 million), with a trading volume of 309 million warrants. There are also warrant issues on Mexican stocks or indices quoted on the Luxemborg stock exchange, the world's foremost market for this type of instrument.

With an uncertain exchange rate, hedging currency exposure is an important concern of foreign investors. Since 1995 the Chicago Mercantile exchange (CME) has relisted the futures and options contract on the Mexican Peso that it had discontinued in 1985. The Mexican government has lifted the restrictions prohibiting the transfer of pesos for foreign currency for purely financial transactions. There are also a variety of hedging instruments available in the Mexican market. These include Mexican securities denominated in dollars and payable both in dollars and in pesos, as well as instruments linked to the consumer price index that offer inflation hedging. In addition, Latin fund, non-dedicated funds, and institutional investors that have Latin exposure can avail themselves of US dollar-denominated (strike price) calls and puts on the Mexican Bolsa Index. The CME is also planning to offer, subject to SEC's approval, futures on a number of Mexican debt instruments, including short term government Treasury bills (cetes), and external debt called brady bonds.

2.5 Business Entities

In the context of this study, the nature of a Mexican corporation with variable capital (Sociedad Anonima de Capital Variable, or S.A. de C.V.), is of particular interest since it is the most common form of corporate structure for large and medium sized firms. An S.A. de C.V. is capitalized with two distinct funds, fixed and variable capital. There is a minimum amount of fixed capital designated in the corporate charter. Any changes in fixed capital must be approved regardless of whether a firm has foreign participation or not, although the appropriate regulatory bodies differ in the two cases. In contrast, a corporation's variable capital is authorized and registered on an open ended basis at its creation. Variable capital can be modified through internal procedures such as passage of a resolution by the board of directors or the shareholders without prior government approval. This is an attractive feature considering Mexican firms are not allowed to hold their own shares and must issue them as capital as required. A corporation that reacquires shares must sell them within three months or cancel the shares and reduce its capital stock by a proportional amount; no treasury stocks are allowed. By law an S.A. de C.V. must make any increase in capital stock available to its existing shareholders through a rights offering before the offer to outsiders.

All shares of stock are generally of equal value and confer equal rights but articles of incorporation may provide for different classes of shares with special rights for each class. Each share has one vote but certain classes of shares may be allowed to vote only at special meetings called for extraordinary purposes such as an increase or reduction of capital, mergers or acquisitions, bond issues etc. The Mexican equity share classification was discussed in greater detail earlier and is also presented in Table 2.6. Mexican law requires that shares with limited voting rights be paid a cumulative annual dividend of at least 5 percent before any dividends are paid on other shares. Every Mexican corporation is required to set aside at least 5 percent of its annual net profits in a statutory reserve account until an amount equal to one-fifth of the capital stock has accumulated. These amounts represent appropriations of retained earnings and are included in the shareholder's section of the balance sheet. Such reserves are not available for dividends. Furthermore no dividends can be declared until the corporation has provided for losses incurred in prior years. That is, dividends can only be declared from retained earnings. Companies are also required to pay out 10 percent of pre-tax earnings as employee profit sharing (with the exception of companies in their first year of operations). If a corporation has a loss equal to more than two-thirds of its capital stock, a creditor or

Table 2.6**Series Classification**

A	Ordinary series which Mexican stockholders participate in direct form, these can be acquired by foreigners through neutral investment or ADRs.
A1	Ordinary in which Mexican stockholders participate in direct form and represents the fixed part of the capital equity stock, also called class I.
A2	Ordinary in which Mexican stockholders participate in direct form and represent the variable part of the capital, also called class II.
A4	A series with a pending applicable right, in this case related to coupon 4.
AA	Non-negotiable stock series of Telmex that are held in a
B	Ordinary know as free subscription which can be acquired directly by foreign investors
B1	Same as series B with the qualification it represents fixed part of capital equity stock, also called class I.
B2	Same as series B with the qualification it represents variable part of capital equity stock, also called class II.
BCP	Same as B but contains a provisional certificate.
BCR	Same as B but considered of restricted circulation.
BCPO	Same as B but included in the "Ordinary certificate of Participation" which gives restricted voting rights.
B4	B series with a pending applicable right, in this case related to coupon 4.
CP	Provisional Certificate.
CPO	Ordinary Certificate of Participation, these stocks give restricted voting rights.
D	Superior or preferred dividend.
DCPO	D series included in "Ordinary Certificate of Participation" which give restricted voting rights.

(table cont'd.)

F	Series of affiliate (subsidiary) companies which are under holding companies.
L	Limited voting rights stock which can be acquired by foreigners (allows holders to vote only on major issues, such as mergers and liquidations).
L4	Similar interpretation as A4 or B4.
LCPO	Similar interpretation as DCPO.
T	Stocks of restricted circulation.
UB	Title/Certificate related to series B.
UBC	Title/Certificate related to series B and C.
UBL	Title/Certificate related to series B and L.
ULD	Title/Certificate related to series L and D.
1	Same as A1.
2	Same as A2.
1CP	Same as 1 but it has a provisional certificate.
2CP	Same as 2 but it has a provisional certificate.

minority shareholder may, by law, bring action to force the company into liquidation.

Some other unique features that pertain to Mexican corporations are as follows. A tax of 2 percent is levied on corporate assets. This gives firms an incentive to understate their assets, which in turn prevents them from using their full assets to secure loans and other financing.¹⁶ Such regulations and tax rules serve to discourage firms from going public. The process of listing on the Mexican Stock Exchange requires a preliminary screening by the Bolsa, followed by an in-depth investigation by the National Securities Commission (Comision Nacional de Valores, or CNV.) A major disincentive is the capital gains tax which typically amounts to more than one third of the value realized in going public. Informal comments by brokerage house officials also suggest a bias against firms with substantial foreign ownership in terms of listing on The Bolsa. Mexican incorporated firms with significant foreign ownership can expect to be required to submit much more extensive documentation than is typically required of national firms, the rationale being that the relatively limited availability of capital suggests that capital should go to support national development rather than privately owned business.

¹⁶ This tax seems to serve as a minimum income tax since the income tax

2.6 Key Mexican Accounting Principles

Mexican Generally Accepted Accounting Principles (Mexican GAAP) Bulletin B-10 requires all financial statements to be presented at the same Mexican Peso purchasing power. In other words, all primary financial statements must be restated to eliminate the effects of inflation. Recognition of the effects of inflation on financial information is an important consideration given the persistent inflation that has characterized the Mexican economy. Although inflation accounting is clearly relevant given the inflationary Mexican economy, it is costly to execute and this puts Mexican firms at a disadvantage in complying with US reporting requirements which are based on historical rate.

The adjustment for changes in the general level of prices is done using the national consumer price index (NCPI) published by the Bank of Mexico. All non-monetary items on the balance sheet, including all components of shareholder's equity, must be. Inventories, fixed assets, depreciation and their related costs and expenses (such as inventory and cost of sales) may also be restated using the current replacement cost method. Current replacement costs must be determined by independent appraisers registered with the National Securities Commission. The results of updating these accounts are included in the respective accounts along with the creation of "Excess (shortfall) in

paid may be credited against it.

the restatement of stockholder's equity" in the shareholder's equity section. This account shows the net result from the holding of non-monetary assets due to inflation. Alternatively, it reflects whether the firm has maintained a predominantly surplus or deficit monetary position. Similarly for the Income Statement, the costs and the expenses associated with non-monetary assets (and non-monetary liabilities, if appropriate) must be restated for inflation. The net monetary effect (calculated by applying factors derived from the general price index to the company's net monetary assets and liabilities) of the period is accounted for as a component of current period income (generally, as part of the financial cost). Thus, results of companies with net monetary liabilities are boosted by higher rates of inflation. This is due to the fact that the real value of money owed is eroded by inflation and companies with net monetary liabilities record a gain on monetary position as part of their financing items. In addition, changes in the peso value of foreign currency denominated debt that results from changes in the currency must generally be reflected in the income statement as a gain or loss in the period they occur.

The following are some other accounting practices followed in Mexico. Depreciation is generally on straight line method. Under Mexican GAAP the amortization period for goodwill is limited to 20 years, whereas under US GAAP good will may be amortized over a period of up to 40 years.

Most firms provide consolidated financial statements even when there is ownership of 50 percent or less (generally up to 40 percent). All companies listed on the Mexican Stock Exchange are required to publish consolidated financial statements. Under Mexican GAAP minority interests in subsidiaries must be included as component of stockholder's equity. Consequently, minority interests in the income of subsidiaries is not presented as an expense in the income statement. Under US GAAP, a minority interest in a subsidiary is accounted for as a liability by use of the "minority interest" account, and is not part of stockholder's equity. The accounting method used for most acquisitions is the purchase method. Unlike the US, major shareholdings are not disclosed. Furthermore, company shares owned by directors and managers are now reported, non is their compensation.

2.7 Mexican Economy: Some Important Notes

As recently as 1982, the Mexican economy was in serious trouble following its declaration of a moratorium on payments on its massive debt in 1982. Up until 1990, the state continued to play the role of macro-entrepreneur and the dominance of the public sector crowded out private initiative. Following the nationalization of the financial sector in 1982, state control led banks were used mainly to finance the public sector and little funds remained to finance the private sector. Thus, consumer lending, including home mortgages, virtually disappeared. The

Mexican economy has suffered from double digit inflation in every year from 1973 through 1998 with the exception of 1993 and 1994. High inflation levels have led to a great deal of uncertainty, devaluation, and stubbornly high interest rates. Additionally, Mexico has followed strict fiscal conservatism to fight inflation. Tight fiscal policy has contributed to the shortage of available funds and high real interest rates.

This macro economic environment has had direct and important consequences for Mexican firms seeking to raise capital. In spite of the massive backlog of pent-up demand that accumulated over years of inflation and instability when private sector bank lending was crowded out by the public sector and almost dried up, Mexican banks attract few borrowers due a to chronic scarcity of funds and high interest rates. Faced with such a lack of capital, large Mexican firms (Latin America firms in general) have turned to international markets as a source for external financing.

A clear pattern emerges in the method of financing chosen by Latin corporations tapping the international capital markets for funds. The form of financing favored by issuers during the early 1990s was a 144A offering. After the Mexican peso devaluation in December of 1994, there was a trend towards the use of debt over equity in the subsequent two years (Griffith, (1995)). Both issuer

and investor preferences explain the observed pattern in capital raising by Latin firms.

Many companies established ADR programs to gain exposure in order to gain access to the international debt markets. Establishing a 144A program is the easiest and the least expensive method of flotation in terms of disclosure of information as well as transactions costs (a more detailed discussion of the alternative ADR programs follows in the ADR section). In addition, the securities issuance process is shortened by four to six weeks because the issuer does not have to file a registration statement with the SEC. Even in a 144A placement, potential investors often ask for a commitment for a future listing to eventually ensure a high level of liquidity. Despite the lack of formal disclosure in 144A transactions, after the peso devaluation investors have been demanding more information from 144A issuing firms.

A public issue or Level III offering involves a trade off between higher transactions costs and greater disclosure (before and after the offering) versus greater liquidity, greater research coverage, and potentially a healthy aftermarket to raise capital in the future (Suarez, (1995)). Another factor affecting the choice between a 144A placement versus a public listing is the receptiveness shown by the market. A company may question the wisdom of a public issue if the set of potential investors is limited. According to Celso de Barros of SG Warburg,

"Before, a public listing would allow you access to the retail market. But the market is really limited to qualified institutional buyers right now, so a public listing would not offer much benefit" (these comments were made a few months after the Mexican peso crisis).

Another key determinant of whether debt or equity dominates the market is the preference shown by international investors. Analysts following Latin firms seem to be of the opinion that, given the volatile nature of these economies, even the best run companies can be totally overwhelmed by macro disturbances. A possible explanation for this view is the fact that observed capital outflows apparently occur at the slightest hint of monetary or economic instability (Griffith, (1995)). Clearly, in a recessionary environment, bonds enjoy more popularity with investors as bonds can be securitized in a number of ways and maturity dates can be varied to accord with an investor's confidence levels. According to a recent report by Salomon Brothers average maturity on emerging market issues shrank from five to ten years in 1994 to one to three years in 1995. To put it simply, the question becomes whether the company will have the money to pay back the debt rather than whether the company's profit will grow. Along the same lines, investors show now greater interest in equity during periods when there are optimistic projections for the region.

Chapter 3: Depositary Receipts: An Overview

3.1 Introduction

The number of depositary receipt programs has grown from a little over 100 in 1988 to more than 1600 currently. The annual dollar trading volume of stock exchange-listed depositary receipts has increased from approximately \$40 billion to more than \$500 billion during the same period. These numbers provide an indication of both the willingness of foreign companies to establish depositary receipt programs to list their shares on a major exchange and to gain access to major international markets as well as of the demand for such programs by private and institutional investors.

American depositary receipts (ADRs) are a convenient instrument for investors to diversify their portfolios internationally while avoiding the obstacles associated with direct ownership of foreign securities such as undependable settlement, costly currency conversion, unreliable custody service, unfamiliar market practices, and confusing tax conventions. ADRs are US dollar denominated negotiable securities issued in the US by a depositary bank, representing ownership in non-US securities. ADRs are always registered even though the underlying shares may be in bearer, registered or nominative form. Ease of transfer and legal certainty in transactions have contributed to the growing popularity of ADRs. There are several types of ADRs and they differ in the level of disclosure of information and the degree of

compliance with SEC regulation that is required. Of particular importance is the fact that some ADR structures allow the company to raise capital in the US, while others simply permit the firm to list shares and thus merely facilitate cross border trading. Table 3.1 summarizes the salient features of the different depositary programs. Before proceeding to discuss the different ADR structures in greater detail, a brief discussion of the benefits of ADRs to a company and to an investor follows next.

As negotiable securities, ADRs are quoted in US dollars and dividends and other cash distributions are converted into dollars at competitive foreign exchange rates by the depositary bank. Shareholder information such as annual reports, notices of general meetings and corporate actions, and official releases are provided to ADR holders by either the depositary or its local custodian. ADRs are as liquid as the underlying securities since the two are interchangeable. Moreover, the participation of professional arbitrageurs contributes to the liquidity of the ADR market. An ADR transaction involves the issuance of a new depositary receipt, transfer of an existing depositary receipt or the cancellation of a depositary receipt. Approximately 95% of ADR trading is done in the form of intra-market trading, that is, an existing ADR is simply transferred from one holder (seller)

Table 3.1**Salient Features of Depositary Receipt Programs by Type**

Type of Program	SEC Filing Required	Degree of Disclosure	Approximate Cost (\$)*	Trading	Raising Capital
Level I Sponsored	F-6 12g 3-2(b)	None None	20,000-50,000	OTC	No
Level II Sponsored	F-6 20-F	None Detailed	20,000-500,000	NYSE, AMEX NASDAQ	No
Level III Sponsored	F-1 & F-6 20-F	Rigorous Detailed	500,000-1M	NYSE, AMEX NASDAQ	Yes
Rule 144A	N/A	--	100,000-400,000	PORTAL	Yes

*Source of figures - Bank of New York

to another (buyer).¹⁷ Besides generating convenience and greater liquidity, ADRs are also cost-effective relative to trading foreign stocks directly. An added benefit of ADRs is that they are recognized as US domestic securities. This is an important advantage since many US banks and pension funds are prohibited by their charters from holding foreign securities.

The main advantages to a non-US corporation of initiating an ADR program include diversifying the company's shareholder base, improved share valuation, increased liquidity of the underlying shares, increased recognition in the important US investor community, and an enhanced ability to raise capital in the US market.¹⁸ Additionally, the depositary bank maintains accurate shareholder records for the issuer and can monitor and report large stock transactions, if requested.

3.2 Types of ADR

3.2.1 Sponsored Level I

This is the simplest and least expensive method for companies to access US markets. Under this program a company cannot be listed on any of the national exchanges in the US, limiting US investor interest. This type of program can not be used to raise capital in the US. Level I ADRs trade in over-the-counter (OTC) market. OTC market

¹⁷ Typically 3% to 5% of a foreign company's shares in ADR form are required for active intra market trading to emerge.

¹⁸ ADRs can also be used in both merger and acquisition transactions as well as for ESOPs for US subsidiaries.

trades are listed in the "Pink sheets", published daily by the National Quotation Bureau. It is not uncommon for companies to start with a Level I program and upgrade to a Level II (Listing) or a Level III (offering) program. The majority of ADRs are Level I programs. At the end of June 1997, approximately 65% of the total 1,314 ADR programs (excluding Rule 144A private programs) were Level I depositary receipts. The shareholder base in the form of depositary receipts for a company with a Level I program typically ranges from 5% to 15%. The decision as to whether voting rights are offered to ADR holders is made by the issuer and the depositary.

A Level I program involves the filing of an F-6 registration statement but the firm is exempt from full SEC reporting requirements under Rule 12g 3-2(b). Subsequent to the F-6 filing the depositary bank must also file a semi-annual report to the SEC containing information about the number of depositary receipts issued or cancelled, the number of depositary shares outstanding, and the total number of holders at the end of the six month period. Under Rule 12g 3-2(b), a non-US corporation issuing Level I ADRs (that is, not seeking a listing or intending a public offering) can gain exemption by placing the SEC on its mailing list and supplying any material public information the company publishes in its home country (such as local stock exchange filing requirements and any information distributed to its shareholders). The SEC does not require

this material to be adjusted for differences in US accounting practices. Furthermore, any information supplied to the SEC is not "technically" filed with the SEC and thus the company is not liable under the Exchange Act's provision against filing false or misleading statements.

3.2.2 Sponsored Level II

A Level II sponsored ADR program allows a company to list its ADRs on any of the following exchanges; the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX) or the National Association of Securities Dealers Automated Quotation (NASDAQ). Establishing a Level II program requires filing of Form 20-F in addition to a Form F-6 registration statement. Form 20-F is a comprehensive report of all material business activities and financial results and must conform to US Generally Accepted Accounting Principles (GAAP). Form 20-F consists of four parts and includes description of the issuer's business, any outstanding legal proceedings, description of any securities to be registered, fees to be charged to the holders of the ADRs, information on any defaults upon senior securities and various financial statements. The company must also meet the listing requirements of the exchange it chooses to list its ADRs on, each of which has separate reporting and disclosure requirements.¹⁹

¹⁹ The NYSE also has alternate listing standards for non-US Corporations. Thus foreign corporations may choose to qualify either under the domestic listing criteria (original and alternate original listing standards) or under those designed specifically for non-US corporations.

Having its ADRs listed on an Exchange increases the issuer's visibility and name recognition which may affect future capital raising efforts. An exchange listing is also beneficial because many institutional investors are required to limit their investment in unlisted securities. US disclosure regulations also make it easier for companies to monitor the ownership of its shares by large investors. SEC regulations do not permit a public offering under a Level II program.

Besides the high legal and listing costs, an issue that has generated some controversy in this area is the stringent reporting requirements of the SEC. Information production is costly and critics of the SEC contend that the SEC's burdensome and costly reporting requirements discourage many foreign firms from seeking a listing on US exchanges even though they meet all of the listing requirements. This line of reasoning is supported by the experience of NASDAQ. The number of foreign listings on NASDAQ tripled between 1977 and 1983, but this growth rate was reduced significantly after foreign firms seeking NASDAQ quotations were subject to more stringent reporting requirements in 1983 (Baumol and Malkiel,). In the words of former SEC commissions Philip Lochner himself, "new foreign participation in NASDAQ was halted when the commission imposed new reporting requirements." In fact between 1983 and 1991, the number of foreign firm listings on NASDAQ fell from 294 to 213. Moreover, the vast

majority of these ADR programs are Level I (unlisted) which trade in OTC market. Thus, many foreign firms seem to favor foreign stock exchanges with less stringent reporting requirements. There are more than 2,000 foreign firms trading in London, many on an unlisted basis. The above figures do seem to suggest SEC regulation of foreign securities is an important factor (mainly as a deterrent) in a foreign firm's decision to select a market for its trading abroad.

The SEC rationale for subjecting foreign firms to the same rules and requirements that apply to US companies is based on its mandate for investor protection and the maintenance of a fair disclosure system that does not discriminate against US issuers (Edwards). Given the significant increase in the trading of foreign securities by US investors (\$240 billion in 1989), it is questionable whether SEC regulations protect US investor or simply forces them to transact in more costly and less regulated markets. SEC requirements may also partly explain the much greater popularity of unregistered (Level I) ADRs versus listed ADRs. In the absence of SEC regulations, US investors should demand a higher risk premium as compensation for not being kept as well informed. Thus, foreign companies unwilling to disclose more information voluntarily would be subject to a higher cost of capital. There is in fact voluntary disclosure of information that takes place in the 144A private placement market. According

to Lessard (1990), "the evidence is overwhelmingly in favor of the view that investors in the marketplace are not misled by accounting policies" (Lessard, 1990). His results hold not only for US but also other foreign markets. Meek (1983) finds that while home country earnings announcements have significant information content for investors, subsequent release of US GAAP data appears to only have a marginal impact, if any.

3.2.3 Sponsored Level III

The major disclosure difference between a Level II and Level III program is that a Level III program entails the filing of Form F-1 in addition to other forms required for a Level II program, as explain above. More importantly, however, a Level III program allows the issues to raise capital through a public offering.

Form F-1 requires the following information to be included in the prospectus: use of proceeds, determination of offering price, dilution and other pertinent information. The added cost of a book-building-type "road show" in addition to the costs intrinsic to a listing, such as legal, accounting and investor relation costs, implies that setting up and maintaining a Level III program is expensive. The average capital raised per public depositary receipt offering ranged between \$256 Million to \$138 Million for the period 1991 to 1997. The total capital raised through these offering has steadily increased from a low of \$1 Billion in 1990 to approximately

\$14 Billion in 1997. The exception is the year 1995 when it showed a slight decline from the previous year. In terms of the relative importance of the three exchanges in the context of ADRs; the trading volume in 1996 for ADRs was 98.4 Million shares on AMEX, 1,560 Million shares on NASDAQ and 3,983 Million shares on NYSE; the dollar trading volume for the same year was \$0.705 Billion on AMEX, \$35 Billion on NASDAQ and \$138.1 Billion on NYSE.

With respect to voting rights, the depositary is responsible for distributing proxy material to all registered ADR holders of Level II and III programs and is obliged to vote as instructed to do so by the record holder. Subscription rights extend to the ADR holders.

3.2.4 Private Placement (Rule 144A)

Under rule 144A non-US issuers can raise capital through the private placement of depositary receipts with large institutional investors, more specifically qualified institutional buyers (QIB). A QIB is currently defined as an institution that owns and invests on a discretionary basis at least \$100 Million (or, in the case of registered broker-dealers, \$10 Million) in securities of an unaffiliated entity. Presently, there are more than 3,000 QIBs.

The major advantage of a 144A ADR is that it provides a less expensive method of raising equity capital relative to a public offering while avoiding SEC registration. A Level I program can be established alongside a 144A program

but not for ADRs listed on either NYSE, AMEX or NASDAQ. Prior to rule 144A traders could not resell private placement securities without registering them with the SEC or holding them for two years. Despite lack of regulation, disclosure of information does occur due to the negotiation that is involved in these deals.²⁰ The 144A market has benefited from the establishment of PORTAL (Private Offerings Resales and Trading through Automated Linkages) in June 1990 by the National Association of Securities Dealers.

In addition to the above mentioned structures for ADR programs, there also exist unsponsored ADRs which are issued by a depositary in response to a market demand but without a formal agreement with the company. These ADRs can only trade in the OTC market, are now considered obsolete, and are now rarely initiated. There also ADRs of a few companies that trade on US Exchanges that have been exempted from SEC registration and disclosure requirements based on grand-fathering of their historical listings that occurred prior to 1983. Among these grand-fathered issues is Telefonos de Mexico, the Mexican telephone company. An indication of the growing importance of ADRs to US investors is the introduction of the ADR Index by Bank of New York which tracks all ADRs traded on the NYSE, AMEX and NASDAQ. In addition to this composite index, there are

²⁰ Interestingly, this venue also provides a mechanism for LBO owners who do not wish to take their companies public again to get their money out.

four regional sub-indices (for Europe, Asia, Latin America and Emerging markets) and various country indices.

Mexican ADRs, represent about 5 percent of the total depositary receipt programs by country, an impressive number considering the total number of firms that trade on Bolsa is quite small (in the vicinity of 200) and the fact that the country with the largest percentage of ADRs is United Kingdom with only 17% (at the end of June 1997). In terms of share trading volume and dollar trading volume, Mexican ADRs account for a significant percentage of all ADRs in both categories and rank among the top five countries in term of the percentage of share and dollar trading volume by country. In the context of foreign investment in Mexico, the importance of ADRs cannot be overemphasized as can be seen by examining the data reported in Table 2.3 and in Figure 2.2.

Chapter 4: Data Description

The data for this dissertation were provided directly by the Mexican stock exchange. Much of the data used in this study have only recently been made public. Bolsa de Valores did not retain any price and volume data on a computerized basis prior to 1989. The data used in this study are from 1989 to July 1996. All data used in this study were adjusted for dividends, stock splits and rights offerings. The adjustment of data is particularly difficult for Mexican stocks due to the presence of different series and the cancellation of some series. The Mexican stock exchange also provided adjusted price data.²¹ The data provided includes only industrial, retail, and service firms.

A comprehensive list of all capital raising Mexican ADRs with information on lead underwriter, offering date, amount raised, and the nature of the ADR (Level III NYSE/AMEX or 144A) was provided by the *Bank of New York*. This information was cross-checked for all Mexican companies present in *Moody's international Manual*. The Bolsa does not maintain a careful distinction between NYSE and 144A issues. *Bankers Trust* permitted the use of their

²¹ Bolsa officials were kind enough to manually recalculate the adjusted prices for 5 stocks chosen at random to verify the accuracy of the data.

research database on ADRs, normally reserved for clients, to search all ADR programs established by Mexican firms with precise starting dates. Officials of Bank of New York and Bankers Trust were also helpful in providing answers to numerous technical questions about ADRs.

The financial information for Mexican firms was provided by Bolsa and Inverlat (a leading Mexican brokerage house). Officials of Inverlat translated all the descriptions of financial variables from Spanish to English. The key differences between Mexican and US accounting principles were obtained from *The Accounting Profession in Mexico*. The series for the Mexican National Consumer Price Index used to adjust the data for effects of inflation wherever appropriate was obtained from INEGI (*Instituto Nacional de Estadística, Geografía e Informática*). Finally weekly data on the premiums/discounts on Mexican funds trading on NYSE were provided by *Southwest Asset Trust Management Company*.

Chapter 5: Initial Public Offerings

5.1 Underpricing

5.1.1 Initial Underpricing: The International Evidence

Significant underpricing of IPOs is a well documented phenomenon that has been the subject of considerable research. Studies by Ibbotson (1975), Ritter (1984, 1987) and more recently by Ibbotson et al. (1994) among others find the average first day return to IPOs in the US to about 15 percent. Adding to this empirical regularity is the growing body of international evidence on initial underpricing. While the US, other developed countries (Australia, Canada, Japan, United Kingdom etc.) and emerging markets (Brazil, Chile, Malaysia, Mexico, etc.) all display IPO underpricing, the magnitude of the underpricing varies considerably across these three groups of countries. Initial returns, measured between the subscription price and the first trading day, are on average approximately 15 percent for industrialized countries, and on the order of 60 percent for emerging markets (Jenkinson and Ljungqvist, (1996)). Moreover, there is considerable variation in the IPO underpricing within the emerging market countries, ranging from approximately 16 percent in Chile to nearly 170 percent in Malaysia (Aggarwal et al. (1993), Dawson (1987)). Dhatt

et al. (1993), Alphao (1989), Chen (1992) and Wethyavivorn and Koo-Smith (1991) document first day returns of 78.5 percent for Brazil, 78.1 percent for Korea, 54.4 percent for Portugal, 45 percent for Taiwan and 58.1 percent for Thailand, respectively. Clearly, these figures indicate that there is much higher underpricing in emerging markets relative to the US or other developed markets.

In the context of Mexico, Aggarwal et al. (1993) find that market adjusted returns measured from the offering price to the closing price on day 1 are 2.8 percent, which is not statistically significant. The median market adjusted return is even lower, a mere 0.7 percent. Their sample includes 44 companies and covers the period from 1987 to 1990. The authors do not provide a breakdown of their sample in terms of the industrial classification of the firms or whether any IPOs were the result of the privatization program that the Mexican government actively pursued at that time. Lack of this information makes a careful interpretation of the results of Aggarwal et al. study problematic as the amount of underpricing has been shown to vary substantially across industries and greater for privatization programs than private sector issues. Their study does offer any detailed explanations for the observed low underpricing.

A more in-depth study by Hensler et al. (1995), examines IPOs by 68 Mexican firms over a period of 1987 to 1993. Their results are in marked contrast to those of Aggarwal et al., (1993) who report a first day average market adjusted return (IPC in the context of Bolsa, which is discussed in chapter 2) of 40.79 percent ($t=3.81$) for banks, 16.87 percent ($t=3.14$) for brokerage houses, 11.68 percent ($t=2.86$) for industrial firms, and a statistically insignificant 7 percent ($t=1.80$) for services firms. The authors attribute the observed underpricing to the hot issue market in 1987 (nearly half of the IPOs in their sample were issued in 1987) and the 14 banks in the sample that were part of the Mexican government's privatization program.

The underpricing results are not so marked when the firms are grouped by year of offer. The average first day returns fall within the modest range of 3.4 percent to 8.24 percent during the period 1988 to 1992, with the exception of 1987 in which underpricing was a relatively high 34.07 percent. The authors conjecture that Mexican bank IPOs were an important component of the government's reprivatization and reform program and to ensure its success the Mexican government engaged in deliberate underpricing, possibly motivated by nonmarket

considerations. The results of their study are consistent with the hypothesis that privatization offerings engender substantial underpricing since underpricing for the 16 privatized IPOs is 35.79 percent ($t=3.61$) while underpricing for the remaining 52 IPOs is 13.21 percent ($t=4.60$). The pattern of higher first day returns for privatized IPOs relative to private sector issues is similar that reported by Menyah and Paudyal (1996) for the United Kingdom. This study differs from previous studies of Mexican IPOs not only in terms of its coverage, but more importantly in its focus on international equity offerings, a perspective unique to this study.

5.1.2 Models of Underpricing

The IPO market is characterized by problems of adverse selection and moral hazard that were first described by Akerlof (1970).²² In the context of the IPO market, the several hypotheses that have been offered to explain documented underpricing of IPOs can be broadly classified into two categories: (i) theories based on information asymmetry and (ii) institutional explanations.

In the Rock (1986) framework, it is the presence of informed traders that causes underpricing. It is assumed

²² Though the Akerlof (1970) paper does not directly model the IPO market, it is one of the earliest works that addresses the issue of asymmetric information.

that informed traders invest only in issues that they expect to appreciate due their superior information. This implies that issues that increase in price ex post are oversubscribed due to demand from both informed investors and uninformed investors. In contrast, issues that are overpriced ex post are undersubscribed due to the absence of any demand from informed traders. Thus, an uninformed investor receives all requested shares. Because of excess demand, ex post oversubscribed issues are rationed resulting in underpricing. Faced with this *winners curse* phenomenon, uninformed investors demand a discount in the offer price for a new issue. The above discussion implies that the magnitude of this discount (or the level of underpricing) is related to the extent of rationing, which is an increasing function of the number of informed traders vis-a-via the number of uninformed traders.

Beatty and Ritter (1986), Booth and Smith (1986), and Carter and Manaster (1990) offer tests of Rock's model. More specifically, Beatty and Ritter (1986) postulate that underpricing should increase with the ex-ante uncertainty surrounding the IPO. The intuition behind this result can be seen by modeling information production as a call option on an IPO. Informed traders specialize in acquiring information about firms with the greatest ex

ante uncertainty (where the uncertainty refers to the dispersion of the possible market values, σ). This follows directly from the result that the value of a call option is an increasing function of σ (where the offer price is the exercise price) and the assumption that information acquisition is a costly activity. So, the proportion of informed capital relative to total capital in an IPO is an increasing function of the riskiness of the firm. It can be established that an increase in uncertainty implies greater underpricing since an increase in the uncertainty (σ) causes an increase in the level of informed trading which in turn increases the severity of the winner's curse problem resulting in greater underpricing.

Booth and Smith (1986), and Carter and Manaster (1990) develop models in which the reputational capital of an intermediary serves as a mechanism to certify firm quality (as well as a disciplinary mechanism) that helps reduce the adverse selection problem, leading to a separating equilibrium. Signaling models fit within the Rock framework since the degree of information asymmetry determines the amount of underpricing. However, these models depart from Rock's information asymmetry structure

by assuming that managers are better informed about the future cash flows of the firm than are investors, unlike Rock who assumes managers are uninformed. In such a scenario, less risky firms have an incentive to retain a certifies of their value to signal their lower riskiness to investors. Low riskiness indicates the presence of fewer informed traders and consequently reduced underpricing, as the adverse selection problem is less severe. A firm cannot credibly signal its own quality, since a firm typically goes public only once and therefore has an incentive to cheat. Because the underwriter remains active in the market, its reputation provides a measure of the riskiness of the firm. More specifically, underwriters with high reputation will have less risky clients. Since underwriters earn quasi rents on their reputational capital, they want to avoid firms with high σ . It is assumed that underwriters can identify σ and furthermore, all investors know the reputation of each underwriter. Firms with high σ do not find it to their advantage to pay the costs required to use high quality underwriters, as their high σ is likely to be detected by the underwriter who would therefore charge appropriately higher underwriting fees.

Central to the above models is the notion that the magnitude of underpricing is an increasing function of the severity of information asymmetry between management and investors. Accordingly, any action taken by a firm that reduces information asymmetry should be expected to lessen the underpricing of the IPO.

Titman and Trueman (1986) develops a model that builds on this idea and shows that a firm can use the quality of its auditor as a signal to convey the value of the firm to investors. The basic premise of their model is that the selection of an auditor (of a given quality) involves a tradeoff between the cost of the auditor (where the cost of an auditor's services is an increasing function of its quality) versus the expected gains from receiving a fair market value. Only firms with favorable information find it cost-effective to use a high quality auditor. Higher quality auditors can be assumed to provide more reliable information because of their higher reputational capital involved in the process. This implies that firms (investors) can use the quality of the auditor as a signal to reveals managerial private information, where private information refers to uncertainty regarding a firm's future cash flow. Auditors are able to mitigate this uncertainty, and the degree to

which they are able to lessen this uncertainty depends directly upon their quality. This line of reasoning is similar to that of Leland and Pyle (1977) who show that the amount of an entrepreneur's ownership in a project can reflect his private information. While the Titman and Trueman model focuses on the effect of the quality of the auditor on the value of a new issue, it is broadly applicable to any third party such as investment bankers that can provide credible information about the firm.

Models based on asymmetric information discussed above argue that the quality of a firm's auditor and underwriter serve as signaling devices that can be used to convey the value of the firm to investors. However, these signaling devices reveal partial and not complete information, and therefore complement each other. Slovin and Young (1990) show that banks (in the context of providing loans) also provide valuable information which they acquire in the process of (i) evaluating a loan to limit adverse selection problems and (ii) monitoring the borrower to limit moral hazard. In comparison to auditors and underwriters, banks have an incentive to continuously monitor borrowing firms since bank loans are private securities that usually have a lower claim compared to other fixed-payoff claim holders. Therefore, the presence

of bank debt in an issuing firm's portfolio can be expected to lessen information asymmetry between the firm and investors so firms with bank debt should experience less underpricing relative to firms with no bank debt, a result that is consistent with Slovin and Young's evidence.

Allen and Faulhaber (1989), Grinblatt and Hwang (1989), and Welch (1989) view underpricing as a deliberate action taken by firms as a signal of firm quality. In this two stage financing model, high quality firms can afford to underprice their IPO in the expectation that they will later be able to obtain a higher price in subsequent seasoned equity offerings. Firms of lower quality are unable to mimic this signal as it is expected that information pertaining to firm quality will be revealed prior to the post-IPO financing. In essence, the firm underwrites itself by incurring a high deadweight cost, namely underpricing. Although firms primarily signaling with underpricing, the retention rate of the owners also signals firm quality, consistent with the model of Leland and Pyle (1977).²³ Welch (1989) reports that a quarter of companies that went public between 1977

²³ It would be irrational and inefficient for a lower quality firm to hold a large non-diversified portfolios and assume unsystematic risk.

and 1982 made a seasoned offering within three years of going public. In contrast, Helwege and Liang (1996) find fewer than 4 percent of the companies that went public in 1983 make subsequent equity offerings in the ten years following the IPO. Moreover, Garfinkel (1993) finds that underpricing does not significantly affect the likelihood of reissuing equity. Jenkinson and Ljungqvist (1996) question the Welch Hypothesis as an explanation of underpricing in countries where shareholders hold preemptive rights, since there would be no benefits from signaling with underpricing in such a situation. Rights offerings are one of the dominant forms of raising capital in Mexico. Moreover, implicit in these two stage financing models is the assumption of some minimum capital requirement at flotation. Otherwise, "a firm could signal by indefinitely underpricing a single share, and subsequently raising its required funds in the after-market. The cost of such a signaling strategy would be zero, which would violate the single crossing condition, Jenkinson and Ljungqvist (1996)." This assumption seems to be appropriate for US or UK markets where the typical IPO companies are young and small. However, in some countries such as Mexico issuers are large and well

established and are clearly not constrained by this minimum capital requirement.

Benveniste and Spindt's (1989) analysis of IPOs is in contrast to models that view the underpricing phenomenon as a result of a winner's curse problem. In models based on information asymmetry between informed traders and uninformed traders there is no incentive for the informed traders to reveal their information. That is, the allocation mechanism does not distinguish informed traders from uninformed traders. This still leads to a rationing bias against uninformed traders as informed traders invest only in issues that are ex post underpriced. Also, implicit is the assumption that participation by uninformed traders is necessary in order for an issue to be fully subscribed. Benveniste and Spindt treat the IPO premarket as an auction where the underwriter (auctioneer) invites bids from its regular customers. In this framework, an underwriter has regular vs. occasional customers. The regular customers possess information that is superior to both that of the issuing firm and the underwriter. In this context, underpricing is compensation paid to induce informal investors to reveal their information correctly. In this model, underwriters promote underpricing as their reputation is directly

dependent upon maintaining long-term relationships with a core group of well-informed investors. This relationships depends upon regular investors earning expected future profits as a result of this underpricing as determined by the extent of underpricing. Given the book-building activities that occurs prior to an IPO in many countries, this model seems highly relevant in trying to incorporate this information gathering stage.

Tinic (1988) and Hughes and Thakor (1992), propose a lawsuit avoidance hypothesis that argues underpricing is the means by which issuers can protect themselves a prior against losses from future litigation by investors. Thus IPO underpricing is no more than cost of insuring against these potential legal liabilities. In addition to these direct costs there is also the issue of the loss of reputational capital of the underwriter. Drake and Vetsuypens's (1993) study finds little empirical support for this lawsuit avoidance hypothesis. They find that a sample of IPOs that were subsequently involved in litigation were just as underpriced as other IPOs of similar size. Furthermore, class action lawsuits typically include investors who purchased the stock in the aftermarket.

5.2 Long-Run Performance

5.2.1 Empirical Evidence and Models of Long-Run Underperformance

Ritter (1991) and Loughram and Ritter (1995) examine the long run performance of IPOs and find substantial underperformance of IPOs in the first few years after flotation. The finding that IPOs on average underperform nonissuing firms of similar size and underperform market indexes has been confirmed by Carter, Dark and Singh (1998), Affleck-Graves, Hedge and Miller (1996), Loughran (1993), and Aggarwaal and Rivoli (1990) among others for the US. This pattern of underperformance has also been documented for different countries and over different time periods. Studies by Aggarwal et al. (1993), Keloharju (1993), Hin and Mahmood (1993) and Levis (1993) find negative adjusted returns in the aftermarket for Brazil, Finland, Germany, Singapore and UK, respectively. The international evidence on the long run performance of IPOs is mixed, however, with Japan, Korea and Sweden showing raw and adjusted returns that are positive for three year aftermarket performance. Loughran, Ritter and Rydqvist (1994) contend that results showing departure from the poor long run performance observed for the US and other countries may be due to the bias in the time period

analyzed. The sample period covered in some studies tends to focus on periods with high IPO activity which is associated with bull markets. Studies covering longer time intervals that include bear market periods would then be expected to report lower term longer returns than currently observed.

Unlike initial underpricing, the long run performance of IPOs as well explanations for this anomaly remain more open issue in the current academic literature. In the absence of any arguments that present this stylized fact as an "equilibrium outcome of a consistent economic model" it has been difficult to reconcile this apparent anomaly with the fundamental conditions of no arbitrage and market efficiency. Although many studies find IPO aftermarket underperformance to be economically and statistically significant, it is not clear what should constitute the appropriate benchmark portfolio for measuring these long run returns (Ritter (1991)). In fact, the estimation of the long-run performance of IPOs is sensitive to the choice of benchmark portfolio. Arguments of risk mis-measurement, such as the failure to adjust for betas or alternatively the assumption of unit time invariant betas are valid criticism of the long-run performance results but cannot account for the degree or extent of the

underpricing observed. This point is well summarized by Jenkinson and Ljungqvist (1996), "few long-run studies adjust for systematic risk, but most researchers tend to view the resulting bias as negligible; given the extent of underperformance, betas would have to be implausibly small or even negative (in rising markets) to explain away long-run losses purely as risk adjusted returns."

Spieess and Afflec-Graves (1995) find similar underperformance even for seasoned equity offerings suggesting that long-term negative returns are not unique to IPOs. The major conclusion drawn from the observed long run underperformance is that managers are able to take advantage of *windows of opportunity*, that is, to conduct IPOs when investors are overly optimistic about the future potential of new issues (Aggarwal and Rivoli (1990), Ritter (1991), Levis (1993), and Speiss and Affleck-Graves (1995)). Besides the obvious question of the reasons for the systematic optimism shown by investors, this line of reasoning contradicts models of initial underpricing that are based on the premise that the aftermarket values new issues efficiently. For example, the fads and timing hypothesis of long run underperformance indirectly imply that the positive initial returns observed for IPOs are not due to

deliberate underpricing (irrespective of the reasoning behind it), a somewhat unsettling suggestion.

Brav and Gompers (1997) argue that underperformance is determined by firm characteristics rather than by whether the offering is an IPO or not. They find that only the smallest nonventure backed companies underperform while venture backed companies do not show any significant underperformance. More interestingly they find that underperformance is concentrated in small, low book-to-market firms and not observed for the typical IPO. This result is consistent with Ritter's (1991) findings that underperformance results are largely driven by young, speculative growth firms. These results imply that it is the small firms that are more likely to be misvalued that is overvalued, due to fads or the over optimistic sentiments of investors who are primarily individuals.²⁴

In a broader context it is the information asymmetry that causes lower returns and not IPO per se. There is some empirical evidence that lends indirect support to this more refined investor sentiment hypothesis, one that focuses on small firms. Carter, Dark and Singh (1998)

²⁴ According to Brav and Gompers (1997), "it might not pay for a sophisticated investor to research a small firm because they cannot recoup costs of information gathering and trading. The absolute return that an investor can make is small because the dollar size of the stake is limited by firm size."

find that long run underperformance is less pronounced for IPOs associated with more prestigious underwriters. This findings is consistent with the argument that investment banks are interested in protecting their reputational capital and can do so by underwriting the IPOs of the firms that have relatively better long run returns.

Fields (1996) shows that long-term IPO returns are positively related to institutional holdings. Ritter (1991) finds that on partitioning aftermarket performance by age, firms less than 2 years old have an average matching firm-adjusted initial return of 29.42 percent and 3 year holding return of 5.34 percent. In contrast, firms older than 20 years have initial returns of 5.42 percent and 3 year holding period raw returns of 91.81 percent (that is, they outperform the matching firms). Similar but weaker patterns are reported for aftermarket performance categorized by gross proceeds.

Although there is no unified theory of initial underpricing and long run performance, the Welch (1989) model views underpricing as a deliberate action by firms to signal firm quality and thus would predict positive after market returns for underpriced firms. Since, in this framework, firms recoup their underpricing costs in subsequent equity offerings, a declining stock price would

be inconsistent with such a strategy. However, studies by Ritter (1991), Levis (1993), and Aggarwal, Leal and Hernandez (1993) find a negative relation between initial returns and aftermarket performance. More specifically, firms with the highest initial returns have the worst long-term returns. Jenkinson and Ljungqvist (1996) hypothesize that in a Benveniste and Spindt (1989) framework firms with upward price adjustment in the offer price relative to the filing price range should perform better than firms with downward price adjustment. Such an argument implicitly assumes that an upward price adjustment indicates positive information being revealed by the informed investors as part of the book building process and vice-versa. Weiss (1993) does not find any difference between the performance of firms that experienced an upward price adjustment compared to those that had a downward price adjustment. In sum, there seems to be no satisfactory theoretical explanation of observed long run underperformance associated with IPOs. Despite of the inherent difficulties in measuring long run performance, the empirical evidence makes it hard to dismiss this stylized fact.

5.2.2 Measuring Long Run Performance

Long run returns are calculated using Ritter's (1991) methodology. Month 0 is defined as the initial return period. The aftermarket returns are calculated for the next 36 months where each month consists of successive 21 trading days relative to the IPO date. Month 1 thus comprises event days 2-22 (that is, it excludes initial returns), month 2 covers event days 23-43, and so on. The monthly returns are calculated as follows:²⁵

$$ar_{it} = r_{it} - r_{mt}$$

where ar_{it} is the monthly IPC-adjusted return for stock i in event month t . The variable r_{it} is monthly raw return for stock i in event month t , calculated by compounding the daily returns for 21 day trading period. r_{mt} is the corresponding monthly return on the IPC index (the IPC index is discussed in chapter 2). The average abnormal return for a portfolio of n stocks for event month t is:

²⁵ Following Aggarwal, Leal and Hernandez (1993) the monthly market adjusted abnormal return for each IPO event month t is also calculate as:

$$ar_{it} = \left[\frac{(1+r_u)}{(1+r_m)} - 1 \right]$$

This is done to account for the effects of inflation but the results are not materially different and therefore only presented in figure 5.1 for comparison purposes.

$$AR_t = \frac{1}{n_t} \sum_{i=1}^{n_t} ar_{it}$$

the t-statistic is given by:

$$t-stat = AR_t * \frac{\sqrt{n_t}}{sd_t}$$

where n_t is the number of observation in month t and sd_t is the cross sectional standard deviation of the adjusted returns for month t . The cumulative abnormal return from event month 1 to even month t is given by:

$$CAR_{1,t} = \sum_{i=1}^t AR_i$$

and the appropriate t statistic is calculated as:

$$t-stat = CAR_{1,t} * \sqrt{\frac{n_t}{[t * var + 2 * (t-1) * cov]}}$$

where var is the average cross sectional variance over 36 months and cov is the first order autocovariance of the AR_t series. Implicit in the above procedure is the idea of monthly rebalancing. Loughran, Ritter and Rydqvist (1994) recommend the use of buy-and-hold returns which may better describe the behavior of the typical investor. Unlike CARs, buy-and-hold returns do not imply selling

well performing stocks to buy more of past underperformers to maintain equal allocation of proceeds in each IPO at the same stage of seasoning. The buy-and-hold returns are calculated for months 1, 3 and 6 and years 1, 2 and 3 as follows:

$$HPR_{t,1,t} = \left[\prod_{t=1}^t (1 + r_t) \right] - 1$$

A performance measure based on this buy-and-hold return is the wealth relative, defined as:

$$WR = \frac{1 + \text{average } t\text{-month total return on IPOs}}{1 + \text{average } t\text{-month total return on IPC}}$$

A wealth relative greater than 1.00 indicates IPOs outperforming the market benchmark, while a wealth relative of less than 1.00 indicates that IPOs underperformed.

5.3 Operating Performance

DeGeorge and Zeckhauser's (1993) investigation of reverse leveraged buyouts (LBOs), a special class of IPOs offers several interesting theoretical insights as well as empirical evidence regarding operating performance following an IPO. Their model draws upon the Myers and Majluf (1984) framework in which managers try to arbitrage the market, based on their private information about the

future prospects of the firm by issuing stock when it is likely to be overvalued. Importantly, market participants are not fooled and factor this lemons problem into their valuation of the issuing firm's stock. Along the same lines of reasoning, firms will choose to go public when their operating performance is above average and expected to fall in the future. In this stylized model, since the firm decided to stay private the year before, the implication is that the previous year's performance must have been below the firm's true potential. Thus, an increase in operating performance (on an industry adjusted basis or more generally relative to a control group) in the pre-offering year with a subsequent decline in operating performance would be the predictions of this model.

Information asymmetry and the adverse selection problem induced by it are not the only reason why a strong gain or peak in operating performance (followed by subsequent decline) of a firm's can be expected to coincide with the decision to go public. Performance manipulation or performance borrowing may be another reason why such changes in operating performance might be expected. Degeorge and Zeckhauser (1993) offer a simple example in which it is assumed that the company sells shares at a

certain multiple of its earnings. Thus, it is in the best interests of the managers to boost earnings. Managers could engage in such performance manipulation by using various methods to increase sales temporarily (at the expense of future sales) or deferring research and development expenses or even *soft-pedaling* prior years earnings to show an improvement leading up to the time of the IPO. According to Jenkinson and Ljungqvist (1996), US GAAP accounting allows IPOs great flexibility in reporting their earnings and even allows them to retroactively restate all financial information presented in the prospectuses. Teoh, Wong and Rao (1993) present empirical evidence that shows IPOs make extensive use of this practice. Moreover, if the market expects such manipulation and downgrades the multiple it attaches to earnings, this expectation could itself cause earnings manipulation.

Other possible explanations for the observed pattern in operating performance around and following an IPO are based on corporate governance and ownership change considerations. Reduced managerial ownership following an IPO may lead to agency problems (Jensen and Meckling (1987), Jensen (1989)). However, it is not clear at the outset whether managerial incentives could be sufficiency

diminished by the IPO for the lost incentives hypothesis to alone account for the deterioration in operating performance subsequent to an IPO.

Degeorge and Zeckhauser (1993) report empirical evidence that shows companies typically go public following particularly strong operating performance but are unable to sustain the pre-IPO performance. In terms of stock price performance, reverse LBOs do not underperform a group of comparison firms. This implies that although the operating performance of IPOs shows a decline, the market is not surprised and appropriately discounts this effect irrespective of whether such a decline in operating performance is due to (i) information asymmetry, (ii) inflated accounting figures, or (iii) agency problems, as discussed above.

Jain and Kini (1994) is the first study of the post-issue operating performance of IPO firms. Their study finds all that for the years examined from -1 to +3 (year -1 being the fiscal year prior to the IPO) IPO outperform a comparable group of industry firms in terms of operating return on assets. However, this difference is statistically significant only until year +1. In terms of operating cash flow deflated by assets, IPOs outperform their industry counterparts, but only in year -1. Though

the authors do not report the figures for this absolute level of performance, the inference that can be drawn from the information presented is that the biggest difference in operating performance between IPOs and the comparable industry sample is in year -1. The change in operating performance of IPOs shows a very different pattern with the median values with operating performance showing a decline for all years 0, +1, +2 and +3 relative to year -1 both on an unadjusted as well as a industry adjusted basis.

Jain and Kini partition their results based on the fraction of the equity retained by the original shareholders to examine whether the operating performance results can be explained by the agency model of Jensen and Meckling (1987) and the ownership retention signaling model of Leland and Pyle (1977). The median level of equity retained by original entrepreneurs is a high 71.04 percent. The high-ownership group (ownership \geq 73.12 percent) outperforms the low ownership group for each of the four years 0, +1, +2 and +3 relative to -1 both on a unadjusted as well as a adjusted basis. However, the high ownership group and the low ownership group born a statistically significant decline in operating performance, both before and after industry adjustment,

for each of the four years relative to -1. The authors do not find any relationship between post-IPO performance and initial underpricing. This is not necessarily strong evidence against theories that model underpricing as a signal of firm quality, because it is an open question as to how effective operating performance is as a measure of firm quality.

Mikkelson, Partch and Shah (1997) also report a decline in operating performance in their study of IPOs. Other than this overall drop in operating performance the results and conclusions of their study are markedly different from those of Jain and Kini (1994). Mikkelson et al. (1997) show that operating income of IPOs deflated by either sales or assets exceeds the performance of a matched control group before flotation. The subsequent decline in operating performance is however limited to the first year after the firm goes public. Median operating income on an industry adjusted basis falls from nine cents in year -1 to a negative two cents in year +1. The performance does not decline significantly during the second through tenth years. Also comparison of firm characteristics prior to and after the offering show that while the median book value of assets increases from \$5.8 million to \$19.2 million, the composition of assets in

terms of current assets and plant and equipment does not change much. The most noticeable change is in the financial leverage which decreases significantly. This empirical finding is shared by Pagano, Panetta and Zingales (1992) who interpret this observation as suggesting that companies time the market. This is somewhat inconsistent with the high market-to-book ratios observed at the time of the IPOs, implying high investment needs in sectors with high growth opportunities.

Mikkelsen et al. (1997) do not find any relationship between operating performance and the ownership level of officers and directors, in contrast to the Jain and Kini study. The median ownership retained by officers and directors drops from 67.9 percent before the IPO to 43.7 percent immediately afterwards. The ownership level of officers and directors continues to decrease with the median stake of officers falling to 28.6 percent in year five and 17.9 percent in year 10. It is worth noting that it takes almost ten years before the ownership stake of officers and directors reaches the level that is normally observed in publicly traded firms. Even though there is a significant decline in management ownership immediately following the IPO, the size of their ownership stake is sufficiently real to align the interests of managers with

those of the shareholders. In later years, external monitoring, the threat of takeover, and stock-based compensation plans mitigate the negative effects associated with the lower ownership stake of managers. The poor performance is mainly concentrated in small and young firms; in fact, large and established companies do not underperform industry matched firms. The authors suspect the high initial operating costs and low sales combined with an aggressive pricing strategy might be responsible for the poor performance of the smaller and less established firms. Loughran and Ritter (1997) find similar results but in the context of seasoned equity offerings. They find a decline in operating performance even for large issuers but the post-issue deterioration is more severe for smaller companies.

5.4 Empirical Results

5.4.1 Description and Firm-Profiles of IPOs

The sample includes Mexican firms that went public during the period January 1989 and July 1996. The IPOs are classified based on the place of listing. Domestic IPOs refer to offerings that were strictly made only in Mexico, that is on the Bolsa, with no foreign tranche. Global IPOs refer to companies that conducted an equity offering in Mexico and the US, either on NYSE/AMEX or the

144A private placement market concurrently. The global IPOs also include a small number of shares sold in Canada and Asia. It should be noted that domestic IPOs do not imply the complete absence of foreign participation in the offerings as foreign investors can invest in Mexican stocks by purchasing free subscription shares directly. The important differences between a Level III sponsored ADR program and 144A private placement are discussed in chapter 3.

Table 5.1 presents a breakdown of IPOs by year and place of listing. The years 1989 and 1995 were clearly periods with low IPO activity, there being only one new public offering in each year. The devaluation of the Peso is mainly responsible for the lack of new offerings by Mexican companies. The resulting loss of foreign confidence explains why there were no international equity offerings in 1995. A look at Table 5.1 creates the impression that international offerings came to complete stop after 1994. This result is misleading, however, as the table covers a period only until July of 1996 and does not report IPOs (both domestic as well as global) that were made in the later half of 1996 and in 1997. Thus the process of international equity offerings that started in the early 90s and slowed down in the mid 90s has since

Table 5.1

Breakdown of Mexican IPOs by Year and Kind

This table lists the number of Mexican IPOs by year and by place of listing. International equity offerings refer to the special case of IPOs which involve both a domestic offering and an international offering (in the form of ADRs), concurrently. The international offering is further broken down by whether the international offering is a NYSE/AMEX Level III sponsored ADR program or a Private Placement under Rule 144A.

Year	Place of Listing			Total
	Domestic (Bolsa)	International (Bolsa as well as the following:)		
		NYSE/AMEX	144A	
1989	1	--	--	1
1990	4	--	--	4
1991	6	--	6	12
1992	2	1	3	6
1993	5	8	--	13
1994	15	2	2	19
1995	1	--	--	1
1996	6	--	--	6
Total	40	11	11	62

shown a resurgence. The offerings with a 144A tranche were more popular in the early 90s with a total of nine IPOs in 1991 and 1992. In 1993 and 1994 the international IPOs were more concentrated in the NYSE/AMEX category than in the 144A market. This trend of conducting IPOs in the early 90s in the 144A market and then shifting to NYSE/AMEX is shared by other Latin American countries also. The total of 22 global IPOs includes *all* Mexican IPOs that occurred between 1989 and 1996 and that had a foreign tranche. The domestic IPOs do not include every IPO that took place on Bolsa in the time span covered by this study because offerings by brokerage firms or financial groups are excluded. The domestic IPOs are evenly spread over the years with the exception of 1994 when there were 15 new IPOs.

Table 5.2 presents the IPOs by year and industrial classification. Industrial firms dominate the sample with 24 observations, followed by 14 for retail firms, 9 for construction firms and 14 for communications, transportation, services, and holding firms. Both the total number of IPOs as well as global IPOs are more or less evenly distributed over the different sectors for the time span covered in this study. This distribution of IPOs is quite different from the one Hensler et al. (1995)

Table 5.2

This table lists the number of IPOs in Mexico by year and industry classification. The IPOs include both domestic as well as international offerings. The industry classification presented here has been adapted from the Mexican Stock Exchange. A detailed description of the industry classification is given below.*

Year	Sector							Total
	Mining	Industrials	Construction	Commerce	Comm. and transport	Services	Holding	
1989	--	--	--	--	--	--	1	1
1990	--	1	1	1	--	--	1	4
1991	--	5 (1)	--	3 (2)	1 (1)	2 (2)	1	12 (6)
1992	--	--	2 (2)	2 (1)	--	1 (1)	1	6 (4)
1993	--	4 (3)	3 (3)	4 (1)	2 (1)	--	--	13 (8)
1994	1	10 (2)	3 (1)	3	1 (1)	1	--	19 (4)
1995	--	--	--	--	--	--	1	1
1996	--	4	--	1	1	--	--	6
Total	1	24 (6)	9 (6)	14 (4)	5 (3)	4 (3)	5	62

(table cont'd.)

Note: The number in parentheses represent the number of Global IPOs out of the total IPOs for any given year and sector.

***Industry Classification**

I Mining Mining	III Construction Construction Cement Industry Construction Materials
II Industrials Chemical Industry Cellulose and Paper Printing Editorial Steel Industry Metallurgical Industry Metal Manufacture Electronics Industry Transportation Machinery And Equipment Food, Beverage and Tobacco Textiles, Apparel and Leather Products made of Caucho and Plastic material manufacture Non-Metallic mineral manufacture Other manufacturing Industries	IV Commerce Retail Stores
	V Communications and Transportation Communications Transportations
	VI Services Banks, Brokerage Houses and Insurance and Bonding Co. Other Services
	VII Holding Companies Holdings Others

in which IPOs by banks (mostly privatization) and brokerage houses dominate the sample.

Table 5.3 presents descriptive statistics in the IPO pre-market on the offer price, number of shares offered, gross proceeds and age (Table 5.4 presents some descriptive statistics in the IPO after-market). The offering price of an ADR (Level III or 144A) differs from the offering price of the stock in Mexico because a single ADR usually represents some multiple of the underlying stock. The offering price in Table 5.3 is however unaffected by this as it is stated on a per share (and not ADR) basis to facilitate comparisons across different groups. The offering price of NYSE IPOs is the highest with a mean of 21.11 Pesos and a median of 13.19 Pesos. The offering price of 144A IPOs and domestic IPOs is not very different with a means (medians) of 7.31 (3.60) and 8.27 (3.30), respectively. Difference of means tests using t-test for means and Kruskal-Wallis test for medians reveal that the offer price of NYSE IPOs is significantly different from that of 144A IPOs as well from domestic IPOs at the 5 percent level of significance. The number of shares offered represents the sum of the shares offered in the home market and the shares offered in the international markets (the number of ADRs offered is

Table 5.3

The IPO Pre-Market Descriptive Statistics

This table presents the offer price, number of shares offered, gross proceeds and age.

IPO Type	N	Mean	Median	Std	1 st Percentile	99 th Percentile
Offer Price (N\$)						
NYSE	11	21.11	13.19	17.84	2.18	52.88
144A	11	7.31	3.60	7.02	2.25	23.70
Domestic	33	8.27	3.30	11.30	1.28	59.90
Test Statistics for Differences in Subsamples						
NYSE-144A		2.39** (0.03)	4.84** (0.03)			
Domestic-NYSE		-2.24** (0.04)	7.57** (0.006)			
Domestic-144A		0.33 (0.74)	0.14 (0.70)			
Number of Shares Offered						
NYSE	11	45406493.64	34000000	27307365.83	13636000	85731400
144A	10	86817747.00	83000000	77271407.60	12570100	262616318
Domestic	33	26127407.73	19631516	30395876.22	5000	149523196
Test Statistics for Differences in Subsamples						
NYSE-144A		-1.61 (0.13)	1.79 (0.18)			
Domestic-NYSE		-1.97* (0.06)	6.49** (0.011)			
Domestic-144A		-2.43** (0.03)	8.26** (0.004)			

(table cont'd.)

Gross Proceeds (N\$)						
NYSE	11	623887910.3	632750472.0	325419973.80	165680000	1300850000
144A	10	345986392.9	244772405.4	182193641.01	187294490	678988144
Domestic	33	128433070.3	82620552.5	123457040.25	13600	535500000
Test Statistics for Differences in Subsamples						
NYSE-144A		2.44** (0.03)	4.46** (0.03)			
Domestic-NYSE		-4.93** (0.0005)	20.12** (0.0001)			
Domestic-144A		-3.54** (0.004)	13.12** (0.0003)			
Age						
NYSE	11	34.45	25	25.66	5	102
144A	11	30.45	26	30.89	2	105
Domestic	39	16.00	11	15.37	1	58
Test Statistics for Differences in Subsamples						
NYSE-144A		0.33 (0.74)	0.39 (0.53)			
Domestic-NYSE		-2.27** (0.04)	7.59** (0.006)			
Domestic-144A		-1.50 (0.16)	2.08 (0.15)			

Note: For difference in Mean Test, the following are reported as follows:

Mean	Median
t-test	Kruskal-Wallis χ^2
(p-Value)	(p-Value)

Table 5.4

The IPO After-Market Descriptive Statistics

This table presents the closing price, market value and the volume traded on the 1st trading day after the offer price.

IPO Type	N	Mean	Median	Std	1 st Percentile	99 th Percentile
Closing Price (N\$)						
NYSE	11	22.72	16.05	19.98	2.19	60.40
144A	11	7.56	3.71	7.34	2.32	25.00
Domestic	39	9.76	4.19	15.00	0.10	73.00
Test Statistics for Differences in Subsamples						
NYSE-144A		2.36** (0.04)	4.70** (0.03)			
Domestic-NYSE		-2.00* (0.07)	7.19** (0.007)			
Domestic-144A		0.67 (0.51)	0.05 (0.82)			
Market Value (000 N\$)						
NYSE	11	3606200.33	2527125.58	3005588.89	691657.62	9477519.95
144A	11	1590075.42	1000911.05	1237562.66	552029.17	4628657.48
Domestic	36	1329226.79	315387.46	2185942.47	37857.14	8625609.19
Test Statistics for Differences in Subsamples						
NYSE-144A		2.06* (0.06)	3.50* (0.06)			
Domestic-NYSE		-2.33** (0.04)	10.83** (0.0010)			
Domestic-144A		-0.50 (0.62)	5.34** (0.02)			

(table cont'd.)

Volume						
NYSE	11	1303260.27	600000	2111764.07	5000	7496000
144A	11	1323415.36	395000	1952171.24	5000	5454069
Domestic	39	28791958.77	48000	159397466.25	0	994951052
Test Statistics for Differences in Subsamples						
NYSE-144A		-0.02	0.28			
		(0.98)	(0.60)			
Domestic-NYSE		1.08	4.35**			
		(0.29)	(0.04)			
Domestic-144A		1.08	1.98			
		(0.29)	(0.16)			

Note: For difference in Mean Test, the following are reported as follows:

Mean	Median
t-test	Kruskal-Wallis χ^2
(p-Value)	(p-Value)

converted into number of local shares by multiplying by the appropriate factor). The domestic IPOs display the lowest number of total shares offered with a mean (median) of 26,127,407 (19,631,516) shares. The number of shares offered by domestic IPOs is statistically different from those offered by the other sub-groups. This difference is present both for the mean and the median number of shares. This result suggests that it is the relatively smaller firms (lower number of shares in conjunction with lower offer price) that conduct a purely domestic offering. Owing to the relatively smaller size of the offerings, these companies do not find it economical to include a foreign tranche in their offerings. In addition, the costs of establishing and maintaining an ADR program arguably exceed the potential benefits of a foreign listing for these companies.

Table 5.5 presents the percentage of equity sold in the different markets. The overall percentage of equity sold (that is number of shares offered divided by total number of shares) is about the same for NYSE, 144A and domestic IPOs with a median figure of 22 percent. A lower offer price makes the 144A and domestic IPOs smaller issues compared to NYSE IPOs in terms of gross proceeds. The importance of the foreign tranche can be clearly seen

Table 5.5

Percentage of Equity Sold

This table presents the percentage of equity (number of shares offered divided by the total number of shares outstanding) sold in different markets.

* Numbers are expressed as Percentage

pressed as Percentage

Percentage of Equity Sold in Mexico						
IPO Type	N	Mean	Median	Std	1 st Percentile	99 th Percentile
NYSE	11	7.73	6.09	6.11	2.94	24.81
144A	10	14.50	10.96	11.74	3.31	42.69
Domestic	33	30.98	27.71	25.72	0.02	100.00
Test Statistics for Differences in Subsamples						
NYSE-144A		-1.63 (0.13)	2.62 (0.11)			
Domestic-NYSE		4.80** (0.0001)	14.71** (0.0001)			
Domestic-144A		2.83** (0.008)	5.97** (0.01)			
Percentage of Equity Sold in US						
NYSE	11	16.74	15.88	8.19	4.26	33.19
144A	11	15.57	13.27	9.70	3.33	32.48
Test Statistics for Differences in Subsamples						
NYSE-144A		0.31 (0.76)	0.67 (0.41)			
Total Impact (the combined percentage of equity sold in all markets)						
NYSE	11	24.47	22.34	11.62	8.81	44.25
144A	10	28.38	22.72	18.23	13.33	75.17
Domestic	33	30.98	27.71	25.72	0.02	100.00
Test Statistics for Differences in Subsamples						
NYSE-144A		-0.58 (0.57)	0.02 (0.89)			
Domestic-NYSE		1.15 (0.26)	0.37 (0.54)			
Domestic-144A		0.36 (0.72)	0.007 (0.93)			

*T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.10 level

**T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.05 level

in table 5.5, with the NYSE and 144A IPOs issuing a greater percentage of equity in the US than in Mexico. Thus, global IPOs by Mexican firms are not only relatively larger issues but include a foreign tranche that is bigger than the domestic component of the offering.

In terms of gross proceeds, the NYSE IPOs have the highest proceeds with a mean (median) of 623,887,910 (632,750,472) Pesos. The mean (median) gross proceeds for the 144A and domestic IPOs are 345,986,392 (244,772,405) and 128,433,070 (82,620,552) Pesos, respectively. The difference among the three sub-groups are statistically significant at the 5 percent level for both the mean and the median. This result implies that there is a certain hierarchy in terms of firm size (gross proceeds being a proxy for firm size) and listing venue. Level III ADR programs are established by large companies, 144A programs by intermediate sized companies, and purely domestic listings by relatively smaller companies. The age of the firms is calculated as the date of listing minus the date of constitution. However, in many cases the date of constitution is simply the date of incorporation or the date when a company changed its name and thus does not necessarily reflect the true starting date of a company. The resulting understated age figure was corrected by

obtaining the earliest available date of establishment by using different sources such as Moody's Reports, the Mexican Company Handbook, and publications of Mexican brokerage houses. The mean (median) age of the NYSE IPOs and 144A IPOs is 35 (25) and 30 (26) years, respectively. There is no statistical significant difference between the ages of these two groups. The mean (median) age for the domestic IPOs is 16 (11) years which is considerably less than that of the other groups. In contrast the typical US IPO firm is only six years old, Jenkinson and Ljungqvist (1996). Thus, Mexican firms that go public are much older than US firms that go public.

The different groups of IPOs display parallel characteristics in the IPO after-market just as in the pre-market. Consistent with a higher offering price, the NYSE IPOs also have a higher closing price with a mean (median) of 22.72 (16.05) pesos. The market values of the three sub-groups also differ considerably (the differences in medians for all three sub-groups are statistically significant at the 5 percent level) with the median values being 2,527 million, 1,000 million and 257 million Pesos for NYSE IPOs, 144A IPOs and domestic IPOs respectively. The differences in the volume of trading between the three sub-groups is especially noteworthy. A higher volume of

trading is observed for NYSE IPOs (mean of 1,303,260 and median of 600,000 shares) and 144A IPOs (mean of 1,323,425 and median 395,000 shares) relative to domestic IPOs (median of 48,000 shares). This result can be explained by (i) Bolsa's policy of maintaining continuous trading for stocks traded in international markets and (ii) trading by arbitrageurs in the two markets. The mean figure is less representative due to the presence of an extreme observation.

5.4.2 Results on Underpricing

Table 5.6 and Table 5.8 list the results for initial underpricing. The results are presented for various sub groups formed by partitioning the data based on listing venue, age, gross proceeds, industry classification, and year of listing. The results are reported on a raw and on a market adjusted basis by subtracting the contemporaneous market return from the initial return. Table 5.9 and Table 5.10 present initial returns for the first week and the first month on a market adjusted basis, respectively. It is not uncommon in some countries for these initial one-day return to persist beyond the first day sometimes up to a period of several weeks due to infrequent trading or restrictions on price movements (Loughran et al., (1994)). In fact, for Mexico, Aggarwal et al. report the

Table 5.6

Initial Underpricing

Panel A provides statistics for raw returns (the average initial return is computed for the initial period (Month 0) defined as the offering date to the first closing price). Panel B provides the market adjusted returns (raw returns less the contemporaneous, market return).

* Numbers are expressed as Percentage

By Place of Listing						
Panel A: Raw Returns						
IPO Kind	N	Mean	Median	STD	1 st Percentile	99 th Percentile
NYSE	11	5.81**	4.30**	7.27	-0.03	21.68
144A	11	3.66**	4.28**	2.86	0.00	10.17
Domestic	33	1.99**	0.00**	3.36	-0.89	13.87
Complete Sample	55	3.09**	1.20**	4.52	-0.89	21.68
Panel B: Market Adjusted Returns						
IPO Kind	N	Mean	Median	STD	1 st Percentile	99 th Percentile
NYSE	11	5.90**	3.70**	7.36	-1.53	21.77
144A	11	4.09**	3.80**	2.98	-0.22	9.48
Domestic	33	2.25**	1.28**	3.68	-2.24	14.79
Complete Sample	55	3.35**	2.08**	4.67	-2.24	21.77
By Age						
Panel A: Raw Returns						
AGE	N	Mean	Median	STD	1 st Percentile	99 th Percentile
< 5	8	4.70**	4.69*	4.72	-0.89	11.05
6-15	16	1.19**	0.58**	1.64	0.00	5.09
16-33	15	1.03*	0.00*	2.00	-0.03	6.27
>33	16	6.10**	4.29**	6.14	0.00	21.68
Panel B: Market Adjusted Returns						
AGE	N	Mean	Median	STD	1 st Percentile	99 th Percentile
< 5	8	4.88**	4.95**	4.14	-0.86	10.22
6-15	16	1.25**	0.52*	2.22	-2.18	5.07
16-33	15	1.17	0.04	2.62	-1.53	7.74
>33	16	6.72**	4.17**	6.05	-2.24	21.77
By Gross Proceeds						
Panel A: Raw Returns						
Gross (N\$) Proceeds	N	Mean	Median	STD	1 st Percentile	99 th Percentile
< 55M	14	1.74**	1.71**	1.91	0.00	5.47
56M-184M	14	1.17*	0.23*	2.38	-0.89	7.91
185M-424M	14	5.13**	2.42**	6.67	-0.03	21.68
>424M	13	4.40**	4.30**	4.54	0.00	16.08
Panel B: Market Adjusted Returns						
Gross (N\$) Proceeds	N	Mean	Median	STD	1 st Percentile	99 th Percentile
< 55M	14	1.98**	2.13**	2.50	-2.24	6.37
56M-184M	14	1.47*	0.86*	2.78	-2.18	7.95
185M-424M	14	5.22**	3.41**	6.69	-1.30	21.77
>424M	13	4.84**	3.80**	4.69	-1.53	14.88

*T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.10 level

**T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.05 level

Table 5.7

Analysis of Initial Returns by Gross Proceeds Adjusted for Inflation

Panel A provides statistics for raw returns (the average initial return is computed for the initial period (Month 0) defined as the offering date to the first closing price). Panel B, C and D provides the market adjusted returns (raw returns less the contemporaneous, market return). Gross proceeds are measured in Pesos of December 1996 purchasing power using the Mexican National Consumer Price Index.

* Numbers are expressed as percentage

By 1 st Day						
Panel A: Raw Returns						
Gross (M\$) Proceeds	N	Mean	Median	STD	1 st Percentile	99 th Percentile
<127M	14	1.61**	0.76**	1.97	0.00	5.47
128M-371M	14	1.30*	0.51**	2.36	-0.89	7.91
372M-836M	13	5.53**	3.51**	6.77	0.00	21.68
>836M	14	4.08**	4.29**	4.52	-0.03	16.08
Panel B: Market Adjusted Returns						
Gross (M\$) Proceeds	N	Mean	Median	STD	1 st Percentile	99 th Percentile
<127M	14	1.86**	1.60**	2.53	-2.24	6.37
128M-371M	14	1.59*	1.17*	2.76	-2.18	7.95
372M-836M	13	5.65**	3.54**	6.75	-0.83	21.77
>836M	14	4.46**	3.75**	4.73	-1.53	14.88
By 7 th Day						
Panel C: Market Adjusted Returns						
Gross (M\$) Proceeds	N	Mean	Median	STD	1 st Percentile	99 th Percentile
<127M	14	1.93**	1.77**	2.88	-3.12	5.77
128M-371M	14	2.91	0.48	6.46	-3.56	18.97
372M-836M	13	7.23**	2.17*	10.87	-3.23	26.27
>836M	14	6.92**	2.60**	9.79	-1.43	33.32
By 30 th Day						
Panel D: Market Adjusted Returns						
Gross (M\$) Proceeds	N	Mean	Median	STD	1 st Percentile	99 th Percentile
<127M	13	2.51	0.74	8.23	-8.00	22.22
128M-371M	14	17.72*	1.62	33.18	-9.35	112.37
372M-836M	13	10.23*	5.93*	19.20	-20.00	44.05
>836M	14	14.23**	7.99**	16.87	-6.67	55.07

*T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.10 level

**T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.05 level

Table 5.8

Initial Underpricing

Panel A provides statistics for raw returns (the average initial return is computed for the initial period (Month 0) defined as the offering date to the first closing price). Panel B provides the market adjusted returns (raw returns less the contemporaneous, market return)

* Numbers are expressed as percentage

By Industry						
Panel A: Raw Returns						
Industry	N	Mean	Median	STD	1 st Percentile	99 th Percentile
Mining	0	--	--	--	--	--
Industrials	24	1.78**	0.51**	2.72	-0.03	11.05
Construction	8	5.19**	2.82**	5.86	0.00	16.08
Commerce	13	4.61**	3.06**	6.47	-0.89	21.68
Communications & Transportation	3	2.51	1.20	3.36	0.00	6.33
Services	4	2.56	2.69	2.48	0.00	4.85
Holdings	3	2.64	--	4.57	0.00	7.91
Panel B: Market Adjusted Returns						
Industry	N	Mean	Median	STD	1 st Percentile	99 th Percentile
Mining	0	--	--	--	--	--
Industrials	24	1.83**	1.11**	2.77	-2.24	10.22
Construction	8	5.17**	4.39*	6.03	-2.18	14.88
Commerce	13	5.28**	3.73**	6.38	-0.86	21.77
Communications & Transportation	3	4.82	6.51	4.32	-0.09	8.04
Services	4	2.37	2.23	2.98	-0.22	5.25
Holdings	3	2.07	-0.44	0.51	-1.30	7.95
By Year						
Panel A: Raw Returns						
Year	N	Mean	Median	STD	1 st Percentile	99 th Percentile
1989	0	--	--	--	--	--
1990	2	0.96	0.96	1.36	0.00	1.92
1991	12	4.09**	3.75**	4.46	0.00	13.87
1992	5	6.52*	5.49	6.71	0.00	16.08
1993	12	3.84*	0.51**	6.39	-0.89	21.68
1994	18	1.52**	0.56**	2.02	-0.03	6.33
1995	1	7.91	7.91	--	7.91	7.91
1996	5	0.95	0.00	1.43	0.00	3.23
Panel B: Market Adjusted Returns						
Year	N	Mean	Median	STD	1 st Percentile	99 th Percentile
1989	0	--	--	--	--	--
1990	2	0.45	0.45	2.46	-1.30	2.19
1991	12	4.68**	4.30**	4.57	-0.44	14.79
1992	5	5.55	3.58	6.53	-0.22	14.88
1993	12	4.19*	2.17*	6.63	-1.53	21.77
1994	18	1.97**	1.66**	2.67	-2.24	6.51
1995	1	7.95	7.95	--	7.95	7.95
1996	5	1.14	0.43	2.18	-0.83	4.38

*T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.10 level

**T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.05 level

Table 5.9

Initial Underpricing (First Week)

This table presents the market adjusted returns (raw returns less the contemporaneous, market return) for the first week

* Numbers are expressed as percentage

Panel B: Market Adjusted Returns						
By Place of Listing						
IPO Kind	N	Mean	Median	STD	1 st Percentile	99 th Percentile
NYSE	11	7.69**	5.14	11.37	-2.92	29.42
144A	11	3.64	0.71	8.60	-2.00	28.06
Domestic	33	3.13**	1.95**	6.24	-10.37	16.15
Complete Sample	55	4.15**	1.75**	8.00	-10.37	29.42
By Age						
Age	N	Mean	Median	STD	1 st Percentile	99 th Percentile
< 5	8	8.20*	6.64*	10.22	-3.43	28.06
6-15	16	2.07	-0.93	7.05	-10.37	16.04
16-33	15	1.43	0.98	4.35	-3.59	11.08
>33	16	6.75**	4.99**	9.29	-5.76	29.42
By Gross Proceeds						
Gross Proceeds (N\$)	N	Mean	Median	STD	1 st Percentile	99 th Percentile
< 55M	14	1.55	0.93	4.63	-5.76	12.61
56M-184M	14	3.29	4.11	7.59	-10.37	16.04
185M-424M	14	6.06**	1.71*	10.16	-2.42	28.06
>424M	13	5.80**	4.83**	8.65	-2.66	29.42
By Industry						
Industry	N	Mean	Median	STD	1 st Percentile	99 th Percentile
Mining	0	--	--	--	--	--
Industrials	24	2.93**	1.81*	5.96	-5.76	16.15
Construction	8	8.99	7.84	14.23	-10.37	29.42
Commerce	13	4.55*	1.01*	8.28	-3.43	25.70
Communications & Transportation	3	2.74	5.14	4.47	-2.42	5.50
Services	4	0.91	-0.42	3.38	-1.44	5.93
Holdings	3	4.92	3.10	4.95	1.14	10.53
By Year						
Year	N	Mean	Median	STD	1 st Percentile	99 th Percentile
1989	0	--	--	--	--	--
1990	2	7.86	7.86	6.73	3.10	12.61
1991	12	3.88*	1.55*	6.11	-3.89	16.15
1992	5	7.52	-0.61	13.05	-2.23	28.06
1993	12	6.43*	0.10	11.78	-3.43	29.42
1994	18	2.18*	2.83**	4.73	-10.37	7.49
1995	1	10.53	10.53	--	10.53	10.53
1996	5	0.25	-0.91	4.40	-3.59	7.84

*T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.10 level

**T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.05 level

Table 5.10

Initial Underpricing (First Month)

This table presents the market adjusted returns (raw returns less the contemporaneous, market return) for the first month

* Numbers are expressed as percentage

Panel B: Market Adjusted Returns						
By Place of Listing						
IPO Kind	N	Mean	Median	STD	1 st Percentile	99 th Percentile
NYSE	11	12.22*	13.42*	18.46	-12.37	44.77
144A	11	0.18	1.63	14.93	-18.15	28.38
Domestic	32	7.56**	4.62**	20.61	-18.12	100.34
Complete Sample	54	7.01**	4.62**	19.24	-18.15	100.34
By Age						
Age	N	Mean	Median	STD	1 st Percentile	99 th Percentile
< 5	8	15.33	11.17	37.38	-18.12	100.34
6-15	16	6.27	4.52	14.86	-17.79	32.37
16-33	14	1.14	0.86	12.16	-18.15	28.89
>33	16	8.71**	5.80**	15.32	-11.50	44.77
By Gross Proceeds						
Gross Proceeds (M\$)	N	Mean	Median	STD	1 st Percentile	99 th Percentile
< 55M	13	-1.08	-1.08	9.50	-18.12	19.60
56M-184M	14	14.73**	8.94**	28.03	-13.18	100.34
185M-424M	14	5.02	5.34	16.71	-18.15	36.90
>424M	13	8.91*	7.94**	15.56	-11.79	44.77
By Industry						
Industry	N	Mean	Median	STD	1 st Percentile	99 th Percentile
Mining	0	--	--	--	--	--
Industrials	23	5.18*	6.24	13.76	-18.12	32.37
Construction	8	15.81**	11.92**	14.19	0.32	44.77
Commerce	13	6.59	2.78*	14.50	-13.18	36.90
Communications & Transportation	3	-5.98	-5.49	5.29	-11.50	-0.96
Services	4	-3.60	-4.10	12.53	-18.15	11.92
Holdings	3	2.65	7.24	64.06	-13.72	100.34
By Year						
Year	N	Mean	Median	STD	1 st Percentile	99 th Percentile
1989	0	--	--	--	--	--
1990	2	-0.50	-0.50	9.54	-7.24	6.25
1991	12	1.65	-2.68	16.14	-17.79	32.37
1992	5	1.23	1.63	12.39	-18.15	13.42
1993	12	11.94*	10.75*	19.55	-13.18	44.77
1994	18	6.02**	5.80**	10.75	-18.12	28.38
1995	1	100.34	100.34	--	100.34	100.34
1996	4	0.31	-0.12	4.43	-4.60	6.08

*T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.10 level

**T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.05 level

market adjust returns from offering for Day 1 and Month 1 to be 2.8 percent, and 33 percent respectively.

The mean (median) first day market adjusted return is 3.09 percent (1.20 percent) for the complete sample. This result stands in contrast to the average first day return of approximately 15 percent reported for the US and UK markets. All three sub-groups, NYSE IPOs, 144A IPOs, and domestic IPOs, show modest underpricing. The median level of underpricing does not exceed 5 percent for any of these sub-groups. The mean (median) first day returns for the NYSE and 144A IPOs are 5.81 percent (4.3 percent) and 3.66 percent (4.28 percent), respectively.

Although underpricing seems unusually low, the results are not out of place considering the characteristics of these firms.²⁶ Mexican IPOs are conducted by large, well established firms with long operating histories, unlike the US where the companies that go public are typically small and young, often with a unproven track record, or represent significant growth options that are difficult to price Loughran et al., (1994). Offerings by these mature companies in Mexico should be relatively easier to price since these firms are

²⁶ The underpricing for NYSE IPOs would even be lower if one extreme observation were excluded.

largely assets in place. Also these are firms that are willing to go through the time consuming and expensive process required for establishing an ADR, a process that reveals a considerable amount of information about the company. This point is discussed in greater detail in chapter 3. Even in the 144A market, extensive negotiations take place between the parties involved a process that reveals a great deal of information about the company. The low market adjusted one day return of 1.99 percent for the domestic IPOs is somewhat surprising since these are *relatively* smaller and younger companies that do not choose to obtain a listing in a foreign market that has stringent listing and maintenance requirements. It is possible, however, that a listing on Bolsa itself represents an important form of self-selection, since only approximately 200 firms trade on Bolsa. Also closer inspection of the Mexican firms trading on Bolsa reveals that these firms are generally tightly controlled family owned businesses. It is not uncommon for the level of family ownership to be as high as 70 percent even after five years of being a public firm (numbers supporting this assertion are not reported in the tables). Thus, consistent with signaling model of Leland and Pyle (1977) the high proportion of equity retained by owners is able

to resolve the information asymmetry surrounding the domestic IPOs.

Partitioning the data based on the quartiles of the age variable reveals a predictable pattern with underpricing decreasing as a function of age. However, the highest quartile with firms greater than 33 years old shows, oddly enough, underpricing that is greater than that observed for the next two lower quartiles. The underpricing observed by dividing the sample according to the quartiles for gross proceeds is somewhat puzzling as there seems to be a positive relation between the level of underpricing and gross proceeds instead of the inverse relation predicted by theory. This result, however, may be an artifact of the effect of inflation as the gross proceeds that are reported are not adjusted for inflation. To check for any effects of inflation, underpricing by gross proceeds was recalculated after adjusting gross proceeds for inflation. Specifically, all figures were expressed in terms of December 1996 purchasing power using the National Consumer Price Index. The results, however, remain unchanged. The results for underpricing by gross proceeds adjusted for inflation are presented in table 5.7. Table 5.8 are reported to determine whether there is one particular industry or year (hot issue phenomenon)

driving the results. Inspection of Table 5.8 reveals no such peculiarities. Table 5.9 and 5.10 show that positive returns continue beyond day 1 but there is no dramatic change in magnitude (except for NYSE IPOs) as reported by Aggarwal et al., (1993).

The results on underpricing are similar to those reported by Aggarwal et al. (1993) who find underpricing to be of the order of 2.8 percent. The time period covered in their study is from 1987 to 1990 and includes 44 companies, but the authors do not provide any detailed information on the characteristics of their sample. In contrast, Hensler et al. (1995) find underpricing to be 40.79 percent for banks, 16.87 percent for the industrial firms and 7 percent for the services. The high underpricing observed for their sample is mainly due to the (i) privatization IPOs in the sample and (ii) the hot issue phenomenon. The authors conjecture that the Mexican bank IPOs undertaken by the Mexican government were deliberately underpriced to ensure success, possibly reflecting nonmarket incentives. In fact, their underpricing results fall to 13.21 percent privatized IPOs are excluded from the sample. Further, underpricing for the year 1987 was a high 34.07 percent and falls within

the modest range of 3.4 percent to 8.24 percent for 1988 to 1992 period.

As noted earlier the mean (median) age of the NYSE, 144A, and domestic IPOs is 35 (25), 30 (26), and 16 (11), respectively. In contrast, the typical US IPO firm is only six years old. In general, Mexican firms that IPO are large, well established firms with long operating histories and high levels of family ownership. Global IPOs are also associated with very prestigious underwriters. In addition, the inclusion of ADRs in the offering is a positive signal since ADR issuers incur substantial costs in preparing accounting statements in accordance with SEC rules and US GAAP accounting rules. The above discussion implies that Mexican ADR IPOs should show less underpricing both because of the different characteristics of the Mexican firms as well as arguments related to global issues, as discussed above. Similar results are also reported by Ejara et al. (1998) who find that ADR IPOs are significantly less underpriced than matching US IPOs, with average underpricing of only 5.71 percent for ADR IPOs over a period of 1991-1996. Doukas et al. (1992) find the underpricing for ADR-IPOs of 25 foreign firms that went public in the period 1982-1989 to be an insignificant 0.96 percent.

In July 1993, the second tier market of the Mexican Stock Exchange became operational. This section of the stock market was created to supply capital to medium-size companies and has less stringent listing and maintenance requirements than the main market. More specifically, to be listed on the second tier market, a company only has to have a net worth between 20 and 100 million N\$ (the requirement for the main market is 100 million N\$) and have show a profit in the past three years of operation. A similar market is the London's unlisted securities market or as it now called the alternative investments market.

We disaggregate the domestic IPOs into domestic-main (main market) and second tier sub-group to examine differences in underpricing between two groups. The results are reported in table 5.11 to 5.13. Firms that trade on the second tier market have lower market capitalization with a mean (median) of 282 (151) million N\$ compared to firms that trade on the main market which have a mean (median) of 1,921 (792) million N\$. The difference between the market capitalization of the two groups is statistically significant at the 5 percent level.

Table 5.11

**The IPO Pre-Market Descriptive Statistics
Second-Tier Market Analysis**

This table presents the offer price, number of shares offered, gross proceeds and age

IPO Type	N	Mean	Median	Std	1 st Percentile	99 th Percentile
Offer Price (N\$)						
Domestic-Main	20	9.74	4.58	13.45	1.28	59.9
IInd Tier	13	6.02	3.30	6.68	1.35	27.0
Test Statistics for Differences in Subsamples						
Main-IInd Tier		1.05 (0.30)	0.12 (0.73)			
Number of Shares Offered						
Domestic-Main	20	32437719.25	23528850	37628645.95	5000	149523196
IInd Tier	13	16419236.15	16627760	7309126.86	3020404	30759190
Test Statistics for Differences in Subsamples						
Main-IInd Tier		1.85* (0.08)	1.22 (0.27)			
Gross Proceeds (N\$)						
Domestic-Main	20	164578516.2	114382125.8	145815129.1	13600.00	535500000.0
IInd Tier	13	72824692.1	80588827.2	38104966.7	15779159.75	137941840.4
Test Statistics for Differences in Subsamples						
Main-IInd Tier		2.68** (0.01)	3.26* (0.07)			
Age						
Domestic-Main	26	15.5385	11	15.2374	1	58
IInd Tier	13	16.9231	9	16.2196	1	49
Test Statistics for Differences in Subsamples						
Main-IInd Tier		-0.26 (0.80)	0.0002 (0.99)			

Note: For difference in Mean Test, the following are reported as follows:

Mean	Median
t-test	Kruskal-Wallis χ^2
(p-Value)	(p-Value)

Table 5.12

**The IPO After-Market Descriptive Statistics
Second-Tier Market Analysis**

This table presents the closing price, market value and the volume traded on the 1st trading day after the offer price

IPO Type	N	Mean	Median	Std	1 st Percentile	99 th Percentile
Closing Price (N\$)						
Domestic-Main	26	11.59	5.56	17.60	0.10	73.0
IInd Tier	13	6.10	3.35	6.76	1.35	27.3
Test Statistics for Differences in Subsamples						
Main-IInd Tier		1.40 (0.17)	0.43 (0.51)			
Market Value (000 N\$)						
Domestic-Main	23	1921091.53	792201.93	2545661.84	37857.14	8625609.19
IInd Tier	13	282081.48	150834.23	443632.92	44984.92	1726424.70
Test Statistics for Differences in Subsamples						
Main-IInd Tier		3.01** (0.006)	8.50** (0.004)			
Volume						
Domestic-Main	26	42808364.77	122000	194943947.4	0	994951052
IInd Tier	13	759146.77	10000	2654686.9	0	9593908
Test Statistics for Differences in Subsamples						
Main-IInd Tier		1.10 (0.28)	4.30** (0.04)			

Note: For difference in Mean Test, the following are reported as follows:

Mean	Median
t-test	Kruskal-Wallis χ^2
(p-Value)	(p-Value)

Table 5.13

Second-Tier Market Analysis Initial Underpricing

Panel A provides statistics for raw returns (the average initial return is computed for the initial period (Month 0) defined as the offering date to the first closing price). Panel B, C and D provides the market adjusted returns (raw returns less the contemporaneous market return)

* Numbers are expressed as percentage

By 1 st Day						
Panel A: Raw Returns						
IPO Type	N	Mean	Median	Std	1 st Percentile	99 th Percentile
Domestic-Main	20	2.44**	0.58**	3.87	0.00	13.87
IInd Tier	13	1.30*	0.00*	2.51	-0.89	7.91
Complete Sample	33	1.99**	0.00**	3.40	-0.89	13.87
Test Statistics for Differences in Subsamples						
Main-IInd Tier		1.02 (0.32)	1.16 (0.28)			
Panel B: Market Adjusted Returns						
Domestic-Main	20	2.43**	1.59**	4.02	-1.30	14.79
IInd Tier	13	1.99**	1.28*	3.24	-2.24	7.95
Complete Sample	33	2.25**	1.28**	3.68	-2.24	14.79
Test Statistics for Differences in Subsamples						
Main-IInd Tier		1.19 (0.32)	1.16 (0.28)			
By 7 th Day						
Panel C: Market Adjusted Returns						
Domestic-Main	20	3.80**	1.85**	6.39	-3.89	16.15
IInd Tier	13	2.11	2.42	6.13	-10.37	10.53
Complete Sample	33	3.13**	1.95**	6.24	-10.37	16.15
Test Statistics for Differences in Subsamples						
Main-IInd Tier		1.004 (0.32)	1.03 (0.31)			
By 30 th Day						
Panel D: Market Adjusted Returns						
Domestic-Main	19	5.96*	3.87	12.92	-13.72	32.37
IInd Tier	13	9.90	5.37	28.93	-18.12	100.34
Complete Sample	32	7.56**	4.62**	20.61	-18.12	100.34
Test Statistics for Differences in Subsamples						
Main-IInd Tier		0.23 (0.82)	1.28 (0.26)			

*T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.10 level

**T-test (for Mean)/Signed-Ranks Test (for Median) is significant at the 0.05 level

There is no statistical difference between the age of these two sub-groups. The mean (median) age of domestic-main sample is 16 (17) years and the mean (median) age of the second tier firms is 17 (9) years. As expectedly, the mean (median) gross proceeds raised by second tier firms is less than that of main market securities, the difference being statistically significant. In spite of a size difference between the second tier firms and the main market securities there is no difference between the underpricing shown by the two groups. Both groups show underpricing of less than 3 percent. The low underpricing shown even by the second tier firms suggests there is stringent screening of firms that are allowed to list on Bolsa.

5.4.3 Results on Long-Run Stock Price Performance

Table 5.15 to Table 5.18 present market-adjusted abnormal returns as well as cumulative abnormal returns for a period of three years from the initial offering. In general, the poor long run stock price performance reported for the US market is not observed for the Mexican IPOs. The CARs stay positive until month 36 for the complete sample. This result is consistent with the earlier results on underpricing and the finding that Mexican firms that list on Bolsa are not the typical

Table 5.15

**Abnormal Returns for Initial Public Offerings
Bolsa IPO and Level III sponsored program (NYSE Listing),
concurrently**

Average IPC adjusted (AR_t) and cumulative average return ($CAR_{1,t}$) in present, with associated t-statistics for 36 months after going public, excluding the initial return $AR_t = 1/n_t \sum_{i=1}^{n_t} (r_{IPO,it} - r_{IPC,it})$ where $r_{IPO,it}$ is the total return on IPO firm i in event month t , and $r_{IPC,it}$ is the total return on the IPC index. The t-statistic for the average adjusted return is computed for each month as $AR_t \cdot \sqrt{n_t} / csd_t$, where n_t is the number of firms trading in each month, and csd_t is computed as $csd_t = [t \cdot \text{var} + 2(t-1)\text{cov}]^{1/2}$ where t is the event month, var is the average cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (adapted from Ritter, 1991).

Month	Number of firms trading	AR_t %	Proportion Positive %	t-stat	$CAR_{1,t}$ %	Proportion Positive %	t-stat
1	11	4.17	63.64	1.33	4.17	63.64	1.07
2	11	6.68	72.73	1.62	10.86	68.18	1.41
3	11	4.07	45.45	0.86	14.93	60.61	1.47
4	11	-3.54	27.27	-1.31	11.39	52.27	0.94
5	11	8.51	81.82	3.26**	19.90	58.18	1.44
6	11	1.22	45.45	0.29	21.12	56.06	1.38
7	11	-3.91	18.18	-0.98	17.22	50.65	1.03
8	11	3.82	72.73	1.67	21.04	53.41	1.17
9	11	3.67	63.64	1.09	24.71	54.55	1.29
10	11	-2.01	63.64	-0.45	22.70	55.46	1.12
11	11	-0.87	45.45	-0.39	21.83	54.55	1.02
12	11	0.21	54.55	0.07	22.04	54.55	0.99
13	11	-4.38	63.64	-0.78	17.66	55.25	0.76
14	11	-1.91	54.55	-0.53	15.75	55.20	0.65
15	11	-8.02	18.18	-1.97*	7.73	52.73	0.31
16	11	-2.03	36.36	-0.52	5.71	51.71	0.22
17	11	4.09	45.45	0.69	9.80	51.34	0.37
18	11	-3.91	36.36	-0.91	5.89	50.51	0.21
19	11	3.35	54.55	1.11	9.24	50.72	0.32
20	11	-1.16	27.27	-0.17	8.08	49.55	0.28
21	11	7.98	72.73	2.19*	16.06	50.65	0.54
22	11	-0.46	63.64	-0.10	15.60	51.24	0.51
23	11	-1.69	45.45	-0.93	13.90	50.99	0.44
24	11	-3.61	27.27	-0.74	10.29	50.00	0.32
25	10	1.15	70.00	1.04	11.44	50.73	0.33
26	9	1.20	44.44	0.61	12.63	50.53	0.34
27	9	-1.50	44.44	-0.31	11.13	50.34	0.30
28	9	3.21	77.78	0.93	14.35	51.16	0.37
29	9	-7.70	22.22	-2.80**	6.64	50.32	0.17
30	9	-3.21	44.44	-0.96	3.43	50.16	0.09
31	9	0.22	55.55	0.08	3.65	50.31	0.09
32	7	-4.92	28.57	-0.92	-1.27	49.85	-0.03
33	6	-10.47	16.67	-1.62	-11.74	49.27	-0.23
34	5	-0.76	20.00	-0.10	-12.50	48.84	-0.22
35	4	-11.17	00.00	-2.55*	-23.67	48.29	-0.37
36	4	11.51	75.00	1.64	-12.16	48.59	-0.19

Note: The fewer number of firms trading is due to data limitations. Specifically the data provided by Bolsa officials ends in July 1996.

Table 5.16

**Abnormal Returns for Initial Public Offerings
Bolsa IPO and 144A Private Placement, concurrently**

Average IPC adjusted (AR_t) and cumulative average return ($CAR_{1,t}$) in present, with associated t-statistics for 36 months after going public, excluding the initial return $AR_t = 1/n_t \sum_{i=1}^{n_t} (r_{IPO,it} - r_{IPC,it})$ where $r_{IPO,it}$ is the total return on IPO firm i in event month t , and $r_{IPC,it}$ is the total return on the IPC index. The t-statistic for the average adjusted return is computed for each month as $AR_t \cdot \sqrt{n_t} / csd_t$, where n_t is the number of firms trading in each month, and csd_t is computed as $csd_t = [t \cdot var + 2(t-1)cov]^{1/2}$ where t is the event month, var is the average cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (adapted from Ritter, 1991).

Month	Number of firms trading	AR_t %	Proportion Positive %	t-stat	$CAR_{1,t}$ %	Proportion Positive %	t-stat
1	11	-8.32	27.27	-2.87**	-8.32	27.27	-2.45
2	11	12.30	81.82	2.58**	3.98	54.55	0.66
3	11	-1.47	36.36	-0.58	2.52	48.49	0.32
4	11	2.28	63.64	0.58	4.79	52.27	0.52
5	11	0.67	63.64	0.18	5.47	54.55	0.52
6	11	2.28	54.55	0.74	7.74	54.55	0.67
7	11	-3.77	36.36	-0.64	3.97	51.95	0.32
8	11	-1.83	36.36	-0.67	2.14	50.00	0.16
9	11	2.17	27.27	0.37	4.32	47.48	0.30
10	11	-9.53	18.18	-1.96*	-5.21	44.55	-0.34
11	11	-2.24	63.64	-0.70	-7.45	46.28	-0.47
12	11	3.90	45.45	1.33	-3.54	46.21	-0.21
13	11	4.03	72.73	1.13	0.49	48.25	0.03
14	11	-0.94	45.45	-0.54	-0.45	48.05	-0.02
15	11	-1.54	27.27	-0.59	-1.99	46.67	-0.11
16	11	-1.78	36.36	-0.82	-3.77	46.02	-0.19
17	11	0.06	45.45	0.02	-3.71	45.99	-0.19
18	11	1.93	81.82	1.28	-1.78	47.98	-0.09
19	11	1.47	72.73	1.00	-0.32	49.28	-0.01
20	11	1.80	72.73	0.77	1.48	50.46	0.07
21	10	-2.91	50.00	-0.83	-1.43	50.44	-0.06
22	10	-0.06	50.00	-0.03	-1.49	50.42	-0.06
23	10	-0.27	50.00	-0.09	-1.75	50.40	-0.07
24	9	3.27	66.67	0.85	1.52	50.97	0.06
25	9	4.28	66.67	1.25	5.80	51.49	0.21
26	9	-3.16	22.22	-0.71	2.64	50.54	0.10
27	9	1.43	55.56	0.86	4.07	50.70	0.14
28	9	0.62	66.67	0.25	4.70	51.19	0.16
29	9	-3.34	33.33	-0.81	1.35	50.66	0.05
30	9	4.99	77.78	1.42	6.35	51.44	0.21
31	9	-2.17	33.33	-0.82	4.17	50.93	0.14
32	9	-5.16	44.44	-0.99	-0.98	50.76	-0.03
33	9	-2.35	44.44	-0.70	-3.34	50.59	-0.11
34	9	-0.42	55.56	-0.10	-3.75	50.72	-0.12
35	9	0.37	55.56	0.12	-3.38	50.84	-0.11
36	9	-2.71	44.44	-0.41	-6.09	50.68	-0.19

Note: The fewer number of firms trading is due to data limitations. Specifically the data provided by Bolsa officials ends in July 1996.

Table 5.17

Abnormal Returns for Initial Public Offerings Bolsa IPO

Average IPC adjusted (AR_t) and cumulative average return ($CAR_{1,t}$) in present, with associated t-statistics for 36 months after going public, excluding the initial return $AR_t = 1/n_t \sum_{i=1}^{n_t} (r_{IPO,it} - r_{IPC,it})$ where $r_{IPO,it}$ is the total return on IPO firm i in event month t , and $r_{IPC,it}$ is the total return on the IPC index. The t-statistic for the average adjusted return is computed for each month as $AR_t \cdot \sqrt{n_t} / csd_t$, where n_t is the number of firms trading in each month, and csd_t is computed as $csd_t = [t \cdot var + 2(t-1)cov]^{1/2}$ where t is the event month, var is the average cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (adapted from Ritter, 1991).

Month	Number of firms trading	AR_t %	Proportion Positive %	t-stat	$CAR_{1,t}$ %	Proportion Positive %	t-stat
1	38	0.60	47.37	0.30	0.60	47.37	0.21
2	37	4.95	67.57	2.31**	5.55	57.33	1.01
3	35	1.68	54.29	0.68	7.23	56.36	0.98
4	33	0.38	57.58	0.11	7.62	56.64	0.84
5	33	-0.71	54.55	-0.28	6.91	56.25	0.67
6	33	-0.71	57.58	-0.27	6.20	56.46	0.54
7	33	0.23	48.48	0.09	6.43	55.37	0.51
8	32	3.01	56.25	1.17	9.44	55.47	0.69
9	32	4.66	62.50	2.03*	14.10	56.21	0.97
10	32	-3.93	40.63	-1.26	10.17	54.73	0.66
11	32	6.05	53.13	0.77	16.22	54.60	1.00
12	32	-1.48	46.88	-0.62	14.74	53.98	0.87
13	32	-1.27	40.63	-0.56	13.47	53.00	0.76
14	32	-0.02	50.00	-0.01	13.46	52.79	0.73
15	32	-2.26	34.38	-0.78	11.20	51.61	0.59
16	32	-4.24	34.38	-1.87*	6.96	50.57	0.35
17	32	-3.38	37.50	-1.70*	3.58	49.82	0.18
18	32	-2.79	43.75	-1.34	0.79	49.50	0.04
19	32	0.42	46.88	0.20	1.21	49.36	0.06
20	30	-1.54	43.33	-0.46	-0.33	49.09	-0.01
21	29	-2.22	48.28	-1.11	-2.55	49.05	-0.11
22	29	1.28	62.07	0.61	-1.28	49.58	-0.05
23	27	-0.45	62.96	-0.10	-1.73	50.07	-0.07
24	26	3.98	69.23	1.11	2.25	50.72	0.08
25	24	0.74	54.17	0.26	2.99	50.82	0.10
26	21	5.06	42.86	0.69	8.05	50.62	0.26
27	19	10.37	68.42	1.21	18.42	51.02	0.55
28	18	-0.79	55.56	-0.34	17.63	51.12	0.50
29	17	-2.44	35.29	-0.77	15.19	50.81	0.41
30	17	-3.90	23.53	-1.72	11.29	50.28	0.30
31	17	4.20	52.94	0.93	15.50	50.33	0.41
32	16	-0.92	50.00	-0.31	14.58	50.33	0.37
33	16	-0.52	56.25	-0.16	14.06	50.43	0.35
34	16	0.35	43.75	0.13	14.41	50.32	0.35
35	16	-0.66	31.25	-0.24	13.75	50.00	0.33
36	16	-1.11	50.00	-0.39	12.64	50.00	0.30

Note: The fewer number of firms trading is due to data limitations. Specifically the data provided by Bolsa officials ends in July 1996.

Table 5.18

Abnormal Returns for Initial Public Offerings
All IPO, includes Bolsa as well as Global IPOs

Average IPC adjusted (AR_t) and cumulative average return ($CAR_{1,t}$) in present, with associated t-statistics for 36 months after going public, excluding the initial return $AR_t = 1/n_t \sum_{i=1}^{n_t} (r_{IPO,it} - r_{IPC,it})$ where $r_{IPO,it}$ is the total return on IPO firm i in event month t , and $r_{IPC,it}$ is the total return on the IPC index. The t-statistic for the average adjusted return is computed for each month as $AR_t \cdot \sqrt{n_t} / csd_t$, where n_t is the number of firms trading in each month, and csd_t is computed as $csd_t = [t \cdot \text{var} + 2(t-1)\text{cov}]^{1/2}$ where t is the event month, var is the average cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (adapted from Ritter, 1991).

Month	Number of firms trading	AR_t %	Proportion Positive %	t-stat	$CAR_{1,t}$ %	Proportion Positive %	t-stat
1	60	-0.38	46.67	-0.24	-0.38	46.67	-0.19
2	59	6.65	71.19	3.71**	6.27	58.82	2.17
3	57	1.53	49.12	0.84	7.80	55.68	2.15
4	55	-0.02	52.73	-0.01	7.78	54.98	1.81
5	55	1.41	61.82	0.79	9.19	56.29	1.91
6	55	0.27	54.55	0.14	9.47	56.01	1.79
7	55	-1.40	40.00	-0.68	8.07	53.79	1.41
8	54	2.19	55.56	1.29	10.26	54.00	1.66
9	54	3.95	55.56	2.10**	14.21	54.17	2.17
10	54	-4.68	40.74	-2.06**	9.53	52.87	1.38
11	54	2.95	53.70	0.62	12.48	52.94	1.72
12	54	-0.04	48.15	-0.02	12.45	52.55	1.65
13	54	-0.83	51.85	-0.43	11.62	52.50	1.48
14	54	-0.59	50.00	-0.43	11.03	52.33	1.35
15	54	-3.29	29.30	-1.66	7.75	50.85	0.92
16	54	-3.29	35.19	-2.05**	4.46	49.89	0.51
17	54	-1.16	40.74	-0.65	3.30	49.36	0.37
18	54	-2.06	50.00	-1.33	1.24	49.40	0.13
19	54	1.23	53.70	0.89	2.47	49.62	0.26
20	52	-0.76	46.15	-0.31	1.72	49.45	0.17
21	50	-0.11	54.00	-0.06	1.61	49.65	0.15
22	50	0.63	60.00	0.39	2.23	50.08	0.21
23	48	-0.70	56.25	-0.27	1.54	50.32	0.14
24	46	2.02	58.70	0.82	3.56	50.62	0.31
25	43	1.57	60.47	0.92	5.13	50.94	0.42
26	39	2.27	38.46	0.56	7.41	50.58	0.56
27	37	5.31	59.46	1.16	12.72	50.82	0.93
28	36	0.56	63.89	0.36	13.28	51.14	0.94
29	35	-4.02	31.43	-2.03**	9.26	50.68	0.63
30	35	-1.44	42.86	-0.82	7.82	50.50	0.52
31	35	1.54	48.57	0.64	9.36	50.45	0.62
32	32	-2.98	43.75	-1.28	6.38	50.32	0.40
33	31	-2.98	45.16	-1.30	3.40	50.22	0.20
34	30	-0.07	43.33	-0.03	3.33	50.09	0.19
35	29	-1.79	34.48	-0.93	1.54	49.82	0.09
36	29	0.13	51.72	0.05	1.68	49.85	0.09

Note: The fewer number of firms trading (trading is a misnomer in the present context) is due to data limitations. Specifically the data provided by Bolsa officials ends in July 1996.

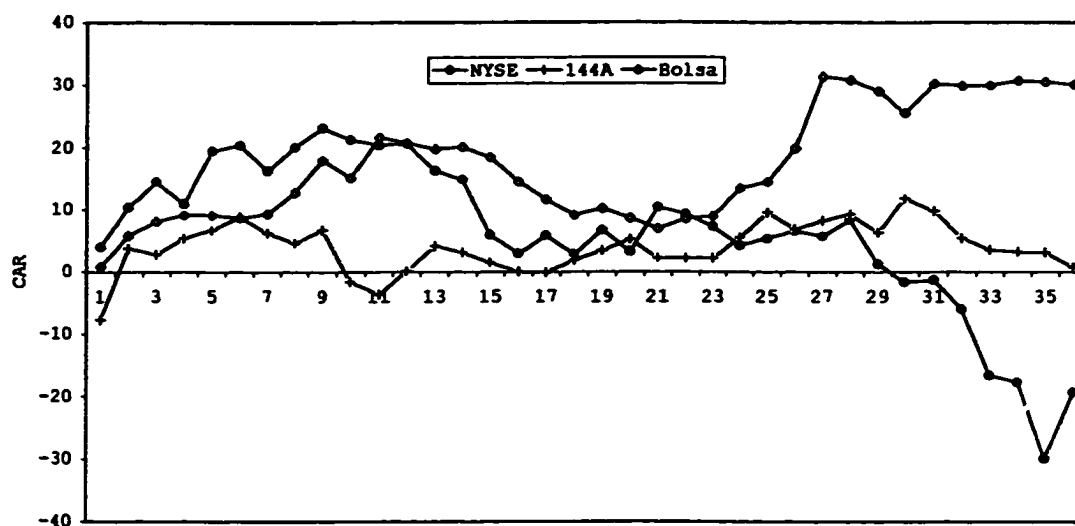
young, high growth firms that IPO in the US and that are more susceptible to over-optimism by investors. Consequently, with less information asymmetry the likelihood of market timing by firms or overly optimistic sentiments shown by investors should also be reduced. As such, the market should not be surprised by subsequent performance. Table 5.18 shows that the share price performance of the complete sample match as that of the IPC benchmark (t-statistics are insignificant). This result is the same as that reported by Hensler et al., (1995) who also do not find any long-run under-performance for portfolios of industrial (N=22) and service (N=11) firms when cumulating over a 300 day period. The NYSE IPOs display similar behavior with CARs remaining positive until month 31. Months 34 to 36 CARs become negative but are statistically insignificant. The small number of observations remaining after month 31 make the t-statistics less meaningful. The CAR for 144A IPOs over the entire 3 years period is -6.09 percent but again insignificant (t-statistic of -0.19). The domestic IPOs also show almost all positive CARs over the entire 3 years period and suggest no under-performance (or superior performance) as indicated by the insignificant t-statistics. These results are represented graphically in

Figure 5.1. Similar figures were also recalculated to adjust for the effects of inflation along the lines of Aggarwal et al., (1993). The results are not materially different and are only presented in Figure 5.1 for comparison purposes.

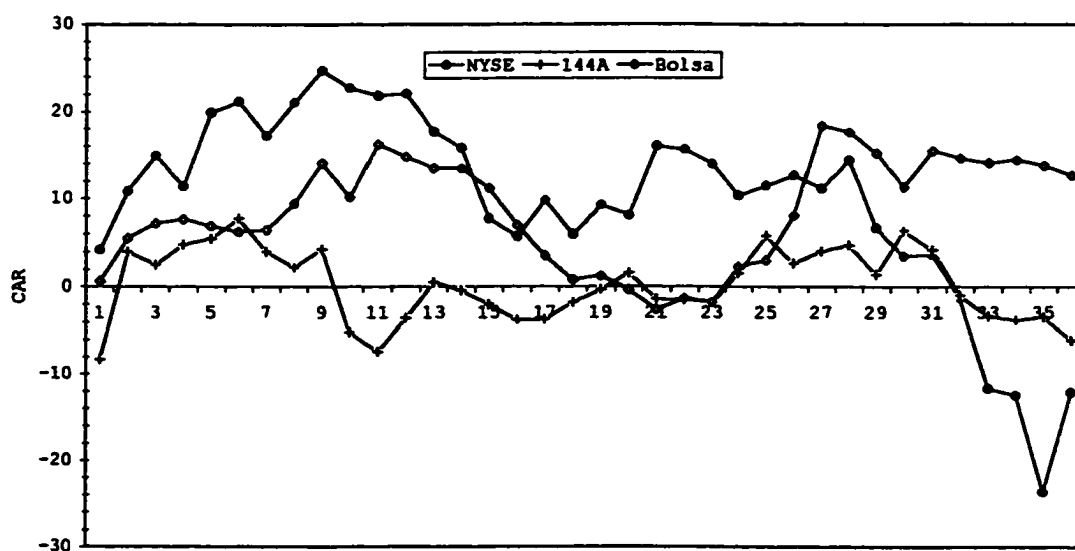
The buy-and-hold returns are reported in Table 5.19 for different groups formed by partitioning the data on initial returns, age, and gross proceeds. The results do not suggest that more underpriced IPOs subsequently perform better or that underperformance is concentrated in young or smaller firms.

5.4.4 Results on Operating Performance

Tables 5.14 to 5.17 present operating performance for different sub-groups both on an unadjusted and adjusted basis. Operating performance is measured by dividing operating income (more specifically, operating income before deducting depreciation, interest, taxes extraordinary items) by (i) end of year assets and (ii) sales. Calculating these two measures of operating performance is recommended as total assets generally change substantially as a result of the IPO (Mikkelsen et al., (1996)). The adjusted operating performance is calculated by subtracting contemporaneous mean (median) operating returns on assets (sales) of a group of industry



Month Relative to Date of IPO
Inflation Adjusted Long Run Performance



Months Relative to Date of IPO
The Long Run Performance of IPOs

Figure 5.1

Table 5.19

Holding Period Returns and Wealth Relatives

Aftermarket performance of Mexican IPOs of Mexican IPOs over the years 1989-1996 for periods of 1, 3, 6 months and 1, 2, 3 years following the IPO. The aftermarket performance is measured as the buy-and-hold returns and computed on the closing prices (after adjustment for dividends and stock splits) on second trading day after IPO, and the last day of the holding period. Aftermarket performance are reported for different samples based on initial underpricing, age and gross proceeds (adapted from Ejara et al., (1998). Holding period returns are expressed as percentage. Numbers in [] brackets are wealth relatives, numbers in () parenthesis are sample size. A wealth relative of less than one indicates IPO underperformance.

Average Holding Period Percentage Return (%) over trading Days since Initial Public Offering (IPO)						
IPO Sample	Month 1	Month 3	Month 6	Year 1	Year 2	Year 3
Initial Underpricing						
IPOs with IR < 1.21%	0.87 [0.99] (27)	13.38 [1.07] (25)	22.78 [1.10] (24)	32.27 [1.17] (24)	58.20 [1.10] (21)	57.83 [0.91] (13)
1.21 ≤ IR < 4.85%	4.15 [0.98] (13)	26.68 [1.12] (12)	18.83 [1.10] (11)	4.25 [0.87] (11)	24.50 [0.76] (8)	29.15 [0.64] (5)
IR ≥ 4.85%	8.34 [1.05] (14)	20.81 [1.09] (14)	18.44 [1.11] (14)	27.00 [1.13] (13)	47.17 [1.10] (13)	59.98 [1.07] (7)
Age						
Age < 5	4.00 [0.99] (13)	21.72 [1.07] (13)	15.18 [1.03] (13)	29.30 [1.03] (12)	107.18 [1.04] (10)	132.15 [0.94] (9)
5 ≤ Age < 15	4.70 [1.01] (16)	25.38 [1.11] (15)	32.94 [1.18] (15)	40.45 [1.19] (15)	93.35 [1.24] (14)	94.40 [0.98] (9)
15 ≤ Age < 33	1.52 [0.99] (15)	15.07 [1.10] (13)	33.01 [1.17] (12)	35.47 [1.22] (12)	28.58 [0.97] (11)	-4.98 [0.58] (5)
Age ≥ 33	2.13 [0.97] (15)	11.34 [1.04] (15)	0.63 [0.99] (14)	8.37 [0.94] (14)	24.16 [0.87] (11)	22.37 [0.79] (6)
Gross Proceeds (adjusted for Inflation)						
Gross proceeds < 127,602,768	-1.05 [0.99] (13)	-0.17 [0.98] (11)	4.03 [0.99] (9)	16.60 [1.03] (9)	42.54 [0.99] (7)	33.09 [0.70] (4)
127,602,768 ≤ GP < 371,077,443	7.38 [1.06] (14)	30.27 [1.20] (14)	34.65 [1.21] (14)	19.44 [1.12] (13)	56.79 [1.09] (11)	62.17 [0.91] (5)
371,077,443 ≤ GP < 835,588,183	-0.08 [0.96] (13)	16.09 [1.06] (12)	19.39 [1.08] (12)	29.80 [1.12] (12)	54.53 [1.10] (10)	73.35 [1.04] (9)
GP ≥ 835,588,183	7.71 [1.01] (13)	21.08 [1.07] (13)	13.41 [1.04] (13)	29.06 [1.08] (13)	42.86 [0.99] (13)	38.89 [0.86] (6)

Note: The fewer number of firms trading is due to data limitations. Specifically, the data provided by Bolsa officials ends in July 1996.

and size matched firms from the corresponding raw operating return on assets (sales) of each firm (Barber and Lyon (1996), Mikkelsen et al. (1997)). In addition to the mean, the median level of operating performance is also presented since accounting ratios can be skewed (Jain and Kinni, (1994)).

Table 5.20 presents the operating performance results for the NYSE IPOs. Looking at year -1, the NYSE IPOs do not outperform a group of publicly traded market firms. The adjusted measures are all statistically insignificant. This is in sharp contrast to studies discussed earlier (in the literature review on operating performance) which find that the timing of IPOs generally coincides with a peak in operating performance so that IPO firms outperform significantly a group of control firms in year -1. This result implies that Mexican companies are not trying to time the market. Such an action would be arguably futile since there is a little probability that investors would be fooled or be overly optimistic even when presented with a scenario of strong gains in the operating performance just prior to the offerings considering the (i) long operating histories of these companies and (ii) the less speculative nature of the businesses of these firms. Elaborating on the last point, these firms are different

Table 5.20

Measures of operating performance of companies that had a Bolsa IPO and Level III Sponsored Program (NYSE Listing), concurrently.

Operating performance is operating income before depreciation, interest, taxes, and extraordinary items divided end-of-year assets (panel A) or divided by sales (panel B). Performance measures of each company are adjusted by subtracting the mean/median performance measure for a group of matched companies (by industry and size).

Companies (by Industry and Size).							
Performance Measure	Year -1	Year 0	Year 1	Year 2	Changes		
					-1 to 0	-1 to 1	1 to 2
	Panel A: Operating Income divided by Assets						
	Mean						
Unadjusted (n=11)	0.09** (5.21)	0.09** (5.43)	0.06** (4.18)	0.04** (2.73)	-0.01 (-1.42)	-0.04 (-1.75)	-0.02* (-2.18)
Adjusted (n=11)	-0.0009 (-0.05)	-0.004 (-0.21)	-0.02 (-1.49)	-0.02 (-1.67)	-0.01 (-1.27)	-0.02 (-1.10)	-0.002 (-0.17)
	Median						
Unadjusted (n=11)	0.09** (27.5)	0.10** (33)	0.08** (30)	0.04** (24)	-0.004 (-10.5)	-0.03* (-17.5)	-0.02* (-21)
Adjusted (n=11)	0.003 (4.5)	-0.001 (-4)	0.005 (3)	-0.01 (-13)	-0.02** (-26.5)	-0.015 (-9.5)	-0.003 (-7)
	Panel B: Operating Income divided by Sales						
	Mean						
Unadjusted (n=11)	0.12** (5.37)	0.14** (4.46)	0.11** (2.81)	0.07* (1.99)	-0.005 (-0.25)	-0.03 (-0.66)	-0.04 (-1.81)
Adjusted (n=11)	-0.04 (-1.83)	-0.05 (-1.54)	-0.08* (-2.14)	-0.04 (-1.22)	-0.03 (-1.38)	-0.05 (-1.24)	0.04* (1.92)
	Median						
Unadjusted (n=11)	0.13** (27.5)	0.13** (33)	0.13** (25)	0.07* (20)	0.006 (7.5)	-0.0007 (-5.5)	-0.02 (-14)
Adjusted (n=11)	-0.04 (-14.5)	-0.07 (-19)	-0.08** (-27)	-0.05 (-14)	-0.03** (-22.5)	-0.04* (-18.5)	0.06* (22)

*T-test(for Mean)/Signed-Ranks Test(for Median) is significant at the 0.10 level

**T-test(for Mean)/Signed-Ranks Test(for Median) is significant at the 0.05 level

(and less speculative) than offerings made in the US during the 1980s which were predominantly by firms in the computer, electronics, medical related, and oil and gas industries (Mikkelsen et al., (1997)). Those areas entail growth options that are relatively difficult to price and hence are more likely to be candidates for over optimism by investors.

Looking at years -1, 0, +1, and +2 the NYSE IPOs do not perform any better or worse than the control group. The notable exception to this result is year +1 where the operating return on sales actually falls below that of the control group as can be seen in Panel B, with the adjusted measures being negative and statistically significant. Both the operating return on assets and operating return on sales continue to decline from the year prior to the offering to two years after the offering. The median operating return on assets drops from 9 percent in year -1 to 4 percent in year +2 and the median operating return on sales drops from 13 percent to 7 percent for the same period (on an adjusted basis). However, a more relevant question is whether the rate of decline in the operating performance measures for the NYSE IPOs is any faster than that of the control group. The operating performance of the NYSE declines at a faster rate than that of the

control group from year -1 to year 0. This can be seen by examining the median operating return on assets which is -2 percent on an adjusted basis and statistically significant at the 5 percent level. This decline in operating performance actually continues until year +2 as is evident by the figures for the adjusted median operating return on sales for year -1 to 0, to +1 to +2. The results for 144A IPOs reported in Table 5.21 are similar (results for the combined sample of NYSE, and 144A IPOs are presented in Table 5.22).

The results for the domestic IPOs in Table 5.23 show that for any given year from -1 to +2 the domestic IPOs outperform a comparable group of industry firms in terms of both operating return on assets as well as operating return on sales. This is evident by examining the median adjusted operating returns on assets (as well as sales) for years -1 to +2 each of which is positive and statistically significant. There is a modest decline in performance from year -1 to 0, and the median adjusted operating return on assets is a -2 percent (statistically significant at 10 percent level).

Overall, the results suggest that there is nothing extraordinary in terms of the operating performance of Mexican IPOs (NYSE, 144A, and Domestic IPOs) and the

Table 5.21

Measures of operating performance of companies that had a Bolsa IPO and Rule 144A Private Placement, concurrently.

Operating performance is operating income before depreciation, interest, taxes, and extraordinary items divided end-of-year assets (panel A) or divided by sales (panel B). Performance measures of each company are adjusted by subtracting the mean/median performance measure for a group of matched companies (by industry and size).

Performance Measure	Year -1	Year 0	Year 1	Year 2	Changes		
					-1 to 0	-1 to 1	1 to 2
	Panel A: Operating Income divided by Assets						
	Mean						
Unadjusted (n=10)	0.07** (5.08)	0.07** (3.86)	0.05** (2.58)	0.03 (1.71)	-0.02 (-1.66)	-0.04* (-2.13)	-0.02 (-1.25)
Adjusted (n=10)	0.02 (1.67)	0.01 (0.71)	-0.006 (-0.33)	-0.009 (-0.58)	-0.03* (-2.11)	-0.04* (-2.39)	-0.004 (-0.27)
	Median						
Unadjusted (n=10)	0.08** (14)	0.06** (25.5)	0.04** (19.5)	0.02 (16.5)	-0.02 (-8)	-0.02* (-11)	-0.001 (-6.5)
Adjusted (n=10)	0.03 (9)	0.02 (9.5)	-0.01 (-5.5)	-0.009 (-4.5)	-0.02 (-8)	-0.03** (-13)	0.02 (2.5)
	Panel B: Operating Income divided by Sales						
	Mean						
Unadjusted (n=10)	0.13** (3.85)	0.11** (3.31)	0.09** (2.32)	0.07 (1.61)	-0.009 (-0.43)	-0.03 (-0.71)	-0.03 (-1.57)
Adjusted (n=10)	0.05 (1.64)	0.01 (0.30)	-0.007 (-0.17)	-0.02 (-0.42)	-0.04 (-1.86)	-0.06 (-1.56)	-0.01 (-0.52)
	Median						
Unadjusted (n=10)	0.09** (14)	0.09** (25.5)	0.13* (18.5)	0.02 (16.5)	-0.002 (-1)	-0.03 (-3)	-0.004 (-9.5)
Adjusted (n=10)	0.03 (9)	-0.02 (-1.5)	0.03 (0.5)	-0.05 (-2.5)	-0.06** (-12)	-0.07 (-10)	0.02 (-0.5)

*T-test(for Mean)/Signed-Ranks Test(for Median) is significant at the 0.10 level

**T-test(for Mean)/Signed-Ranks Test(for Median) is significant at the 0.05 level

Table 5.22

**Measures of operating performance of companies that had a
Bolsa IPO and Level III or Rule 144A Private Placement
concurrently. (Global IPO).**

Operating performance is operating income before depreciation, interest, taxes, and extraordinary items divided end-of-year assets (panel A) or divided by sales (panel B). Performance measures of each company are adjusted by subtracting the mean/median performance measure for a group of matched companies (by industry and size).

Companies (by Industry and Size):							
Performance Measure	Year -1	Year 0	Year 1	Year 2	Changes		
					-1 to 0	-1 to 1	1 to 2
	Panel A: Operating Income divided by Assets						
	Mean						
Unadjusted (n=21)	0.09** (6.90)	0.08** (6.57)	0.06** (4.79)	0.03** (3.19)	-0.02** (-2.23)	-0.04** (-2.66)	-0.02** (-2.41)
Adjusted (n=21)	0.01 (0.82)	0.003 (0.25)	-0.01 (-1.24)	-0.02 (-1.71)	-0.02** (-2.37)	-0.03** (-2.13)	-0.004 (-0.50)
	Median						
Unadjusted (n=21)	0.09** (76.5)	0.08** (112.5)	0.08** (95.5)	0.03** (76.5)	-0.009* (-37.5)	-0.02** (-52.5)	-0.005* (-54.5)
Adjusted (n=21)	0.02 (27.5)	0.02 (40.5)	0.01 (-17.5)	-0.01 (-27.5)	-0.004 (-20.5)	-0.02** (-52.5)	0.02 (6.5)
	Panel B: Operating Income divided by Sales						
	Mean						
Unadjusted (n=21)	0.12** (6.73)	0.13** (5.59)	0.10** (3.72)	0.07** (2.61)	-0.007 (-0.48)	-0.03 (-0.97)	-0.03** (-2.46)
Adjusted (n=21)	0.001 (0.05)	-0.02 (-0.99)	-0.05 (-1.71)	-0.03 (-1.28)	-0.03** (-2.32)	-0.05* (-1.89)	0.01 (0.98)
	Median						
Unadjusted (n=21)	0.12** (76.5)	0.11** (112.5)	0.13** (84.5)	0.04** (67.5)	0.003 (5.5)	-0.02 (-20.5)	-0.008* (-50.5)
Adjusted (n=21)	0.03 (21.5)	-0.03 (-32.5)	-0.02 (-34.5)	-0.04 (-3.5)	-0.05** (-66.5)	-0.06** (-50.5)	0.06 (61.5)

*T-test(for Mean)/Signed-Ranks Test(for Median) is significant at the 0.10 level

**T-test(for Mean)/Signed-Ranks Test(for Median) is significant at the 0.05 level

Table 5.23

**Measures of operating performance of companies that had a
Bolsa IPO Domestic.**

Operating performance is operating income before depreciation, interest, taxes, and extraordinary items divided end-of-year assets (panel A) or divided by sales (panel B). Performance measures of each company are adjusted by subtracting the mean/median performance measure for a group of matched companies (by industry and size).

Companies (by Industry and Size):							
Performance Measure	Year -1	Year 0	Year 1	Year 2	Changes		
					-1 to 0	-1 to 1	1 to 2
	Panel A: Operating Income divided by Assets						
	Mean						
Unadjusted (n=28)	0.13** (6.92)	0.12** (12.62)	0.09** (8.03)	0.08** (6.05)	-0.01 (-0.90)	-0.04* (-1.80)	-0.01 (-1.19)
Adjusted (n=27)	0.05** (2.73)	0.04** (4.31)	0.01 (0.49)	0.01 (0.76)	-0.01 (-0.86)	-0.05** (-2.23)	0.004 (0.38)
	Median						
Unadjusted (n=28)	0.12** (146)	0.11** (203)	0.08** (203)	0.08** (181)	-0.006 (-21)	-0.03* (-63)	-0.007 (-45)
Adjusted (n=27)	0.05** (94)	0.02** (127)	-0.002 (-7)	0.02** (88)	-0.02* (-61)	-0.05** (-86)	0.03** (97)
	Panel B: Operating Income divided by Sales						
	Mean						
Unadjusted (n=28)	0.11** (7.01)	0.14** (10.11)	0.13** (7.03)	0.10** (4.21)	0.03** (2.27)	0.02 (0.66)	-0.03 (-1.31)
Adjusted (n=27)	0.29** (17.97)	0.11** (7.77)	0.11** (5.61)	0.12** (4.89)	-0.18** (-13.37)	-0.19* (-7.59)	0.02 (0.73)
	Median						
Unadjusted (n=28)	0.11** (145)	0.13** (203)	0.11** (203)	0.09** (175)	0.009* (61)	-0.01 (-10)	-0.004 (-43)
Adjusted (n=27)	0.03** (68)	0.04** (139)	0.02* (72)	0.04** (109)	-0.01 (4)	-0.03 (-44)	0.03** (99)

*T-test(For Mean)/Signed-Ranks test(For Median) is significant at the 0.10 level

**T-test(For Mean)/Signed-Ranks test(For Median) is significant at the 0.05 level

timing of the offerings. The pattern of a peak in operating performance in the year prior to the offering followed by a sharp subsequent decline that is observed in the US is not characteristic of any of the Mexican firm groups. These results are consistent with the earlier results of low underpricing and the absence of any poor long-run stock price performance. A meaningful line of causation can be developed by looking at the initial underpricing, operating performance, and long-run stock price performance results in unison rather than analyzing them separately. The low underpricing observed for all NYSE IPOs, 144A IPOs, and domestic IPOs, suggests that these firms are high quality entities or that there is relatively little information asymmetry associated with these companies. This conclusion is consistent with the empirical observations: (i) that these are well established, large firms with long operating histories and (ii) with respect to the NYSE IPOs and 144A IPOs, that these are firms that are willing to meet the listing fees, maintenance requirements, increased disclosure requirements, costs incurred in complying with different standards of disclosure and a possible increase in litigation potential associated with the more stringent rules and regulations in the US. Thus, irrespective of

whether the low underpricing is due to less information symmetry or whether these are high quality firms, both sets of arguments preclude observing a peak in operating performance prior to the offering followed by a subsequent decline in performance. Moreover, studies by Jain and Kini (1994) and Mikkelsen et al., (1997) find this deterioration in operating performance of US IPOs to be concentrated in smaller, younger firms rather a phenomenon unique to IPOs. The operating performance results for Mexican IPOs are in agreement with all of these observations. Finally, the lack of any poor long-run stock price performance, even though a departure from that observed in the US, implies that the market capitalizes any relevant information properly, which suggest that case (i) there is little information asymmetry and (ii) there are no surprises on average in the subsequent operating performance of these firms.

Chapter 6: Seasoned Global Equity Offerings

6.1 Introduction

The market reaction to seasoned equity offerings has been the focus of a number of empirical studies. However, there is little empirical evidence on global seasoned equity offerings, an area that remains relatively unexplored. Global equity offerings refer to the special case of the sale of common equity in the home market as well as one or more international markets. In the context of Mexico and Latin America, equity ADR issues have increased from 89 million US\$ in 1990 to 3,822.2 million US\$ in 1994, a greater than 4,000 fold increase in nominal terms (Griffith, 1995).²⁷ The issue of global equity offerings assumes importance not only from the perspective of foreign firms but also in the context of US firms since US firms raised approximately 20 billion US\$ in 1995 through follow-on equity offerings in foreign markets. This figure is impressive since in 1985 US firms only raised 89 million US\$ in foreign markets so that these firms now have access to well developed foreign capital markets (Chaplinsky and Ramchand, 1998).

²⁷ This figure includes ADR IPOs as well. However, the route to international equity markets generally begins with a Level I listing, where the company sets up an OTC program to build name recognition and increase trading volume prior to a global equity offering.

The notable differences between a global and domestic equity offerings are the inclusion of international underwriters in the syndicate and the placement of shares by international underwriters targeted almost exclusively to institutions. The offer price per share is the same in both the domestic and international tranches, that is there no price discrimination across markets. Since foreign investors can always purchase Mexican shares by participating in a domestic offerings or purchasing them on the Bolsa, global equity offerings have to provide more than just another venue for purchasing Mexican shares to be able to explain why firms engage in such offerings. Before discussing the relevant seasoned equity issuance literature and the empirical results, a brief discussion of the rationale for global equity offerings is provided below.

6.2 Rationale for Global Issues

Market imperfections such as information constraints, differences in tax structures or regulatory barriers that impede market integration can give rise to a situation where higher gross proceeds can result from a global issue compared to a domestic issue, *ceteris paribus*. Prominent among these considerations is an argument related to information costs that can cause market segmentation.

According to Merton's (1987) investor recognition hypothesis, it may be optimal for investors to exclude from their portfolios securities on which they possess limited information, or alternatively the market value of the firm is an increasing function of the number of investors who know about the firm. Merton's (1987) result that an asset with a relatively small base of informed investors sells at a lower price than it would in a fully informed economy is the same as that implied by Barry and Brown's (1985) model that, "securities for which there is relatively little information will have higher expected returns than will otherwise identical securities." French and Poterba (1991) and Tesar and Werner (1995) among others show home-bias in portfolio holdings even in the absence of explicit investment barriers that is partly attributable to such information costs.

These arguments suggest that, global issues are associated with a reduction in information costs due to the dissemination of information involved in the equity issuance process. Clearly, gains resulting from increased investor recognition and an enlarged investor base will be greatest for firms that are not already listed abroad (in the context of the present study that would mean listed in

US) prior to the seasoned global equity offering.²⁸ This implies that the negative price reaction observed for seasoned equity issuance announcements should be less pronounced for firms with no prior international listing compared to that for firms that already have a Level I, Level II or Level III ADR program. It should be noted that the absence of a prior listing does not preclude some degree of awareness by investors outside the home country due to the possibility of joint ventures, operations in foreign markets or advertising, access to international press, etc. Even companies with a prior listing abroad can be expected to obtain a higher offer price from a global issue vis-a-vis a domestic issue if the marketing activities and the road show accompanying a firm-commitment offer reduce the information costs for foreign investors.

Chaplinsky and Ramchand (1998) in their study of 258 US firms that made a global offering between 1986 and 1995 find that, all else equal, the negative stock price reaction for a global offers is lower on average by one percent relative to domestic offerings. They find the positive gains from global issues are mainly due to on

²⁸ Firms can also reduce these information costs by other actions such as direct foreign investment and mergers and joint ventures with foreign firms etc.

expanded investors base following issuance, a result consistent with Merton's (1987) model. Their results also support the attenuation hypothesis, with the greatest gains occurring for firms with the least investor recognition abroad as measured by a firm's prior trading on a foreign exchange (a Level I, or Level II listing in the context of the present study), amount of foreign sales, or whether the firm had made a global issue previously. Such results show that there are benefits to global issues even for firms with a prior listing abroad. Thus, even though there is an upper bound to recognition as implied by attenuation this bound is not reached easily as indicated by the positive benefits to global issue beyond those achievable by listing. According to Chalinsky et al. (1998), "One explanation for these incremental benefits is that the road show and targeted marketing efforts that accompany global issue help gain new investors beyond those already familiar with the firm through listing. Indeed, the overall results are much in keeping with Merton's larger point that it takes prolonged commitment to develop recognition that this awareness is gained only gradually."

Other market imperfections such as differences in tax structures, ownership restrictions, and transaction costs

can also cause market segmentation (Amihud and Mendelson (1986), Hietala (1989), Bergstrom et al., (1993), Bailey and Jagtiani (1994), Stulz and Wasserfallen (1995)). If markets are not completely integrated due to the presence of such imperfections, it is questionable whether firms face the perfectly elastic demand curve normally assumed under perfect capital markets. Contrary to the assumption of a perfectly elastic demand curve, empirical evidence supporting this notion has been generated by Kraus and Stoll (1972), Scholes (1972) and Bagwell (1991), among others. Faced with a downward sloping demand curve firms can reduce the price pressure effects that can result from the issuance of additional shares by conducting global issues since the activities associated with these issues can create additional demand for the new shares. The argument that explains global issues based on the above notion of finite price elasticity is straight forward, based on simple supply and demand considerations. A large supply of shares would depress the price, the magnitude of which is determined by how binding is the constraint of foreign participation which depends upon market imperfections or the degree of segmentation.

It is doubtful whether tax differences or ownership restrictions are meaningful considerations in the context

of Mexico. The tax treatment of nonresidents who invest in Mexican securities is favorable both for individuals and for corporate investors. There is no capital gains tax on the sale of shares and dividends paid by Mexican corporations are exempt from withholding tax. Also, nonresidents investing in Mexican stock exchange securities are not required to file any kind of Mexican tax return.²⁹ In regards to the issue of ownership restrictions, foreign investors can freely acquire any B series shares or any of the other series to the limit dictated by Mexican securities rules and regulations. A global issue cannot circumvent the limit for any of the different series.

All else equal, higher transaction costs on the Bolsa would make purchasing shares through a global issue a more attractive proposition for US investors. Since 1991 brokerage costs on Bolsa have decreased significantly (exact figures are given on page 35 in chapter 2) but execution costs still differ between the NYSE and the Bolsa. A study by Korn (1997) finds that as ADR trading price increases, relative execution costs become significantly lower on the NYSE than on the Bolsa. As the

²⁹ In fact, tax arguments alone would make investment in Mexican securities more attractive to Mexican nationals than for US investors (Domowitz et al., 1997).

ADR trading price decreases, relative execution costs on Bolsa become more competitive and in some cases even lower than NYSE due to the enforcement of the NYSE minimum tick rule. Theoretical arguments aside, the absence of more conclusive empirical evidence on cost differentials and differences in direct issue costs (such as gross spread, expenses of the offering, capital requirements etc.) weakens the transaction costs argument to explain global issues. Chaplinsky et al. (1998) also conjecture that global issues might be partly motivated by companies desire to create a more heterogeneous shareholder base that can improve liquidity and reduce volatility in response to specific news events owing to different opportunities, tastes, or preferences of domestic and foreign investors. They also hypothesize that global issues allow the possibility of raising capital on more favorable terms by by-passing unfavorable demand conditions at home. This line of reasoning is based on the empirical observations that announcement date price reaction to new issues is positively related to recent stock market performance (Asquith and Mullins (1986), Korajczyk, Lucas and Macdonald (1990)).

The next section reviews the seasoned equity issuance literature including previous empirical evidence. A brief

discussion of studies that have examined the effects of international listing also follows. The overlap between this line of research and the present study is that for some companies in the sample the seasoned global equity offering also coincides with a firm's first listing abroad. The last section is a discussion of the results.

6.3 Announcement-Effects of Seasoned Common Stock Issues

Several hypotheses have been put forth to explain the significant negative price reaction surrounding announcements of seasoned equity offerings. Prominent among these are arguments based on the Myers and Majluf (1984) framework. In the Myers and Majluf model, managers arbitrage the market based on their private information, issuing a security when it is overpriced. Investors are unable to separate firms with favorable information from firms with unfavorable information. A negative reaction in response to new equity issues is viewed as a way for investors to hedge against this risk of adverse selection. Because debt is a fixed claim, it is less sensitive to changes in firm value as long as bankruptcy is avoided. More specifically, because investors are not able to assess the true value of the firm, including its new projects, due to information asymmetry, investors revise

their expectations downward in response to news of a seasoned equity issue.

Miller and Rock's (1985) cash flow signaling hypothesis and Jensen's (1986) wasteful investment hypothesis also predict a negative reaction to new equity issues but are based on different lines of reasoning. In the Miller and Rock (1985) model any unanticipated issue of a security is a negative signal. More specifically, any unanticipated security that represents new financing conveys unfavorable information to the market as it implies a decline in operating cash flows relative to expectations. In this model expectations regarding the firm's level of planned investment and the value of the firm's assets are already formed (conditional on the current cash flow) and the only new piece of information is the unanticipated demand for cash.

Jensen's wasteful hypothesis is in contrast to Miller and Rock's model and assumes significant agency problems. In Jensen's view thus there is a tendency for managers to overinvest and cash must be monitored. An announcement of a stock issue has a negative impact on stock price since it represents an increase in the firm's demand for cash and the level of its planned investment. Debt issues differ from equity issues because numerous restrictions

(in the form of covenants for bonds) accompany a debt issue. Thus, debt issues place more constraints on the firm and expose it to greater external monitoring. In both models the magnitude of the price decline is related to the size of the issue and equity issues that are used to retire debt (that is, do not represent new financing) should not experience any negative price reaction. Likewise a secondary offering of equity should not affect the firm's share price.

Scholes (1972) price pressure hypothesis, although not a behavioral model, is also used to explain the decline in stock price surrounding equity issue announcements. If markets are incomplete and there are no perfect substitutes for a firm's securities, then firms face a downward sloping demand curve for their securities. Therefore, any increase in the number of shares caused by a seasoned equity offering results in a permanent decrease in stock price. A related version of the price pressure hypothesis is the transaction cost hypothesis which predicts a temporary price reduction as a form of discount to compensate investors for the transaction costs they incur in rebalancing their portfolios to absorb the new shares.

Asquith and Mullins (1986) document a -3.2 percent statistically significant announcement day effect in response to seasoned equity issues that is also economically meaningful since in terms of the loss in firm value this translates into a 31 percent offering dilution (that is, the loss in firm value as a percentage of the funds raised in the primary offering). A statistically significant negative announcement day occurs even for secondary offerings (in which the firm receives no proceeds from the sale) suggests that the type of security is the main determinant of the price response. Further, they find that the negative market reaction is not due to any changes in financial leverage or capital structure.³⁰ The authors find the magnitude of the price decline to be related to the size of equity issue which they interpret to be consistent both with the asymmetric information and the price-pressure hypothesis. Mikkelsen and Partch (1986) also find a significant -3.56 percent (two day) announcement day effect. They do not find any relationship between stock price effects and the net amount of new financing or the size of the offering, a result that is not consistent with the Miller and Rock

³⁰ Therefore the argument that because of the tax advantages of debt, a decrease in financial leverage causes the stock price to decline does not hold.

model. They also find that for completed offerings, the average returns are positive for the period between the announcement and the issuance day. They contend that positive post-announcement returns increase the likelihood of managers completing the proposed offering. They interpret the -0.7 percent issuance day effect as reflecting the resolution of uncertainty regarding the outcome of the proposed offering. Similar negative announcement effects are also reported by Masulis and Korwar (1986) and Barclay and Litzenberger (1988).

6.4 Private Placements of Equity

The seasoned global equity offerings examined in this chapter include 144A equity offerings. Rule 144A private placement offerings refer to the sale of debt or equity by foreign issuers to qualified institutional buyers (QIB), that is, institutions that own and invest on a discretionary basis at least \$100 million. A Level I program can be established together with a 144A program but ADRs listed on either NYSE, AMEX or NASDAQ cannot conduct a private placement of equity. Presently, there are more than 3,000 QIBs. The 144A market is predominantly a debt market. There are some important differences between the 144A private placements considered in this study and the private placements that have been

investigated in the literature. A discussion of these differences is preceded by a review of the literature on private placement.

Wruck (1989) and Hertz and Smith (1993) find the announcement of a sale of private equity is associated with a positive share price response. Wruck (1989) finds significant announcement period abnormal returns on the order of positive 4.4 percent in sharp contrast to the decline in stock price associated with issuance of public equity offerings. The majority of the private sales in Wruck's sample have only one purchaser (with the average block size being 19.6 percent of the voting securities) even though SEC regulations allow up to 30 purchasers in a private sale. The willingness of a non-management investor to bear a large amount of firm specific risk by buying a block of securities conveys positive information to the market. Wruck also attributes the positive stock price response to the sale of private equity to changes in ownership concentration, where the positive abnormal stock returns reflect the expected benefits of increased monitoring. A greater level of ownership concentration increases firm value if the blockholders can ensure more efficient use of resources through their increased ownership or the increased probability of a takeover that

aligns the interests of the manager with those of shareholders.³¹ Non-management holdings increase by approximately 7 percent whereas management holdings decrease by approximately 15 percent subsequent to the sale of private equity.

Hertzel and Smith (1993) also find private placements are associated with positive abnormal returns even though equity is sold at substantial discounts. Their research extends the Myers and Majluf (1984) model by adding private equity issuance as an additional choice to issuing public equity. In this framework, undervalued firms can resort to a private placement of equity as a means of avoiding a public equity issue without having to forego an investment opportunity because managers are able to reveal their private information through negotiations with an outside investor. The discount reflects the information acquisition costs incurred by private investors to assess firm value and provides compensation for monitoring services provided by private investors. In contrast to Wruck, Hertzel and Smith find ownership structure effects

³¹ There is an increase in firm value when the level of concentration (after the sale) is low (0 to 5 percent) or high (≥ 25 percent). There is a negative relation between firm value and ownership concentration for the intermediate range, as for this range the blockholders (non-management investors) do not have enough voting rights to influence the behavior of managers. That is, managers do not face the disciplinary effects of the market for corporate control. This result

to be only of limited importance as an explanation for the positive abnormal returns associated with private placements. They find a substantial fraction of the placements involve multiple investors (as opposed to Wruck's finding of mainly single investors) and are essentially passive investments in which there is limited ability to affect firm performance directly. This effect is most pronounced for placements that involve institutional or foreign buyers with the discount adjusted abnormal returns being the lowest for foreign placements. According to Hertz and Smith, "for the smaller firms private sales of equity are primarily capital-raising events as opposed to ownership-restructuring events." Interestingly, they find negative returns preceding private placements instead of the positive share price run-up observed for public issues. They argue that this result is consistent with Lucas and Macdonald (1990) who model the share price run-up prior to a seasoned equity issue as a function of information asymmetry. More specifically, the observed price run-ups preceding public issues are due to the decisions of undervalued firms to postpone equity issues until the under-valuation vanishes.

is the same as that reported by Stulz (1988) and Slovin and Sushka (1993).

If private placements are a substitute for delaying public issues and help to resolve information asymmetry (in the Myers and Majluf sense) then no price run-ups need be observed for private placements.

Discussion with Bolsa officials suggests that 144A ADR offerings conform closely to the case of multiple buyers of private equity placements. However, it is difficult to argue a priori that 144A ADR offerings should have a positive share price response. One of the main arguments for viewing a private placement as a positive event for firm value is that since investors value diversification they will take on an undiversified position only if they possess favorable information about the firm.

It is not clear whether the diversification of the large institutional investors involved in these transactions is affected by the size of the stakes they take. In fact, Hertznel and Smith find that the diversification of the large institutional investors is not materially affected by their participation in private placements. There is also some empirical evidence that suggests large institutional investors typically vote *street rules*, meaning that a bank or an insurance company, including one that has a current or a potential future

relationship with the firm, will generally vote with management or abstain from voting. Even in the case of disagreements they may still vote with management or sell their holdings rather than vote against incumbent management (Pound, 1988). Under current rules and regulations fiduciary managers are not required to disclose their voting behavior to beneficial owners. Such observed patterns in the voting behavior of large institutions raises questions about the effectiveness of shareholder monitoring activities of these large blockholders. Similar conclusions are reached by Brickley et al. (1988) with the qualification that some pressure resistant institutions such as public pension funds, endowments, or foundations show a greater tendency to oppose management than other institutions such as banks, insurance companies, corporate pension funds, and brokerage houses etc. In contrast, corporate blockholders have a greater incentive to undertake monitoring activities because of possible takeover opportunities.

Thus, it is uncertain a priori whether 144A private placements will show a positive share price response due to the high concentration of large institutions in such offerings. Moreover, unlike private transactions with active investors, 144A placements involve multiple

investors whose diversification is not likely to be affected materially by these transactions. Overall, there is little empirical support for the hypothesis that these investors provide effective monitoring services. Moreover, after the introduction of Rule 144A, institutions are no longer required to hold these securities for a period of two years or register them with the SEC in order to be able to resell private placement securities. Instead, they can be sold to any qualified 144A institution. This liquidity is likely to reduce the extent of monitoring conducted by these institutions.

6.5 Effects of International Listing

There are some important differences between the seasoned global equity offerings considered in this study versus standard US offerings in terms of the (i) presence of a foreign tranche in these offerings and (ii) prior listing in an international market. All the seasoned global offerings in the sample include a domestic (Mexican) component that is similar to the firm commitment seasoned offerings that have been studied in the literature. The foreign tranche consists of either a public offering of equity on the NYSE/AMEX (that is, a Level III offering) or a private placement in the 144A market. Of the total 27 global offerings that comprise

the sample, 16 companies conduct a public offering on the NYSE/AMEX while 11 conduct a private placement in the 144A market concurrently with a domestic offering. In addition to differences in the foreign tranche of these offerings, some companies already have prior listings in the US, in the form of Level I, Level II, or Level III program, while others do not. More specifically, 2 firms in the 144A category and 7 firms in the NYSE category had an established ADR program prior to the capital raising offering, mainly in the form of OTC trading. Thus, for some companies the global seasoned equity offering coincides with their initial entry (that is, a formal listing) in the US capital markets. The announcement effect observed for these companies will reflect the effects of both a seasoned equity offering as well as the initiation of an international listing. To have an appropriate benchmark, it is necessary to review the previous empirical evidence on effects of international listing on stock returns.

The benefits of an international listing include an enlarged investor base, increased international investor recognition, access to more extensive capital markets, and greater monitoring and certification. There is also a greater degree of transparency associated with US markets

because of the more stringent disclosure requirements. An international listing may also improve liquidity, that is, generate a lower bid-ask spread, because of increased inter-market competition among market makers. If spreads drop following a listing, the lower expected returns required by investors because of the reduction in transaction costs should give rise to an increase in share value. This reasoning is based on the argument that expected returns are an increasing function of liquidity (Amihud and Mendelson, 1986). Domowitz et al. (1996) find such a decline in the implicit bid ask spreads of Mexican firms that obtain an ADR listing in the US.

There are also substantial costs associated with an international listing including listing fees, greater disclosure of information, costs incurred in complying with those standards of information as well as an increase in litigation potential due to these rules and the more stringent enforcement in the US. The above discussion implies that international listing should be associated with a positive share price response. This benefit to international listing is a signaling effect reflecting management's confidence in the firm's business prospects. Because of the penalty costs associated with the loss of a listing, the decision to list indicates management's

confidence in its future ability to meet the minimum listing requirements of the foreign stock exchange. The magnitude of the share price response will also be related to the degree of market segmentation since the expected benefits from an improvement in liquidity, an enlarged investor base, or increased investor recognition will be minimal if the two markets are well integrated.

Among the previous studies on international listing, a line of research has examined stock price reactions to US firms listing their shares abroad. Alexander et al. (1988), using monthly returns, find positive significant CARs in the pre-listing period (where $t=0$ denotes the month security starts trading in the US) and insignificant CARs in the listing period. They find this effect to be more pronounced for non-Canadian firms than Canadian firms. Jayaraman et al. (1993) examine 95 foreign firms that began trading in the US in the form of ADRs. They find the ADR listing to be associated with positive abnormal returns. Foerster and Karolyi (1996) document similar results for a set of Canadian and European firms. However, this phenomenon represents a very different case from the focus of the present study which is the entry of an emerging market firm into a well developed and more

transparent capital market.³² A somewhat more comparable set of studies examines the impact on stock returns of listing by foreign firms, generally European in the US. The current study differs from previous studies not only in terms of the domicile of the firms but also in terms of the event itself which is a seasoned global equity offering, that is a securities issuance event, and not merely an international listing of existing shares.

6.6 Empirical Results

The data for this chapter were obtained from the Bolsa, the Bank of New York and Bankers Trust. The Bolsa maintains figures on foreign placement but does not maintain a clear distinction between NYSE/AMEX public offerings vs. 144A private placement offerings. The ADR department of Bank of New York was instrumental in preparing a list of all capital raising Mexican ADRs, with both the market and the date of issuance clearly identified. Bankers Trust permitted the use of their ADR database to search information on the starting dates for ADR programs of all Mexican firms irrespective of whether it was a capital raising issue or not. This made it

³² For brevity, only the literature closest in spirit to the present study is discussed here. Some of the literature on the valuation effects of listing by US firms abroad as well as effects on stock returns of a firm changing its domestic trading place is discussed in

possible to identify firms that had an ADR program prior to the global equity issue. The global issue sample in this study is smaller than the complete set of global offerings by Mexican firms between 1989 and 1995 mainly due to the exclusion of non-industrial firms (financials and utilities) from the sample to maintain comparability across different subgroups. Prior research establishes that at the announcement date, share price reactions for equity issues by utilities (Asquith and Mullins (1986), Masulis and Korwar (1986)) and banks (Polenchek, Slovin, and Sushka (1989)) differ from those reported from industrials. It should be noted that most studies dealing with international listing of firms in the US use the first trading date as the event date, a departure from typical event studies that focus on detecting abnormal returns around particular announcement dates. In part, this is because information on the decision to list or application dates is rarely published in major newspapers.

Table 6.1 presents information on the number of domestic and global (with a foreign tranche on the NYSE/AMEX or 144A) seasoned offerings on Bolsa between 1989 and 1997.³³ While the total number of seasoned

the introduction as a way of alluding to the differences between the present study and the literature.

³³ Bolsa officials were not able to provide figures for 1991.

Table 6.1

**Public Firm Commitment and Rights Offerings on
the Bolsa Between 1989 and 1997.**

This table presents the number of Public Firm Commitment and Rights offerings on Bolsa between 1989 and 1997. The total number of public firm commitment offerings in a given year is given in column two. The public firm commitment offerings are broken down in terms of global (NYSE/AMEX or 144A) and purely domestic offerings. The number of rights offerings is given in the last column. The number in parenthesis is the number of observations for which data was available to be included in the sample. Bolsa officials were not able to provide comprehensive figures for Public firm commitment offerings in 1991.

Year	Public Offerings with Securities currently Quoted in Stock			Number of Rights Offering
	Total	Global	Domestic	
1989	--	--	--	--
1990	2	0	2 (1)	32
1991	--	-- (6)	--	40
1992	14	5 (5)	9	41
1993	15	4 (3)	11 (2)	44
1994	11	8 (7)	3 (1)	40
1995	1	0	1	31
1996	16	6 (6)	10 (5)	18
1997	6	2	4	29

offerings in any given year is less than 20, it should be noted that the total number of firms trading on the Bolsa has been about 200 over this time period. It is clear from table 6.1 that the dominant form of raising capital in Mexico is rights offerings. There were almost no seasoned equity offerings on the Bolsa for the year 1995, a consequence of the 1994 Peso devaluation. Table 6.2 gives a more detailed breakdown of the global issues in terms of whether the foreign tranche included a public offering on NYSE/AMEX (this subset of global offerings is referred to as the NYSE sample) or a private placement in the 144A market (referred to as the 144A subgroup).

There were a total of 31 global offerings by Mexican firms between 1989 and 1997 compared to 40 domestic offerings. The 275 rights offerings for the same period far outnumber the firm commitment seasoned offerings. Over the entire period the number of domestic offerings is greater than the number of global issues except for 1994 when there were eight global and only three domestic offerings. The number of global offerings is evenly distributed over the years showing a sustained trend rather than a concentration in a particular year. There is approximately an equal number of NYSE and 144A offerings in any given year during the sample period

Table 6.2

**A Breakdown of Seasoned Equity Offerings on
Bolsa by Kind and Year.**

This table presents the number of global and domestic seasoned offerings as well as the number of rights offerings on the Mexican Stock Exchange between 1990 and 1997. The global issues are further broken down into NYSE/AMEX (Public) offerings and 144A (Private placements offerings). The figures for 1991 are not comprehensive.

Year	Public Offerings with Securities currently Quoted in Stock				Total Seasoned Offerings (that is, total of Global and Domestic)	Number of Rights Offerings
	Global			Domestic		
	NYSE	144A	Total (that is, total of NYSE and 144A)			
1990	0	0	0	2	2	32
1991	2	4	6	--	6	40
1992	2	3	5	9	14	41
1993	2	2	4	11	15	44
1994	7	1	8	3	11	40
1995	0	0	0	1	1	31
1996	4	2	6	10	16	18
1997	0	2	2	4	6	29
Total 1	17	14	31	40	71	275

except for 1994 when there were seven NYSE offerings but only one 144A offering. Overall, there were 17 NYSE and 14 144A global offerings. Referring back to table 6.1, it is clear that the composition (16 NYSE and 11 144A) and distribution of the sample is reflective of the overall distribution of the global issues.

Table 6.3 presents information on the average (median) issue size for domestic and global seasoned issues as well as for rights offerings. This table also reports the average (median) issue size of the foreign tranche and the proportion of proceeds raised abroad. A comparison of the global and domestic issues in terms of issue size (average or median proceeds) reveals that the global issues are much larger than the domestic issues. The difference in issue size between the two groups is large; for example, the average (median) issue size for global issues in 1992 was 1907.7 (972.0) million new pesos while for domestic issues the figure for the same year is 572.9 (224.6) million new pesos. With the exception of 1997, the average (median) issue size of the global issues is at least twice as large the average issue size of the domestic issues. In comparison, rights offerings are smaller than both the domestic and global firm-commitment

Table 6.3

**Gross Proceeds from Global and Domestic Firm-Commitment
Seasoned Equity Issues, and Rights Offerings.**

Domestic Issues are firm-commitment equity issues offered only in Mexico. Global equity issues are firm-commitment equity issues offered in Mexico and one or more foreign markets. N denotes the number of issues in a given year for which the relevant data was available. Average proceeds is the amount raised abroad in a global issue and percent foreign proceeds is the percentage of foreign proceeds to the total amount raised in a global issue. Proceeds are in 000,000 N\$. There was only a single domestic offering in 1995 (a consequence of the 1994 Peso crash) for which data wasn't available.

Global Issues (NYSE and 144A)							
Year	N	Average Proceeds	Median Proceeds	Average Foreign Proceeds (Median)	Average % Foreign Proceeds (Median)		
					NYSE	144A	Total
1992	5	1907.7	972.0	1,501.7 (432.0)	71.2 (71.2)	54.7 (44.4)	61.3 (53.9)
1993	4	2029.0	1115.1	1,064.1 (781.3)	59.4 (59.4)	60.3 (60.3)	59.9 (60.3)
1994	6	801.8	651.7	452.9 (294.4)	56.9 (54.8)	42.3 (42.3)	54.4 (54.6)
1996	6	459.1	509.5	334.7 (375.6)	66.2 (69.1)	76.3 (76.3)	69.5 (74.3)
1997	2	489.6	489.6	406.7 (406.7)	--	82.7 (82.7)	82.7 (82.7)
Domestic Issues							
1990	2	40.6	40.6				
1991	--	--	--				
1992	8	572.9	224.6				
1993	5	269.3	92.7				
1994	2	321.8	321.8				
1996	5	203.2	154.7				
1997	4	422.8	460.9				
Rights Offerings							
1990	32	29.0					
1991	40	72.3					
1992	41	46.6					
1993	44	131.8					
1994	40	103.3					
1995	31	190.8					
1996	18	743.4					
1997	29	285.0					

issues although the total amount of capital raised, in general, is greater through rights offerings.

With respect to foreign proceeds both in peso terms as well as a percentage of the total gross proceeds, table 6.3 shows that the foreign tranche is typically a significant portion of the overall issue. Generally, the underwriting contract does not specify that a certain number of shares must be sold abroad and instead is a discretionary variable that can be altered by the syndicate members in response to investor demand. Thus, the number of shares can be moved from one market to the other (that is, between the domestic and international markets) in response to changes in economic or political conditions if the need arises. The percentage of total proceeds accounted for by foreign proceeds (foreign proceeds divided by the total gross proceeds) ranges annually between 54.4 (54.6) to 82.7 (82.7) percent. Thus, it is the foreign tranche that assumes greater significance relative to the domestic component in a global equity offering. This result holds for both NYSE offerings and 144A offerings. The percentage of foreign proceeds ranges from 56.9 (54.8) to 71.2 (71.2) percent for the NYSE offerings and it ranges from 42.3 (42.3) to 82.7 (82.7) percent for the 144A offerings. This evidence

underscores the importance of the global equity markets to the capital raising efforts of the Mexican firms that conduct firm commitment offerings.

Table 6.4 presents information on offer price, gross proceeds, and proportion of foreign proceeds, adjusted for inflation, for the firms present in the sample categorized by different sub-groups. The test for differences between the groups is performed using a t-test of the difference in means and a Kruskal-Wallis chi-square test (results for Wilcoxon signed rank test were very similar and therefore not reported). The mean (median) offer prices for the NYSE, 144A and domestic offerings are 29.86 (22.84), 26.64 (19.2) and 5.06 (4.73) N\$, respectively. The offer price for the NYSE sub-group is not statistically different from the offer price of the 144A sub-group. The offer price of purely domestic offerings is significantly lower and statistically different from the NYSE and the 144A groups. To avoid any effects of inflation, all calculations for proceeds (both gross proceeds as well as foreign proceeds) were conducted by first expressing all the data in terms of the purchasing power of December 1996. The mean (median) gross proceeds for the NYSE and 144A sub-groups are 2,793 (866) and 2,216 (1,210) million N\$, respectively. The median issue size for the 144A sample

Table 6.4

Seasoned Equity Issuance Descriptive Statistics

This table presents information on the offer price, the amount raised in the offering, the amount raised in different market and the percentage of foreign proceeds. Distinction is made between domestic and global offerings, with the Global offerings further classified as NYSE or 144A indicating the nature of the foreign tranche.

Further Classified as NYSE or 144A indicating the nature of the foreign tranche.						
IPO Type	N	Mean	Median	Std	1 st Percentile	99 th Percentile
Offer Price (N\$)						
NYSE	16	29.86	22.84	25.83	3.63	99.60
144A	11	26.64	19.20	23.91	3.01	78.00
Domestic	6	5.06	4.73	2.84	1.82	9.00
Test Statistics for Differences in Subsamples						
NYSE-144A		0.33 (0.74)	0.16 (0.69)			
Domestic-NYSE		-3.78** (0.0016)	8.27** (0.004)			
Domestic-144A		-2.96** (0.014)	6.61** (0.01)			
Gross Proceeds (000,000 N\$) (adjusted for inflation)						
NYSE	12	2,793.11	866.01	3,978.64	95.14	11,711.29
144A	7	2,216.52	1,210.98	2,585.43	522.51	7,825.19
Domestic	6	158.99	154.13	52.17	99.30	235.91
Test Statistics for Differences in Subsamples						
NYSE-144A		0.38 (0.71)	0.11 (0.74)			
Domestic-NYSE		-2.29* (0.04)	7.38** (0.006)			
Domestic-144A		-2.11* (0.08)	9.00** (0.003)			

(table cont'd.)

Gross Proceeds in Mexico (000,000 NS) (adjusted for inflation)						
NYSE	14	890.68	279.47	1,653.51	4.37	6,393.62
144A	7	637.47	801.91	446.16	135.52	1,211.76
Domestic	6	158.99	154.13	52.17	99.30	235.91
Test Statistics for Differences in Subsamples						
NYSE-144A		0.54 (0.60)	0.56 (0.46)			
Domestic-NYSE		-1.65 (0.12)	1.97 (0.16)			
Domestic-144A		-2.82* (0.03)	4.59* (0.03)			
Gross Proceeds in US (000,000 NS) (adjusted for Inflation)						
NYSE	14	1,565.86	416.82	2,575.75	27.18	9,148.90
144A	11	1,236.97	641.94	1,889.51	111.34	6,745.85
Test Statistics for Differences in Subsamples						
NYSE-144A		0.37 (0.72)	0.05 (0.83)			
‡ Foreign Proceeds (adjusted for Inflation)						
NYSE	12	61.41	55.47	19.34	28.57	98.00
144A	7	62.45	66.67	19.19	33.33	86.21
Test Statistics for Differences in Subsamples						
NYSE-144A		-0.11 (0.91)	0.03 (0.87)			

Note: For difference in Mean Test, the following are reported as follows:

Mean	Median
t-test	Kruskal-Wallis χ^2
(p-Value)	(p-Value)

is greater than the NYSE sample but the difference between the two groups is not statistically significant either for the mean or the median. In contrast, the average (median) issue size for the domestic issues is only 154 million N\$, statistically smaller than that of the NYSE and 144A groups. The percentage of proceeds from the foreign tranche is nearly the same for the NYSE and 144A groups with the mean (median) figures being 61.41 (55.47) and 62.45 (66.67) percent for the two groups respectively, and these differences are not statistically significant.

Table 6.5 reports selected characteristics such as firm size, riskiness, and measures of growth opportunities of these firms to assess the factors that influence a firm's decision to issue equity abroad. Firms that issue equity on NYSE have the highest market capitalization among the three groups with a mean (median) of 7312.3 (3692.5) million N\$. In comparison, the market capitalization of 144A and domestic issues is 4588.7 (2814.4) and 4896.3 (338.6) million N\$, respectively. The differences between the market capitalization of NYSE and 144A issues are not statistically significant for either the mean or the median. However, the median capitalization of domestic issues is significantly smaller than that of both the NYSE and 144A issues. The Kruskal-

Table 6.5

**Selected Characteristics of Firms Making
Global and Domestic Equity Offerings.**

The first row gives means and the second row in parenthesis gives medians. The figures reported are averages for the year prior to issue. Market capitalization is found by multiplying the price of each series by its respective number of shares outstanding and then adding these sums up. The figures for β eta, volatility (standard deviation of returns) and marketability index were provided directly by Bolsa. The Marketability Index is defined by Bolsa as an indicator which measures the rate at which a corporation's shares are negotiated in the securities market with relation to tradeability.

Variable	Global Issues		Domestic Issue
	NYSE	144A	
Market Capitalization (000,000 N\$)	7312.3 (3692.5)	4588.7 (2814.4)	4896.3 (338.6)
Age of the firm in years at the time of the Seasoned Equity Issuance	27.1 (21)	26.2 (13)	28.6 (18)
β eta Coefficient	0.6 (0.4)	1.5 (0.8)	0.5 (0.3)
Volatility	35.1 (30.1)	36.9 (36.6)	29.1 (27.1)
P/E	21.9 (21.7)	11.8 (11.2)	27.6 (19.0)
P/BV	3.0 (2.7)	2.3 (2.0)	1.6 (1.2)
Marketability Index	6.8 (6.8)	6.9 (7.1)	5.5 (6.1)

Wallis chi-square has a value of 6.26 (p value 0.0123) for the domestic-NYSE comparison and 3.7915 (p value 0.0515) for the domestic-144A comparison. The median age (as measured at the time of the seasoned equity issuance) is highest for the NYSE issues with a mean (median) of 27.1 (21) years. The median age of the 144A issues is a much lower 13 years. There is no statistical difference between the betas, the degree of systematic risk between the three groups, the P/E ratio which is a proxy for growth opportunities, is highest for the NYSE issues with a mean (median) value of 21.9 (21.7). In comparison, the mean (median) P/E ratio for the 144A issues is 11.8 (11.2) and is statistically different (t-value 2.9517, Kruskal-Wallis 4.7779) from that of the NYSE issues at the 5 percent level.

The above results have several important implications. First, there is a notable statistically significant difference in the market capitalization of firms that conduct the global versus domestic equity issues. Second, within the category of global issues, firms that choose to issue on NYSE are better established (in terms of higher age) and yet have greater investment opportunities than firms that issue on 144A. Discussion with officials of the Bank of New York also point to the

fact that relatively younger companies generally start with an 144A offering or a Level I listing before upgrading to a Level III program. These results suggest that global equity issue's differ from domestic issuers largely in terms of scale and to a lesser degree, age. This finding is consistent with the hypothesis that there are important economies of scale in information production. These results also been a similarity to the results for initial public offerings which indicated low underpricing and no deterioration in long-run stock price or operating performance among all three sub-groups of Mexican firms. From a firm life cycle perspective, it seems apparent that it is not quality per se that distinguishes global issues from domestic issues. Instead, it is a stage in the life-cycle of the firm with only large, well established firms conducting global issues.

6.7 Share Price Effects of Global Equity Offerings

The expected returns for equity offerings are calculated using the market model. For security j , the abnormal return using the market model is calculate as follows:

$$AR_{jt} = R_{jt} - (\alpha_j + \beta_j R_{IPC,t})$$

where AR_{jt} is the abnormal return of security j for a day t , R_{jt} is the actual return of security j for a day t , and

$R_{IPC,t}$ is the return on the IPC index on day t . The coefficients α_j and β_j are ordinary least square estimates of intercept and slope, respectively, from a market model estimated from day -195 to -76, relative to issuance day.

Table 6.6 presents the excess returns for global equity issues, that is, including both NYSE and the 144A issues. For the 27 global issues, the day 0 (where 0 is the issuance day) excess return is -2.60 percent and is statistically significant at the 1 percent level (z -statistic of -3.99); 85 percent of the returns are positive. This result is similar to the negative issuance day effect observed for seasoned equity offerings in the United States although the magnitude is much greater for Mexican global issues than for US issues (Mikkelsen and Partch, 1986). This result is consistent with both the price pressure or transaction costs hypotheses discussed earlier. The group of purely domestic offerings also shows a similar negative price response on the issuance day, with an excess return of -3.796 percent, statistically significant at the 5 percent level (z -statistic of -2.227); 67 percent of returns are negative.

It is difficult to isolate the announcement effect for global equity issues as these announcements are not reported in major publications and the time period

Table 6.6

**Excess Returns for Global (NYSE/AMEX or 144A)
Equity Issues**

Excess returns (in percent) at the issuance of seasoned equity issues by Mexican firms in Mexico and one or more foreign markets (that is NYSE/AMEX or 144A), concurrently. Excess returns are calculated using the market model where the parameters are estimated using a least squares regression over a pre-announcement interval (-195 to -76) where $t = 0$ is the issuance date.

N=27 (sample size)			
Day Relative to Event	Average Car (%)	Z-statistic	Percent Positive CARs
-5	-0.09	0.19	35.00
-4	-0.48	-0.43	35.00
-3	-0.59	-0.82	35.00
-2	-1.16	-1.87	20.00
-1	-0.02	0.19	40.00
0	-2.60	-3.99**	15.00
1	0.29	0.64	50.00
2	0.38	0.82	65.00
3	-0.14	-0.05	40.00
4	-0.62	-1.01	25.00
5	-0.30	-0.64	40.00
Average CARs for Selected Intervals			
Interval for Trading Days	Average Car (%)	Z-statistic	Percent Positive CARs
(-75 to -50)	0.92	0.46	40.00
(-50 to -30)	-3.15	-1.80	25.00
(-30 to -15)	-4.20	-1.94	30.00
(-15 to - 5)	-1.15	-0.59	35.00
(- 5 to + 5)	-4.51	-1.93	35.00
(- 2 to + 2)	-2.73	-1.76	20.00
(- 1 to 0)	-2.61	-2.70**	15.00
(-75 to - 5)	-7.79	-1.97*	20.00
(-30 to - 5)	-5.32	-1.93	25.00
(-50 to - 5)	-8.46	-2.72**	15.00

* Significant at the 5% level.

** Significant at the 1% level.

involved in establishing an ADR program and the start of trading can range from 7 weeks for a 144A program to nearly 14 weeks for a Level III (NYSE) program. Lacking a precise estimate of the trading days between initial announcement and issuance, excess returns are calculated over broad intervals to obtain some measure of the announcement effect. As mentioned earlier, this is a problem common to most studies dealing with listings by foreign firms in the US. The excess returns for the intervals (-50 to -30) and (-30 to -15) are -3.15 percent and -4.20 percent, respectively but are only marginally significant (z-statistics are -1.80 and -1.94, respectively). Despite the lack of statistical significance the returns are clearly negative with nearly 75 percent of the events being negative. A result that stands out in Table 6.6 is the strongly negative share price effect of -8.46 percent for the interval (-50 to -5) with a z-statistic of -2.72; 85 percent of returns are negative. These negative returns are likely to reflect the negative response to the initial announcement, a result that is consistent with the existing literature.

Since the nature of the NYSE and 144A markets are different, we disaggregate global issues into NYSE issues (public offerings) and 144A issues (private placements) to

obtain additional insight about stock price response to global seasoned equity offerings. Tables 6.7 and 6.8 present the excess returns for the NYSE and 144A issues, respectively. The day 0 issuance effects are both negative. Specifically, both groups show a negative issuance day effect that is statistically significant at the 5 percent level. The NYSE group shows modest evidence of a negative announcement day effect as can be seen by the excess returns over various intervals such as (-75 to -50) and (-50 to -30). This suggests that Mexican investors suffer a loss of wealth in response to the announcement of a NYSE equity issue. The 144A issues show less evidence of a negative announcement effect. The excess return for (-75 to -50) is 1.55 with a z-static of 0.01 percent; 50.0 percent of the returns are negative. The excess return for the (-50 to -30) interval is negative, -2.09 percent, but not statistically significant at the 5 percent level. Thus Mexican investors sustain a sharp reduction in wealth in response to the issuance of a 144A type issue equity issue, but less evidence of a negative announcement effect.

These results are consistent with arguments made earlier about the benefits of a global listing. The NYSE sample consists of firms that are either establishing an

Table 6.7

**Excess Returns for Equity Issues with
a Foreign Tranche on the NYSE/AMEX.**

Excess returns (in percent) at the issuance of seasoned equity for issues that include a foreign tranche on the NYSE/AMEX (a Level III public offerings), in addition to the domestic component. Excess returns are calculated using the market model where the parameters are estimated using a least squares regression over a pre-announcement interval (-195 to -76) where $t = 0$ is the Issuance date.

N=16 (sample size)			
Day Relative to Event	Average Car (%)	Z-statistic	Percent Positive CARs
-5	0.31	1.18	33.33
-4	-0.83	-0.67	25.00
-3	-0.98	-1.38	25.00
-2	-1.38	-1.56	25.00
-1	0.37	0.52	41.67
0	-3.11	-3.41**	25.00
1	0.28	0.64	66.67
2	0.19	0.25	66.67
3	-0.76	-1.26	25.00
4	-0.82	-1.04	33.33
5	-0.64	-1.04	33.33
Average CARs for Selected Intervals			
Interval for Trading Days	Average Car (%)	Z-statistic	Percent Positive CARs
(-75 to -50)	0.50	0.58	33.33
(-50 to -30)	-3.85	-1.74	25.00
(-30 to -15)	-3.78	-0.86	33.33
(-15 to - 5)	2.14	1.41	58.33
(- 5 to + 5)	-6.07	-2.11*	25.00
(- 2 to + 2)	-3.30	-1.50	16.67
(- 1 to 0)	-2.84	-2.09*	8.33
(-75 to - 5)	-5.03	-0.56	25.00
(-30 to - 5)	-1.94	0.19	33.33
(-50 to - 5)	-5.70	-1.12	16.67

* Significant at the 5% level.

** Significant at the 1% level.

Table 6.8

Excess Returns for Equity Issues with a Foreign Tranche in the 144A Private Placement Market.

Excess returns (in percent) at the issuance of seasoned equity for issues that include a foreign tranche in the 144A Market (private placement), in addition to the domestic component. Excess returns are calculated using the market model where the parameters are estimated using a least squares regression over a pre-announcement interval (-195 to -76) where $t = 0$ is the issuance date.

N=11 (sample size)			
Day Relative to Event	Average Car (%)	Z-statistic	Percent Positive CARs
-5	-0.55	-0.98	37.50
-4	-0.08	0.08	50.00
-3	-0.09	0.33	50.00
-2	-0.90	-1.07	12.50
-1	-0.52	-0.29	37.50
0	-1.71	-2.13*	00.00
1	0.32	0.21	25.00
2	0.66	1.01	62.50
3	0.65	1.34	62.50
4	-0.36	-0.35	12.50
5	0.19	0.25	50.00
Average CARs for Selected Intervals			
Interval for Trading Days	Average Car (%)	Z-statistic	Percent Positive CARs
(-75 to -50)	1.55	0.01	50.00
(-50 to -30)	-2.09	-0.72	25.00
(-30 to -15)	-4.83	-2.02*	25.00
(-15 to - 5)	-5.65	-2.55*	00.00
(- 5 to + 5)	-2.16	-0.47	50.00
(- 2 to + 2)	-1.89	-0.95	25.00
(- 1 to 0)	-2.23	-1.71	25.00
(-75 to - 5)	-11.94	-2.43*	12.50
(-30 to - 5)	-10.39	-3.29**	12.50
(-50 to - 5)	-12.60	-2.93**	12.50

* Significant at 5% level.

** Significant at 1% level.

ADR program for the first time (their first listing) or upgrading from a lower level program. Both of these events are positive events and reveal sufficient favorable information about the firm to counter much of the adverse selection problem typical of a seasoned equity issue announcements. This reflects a combination of the following factors (i) management's confidence that the future prospects of the firm are sufficient to induce international holders to invest (ii) the certification of the high quality of these firms provided by global issue and (iii) the benefits from an international listing. Since equity issuance announcements typically have a strong negative effect, the lack of a statistically significant negative announcement effect confirms that there are modest gains to Mexican firms from securing a listing in the US. The existence of such an effect may be more difficult to argue for a simple Level I listing (trading on OTC) due to the relative ease (lowest costs) of establishing such a program and the little increase in the disclosure of information it requires. The majority of ADR programs are in fact Level I programs. The 144A issues also show little evidence of negative announcement effects.

Finally, we disaggregate the sample based on the absence or presence of a prior listing at the time of the global issue the results for which are presented in table 6.9 and 6.10. Both categories show a negative day issuance day effect, significant at the 5 percent level and similar returns for the announcement period. Overall, the results on share price response to global issue suggest that there are not strong gains to international listing (more specifically for Mexican firms listing in the US).

Table 6.9

**Excess Returns for Global (NYSE/AMEX or 144A)
Equity Issues with no Prior Listing Abroad**

Excess returns (in percent) for seasoned global (NYSE/AMEX or 144A) issues that were not traded on either the OTC, NASDAQ or NYSE/AMEX. The seasoned equity issuance coincides with the entry of these firms in the international markets. Excess returns are calculated using the market model where the parameters are estimated using a least squares regression over a pre-announcement interval (-195 to -76) where $t = 0$ is the issuance date.

N=15 (sample size)			
Day Relative to Event	Average Car (%)	Z-statistic	Percent Positive CARs
-5	0.22	0.74	45.56
-4	-0.38	0.24	36.36
-3	0.33	1.41	45.46
-2	-1.79	-2.56*	18.18
-1	-0.20	0.27	45.46
0	-2.20	-2.56*	9.09
1	0.75	1.35	45.46
2	0.37	0.49	54.55
3	-0.18	-0.001	45.46
4	-0.28	-0.34	18.18
5	-0.98	-1.50	27.27
Average CARs for Selected Intervals			
Interval for Trading Days	Average Car (%)	Z-statistic	Percent Positive CARs
(-75 to -50)	3.41	1.27	54.55
(-50 to -30)	-3.40	-1.08	27.27
(-30 to -15)	-4.92	-2.12*	18.18
(-15 to - 5)	0.51	1.08	36.36
(- 5 to + 5)	-3.51	-0.64	36.36
(- 2 to + 2)	-2.64	-1.25	18.18
(- 1 to 0)	-2.38	-1.63	18.18
(-75 to - 5)	-5.45	-0.65	27.27
(-30 to - 5)	-4.60	-1.13	18.18
(-50 to - 5)	-8.33	-1.67	18.18

* Significant at 5% level.

** Significant at 1% level.

Table 6.10

Excess Returns for Global (NYSE/AMEX or 144A) Equity Issues with a prior international listing, in the form of a Level I, Level II or Level III ADR program.

Excess returns (in percent) for seasoned global (NYSE/AMEX or 144A) issues that have a prior international listing. These firms were already listed on the OTC or one of the exchange at the time of the seasoned equity issuance. Excess returns are calculated using the market model where the parameters are estimated using a least squares regression over a pre-announcement interval (-195 to -76) where $t = 0$ is the issuance date.

N=12 (sample size)			
Day Relative to Event	Average CAR (%)	Z-statistic	Percent Positive CARs
-5	-0.56	-0.59	22.22
-4	-0.63	-0.97	33.33
-3	-1.77	-2.83**	22.22
-2	-0.21	0.18	22.22
-1	0.21	-0.01	33.33
0	-3.03	-3.11**	22.22
1	-0.21	-0.49	55.56
2	0.38	0.67	77.78
3	-0.09	-0.07	33.33
4	-0.88	-1.05	33.33
5	0.31	0.53	55.56
Average CARs for Selected Intervals			
Interval for Trading Days	Average CAR (%)	Z-statistic	Percent Positive CARs
(-75 to -50)	-2.12	-0.72	22.22
(-50 to -30)	-2.83	-1.49	22.22
(-30 to -15)	-3.32	-0.55	44.44
(-15 to - 5)	-2.98	-1.99	33.33
(- 5 to + 5)	-5.73	-2.17*	33.33
(- 2 to + 2)	-2.84	-1.25	22.22
(- 1 to 0)	-2.87	-2.21*	11.11
(-75 to - 5)	-10.66	-2.22*	11.11
(-30 to - 5)	-6.20	-1.64	33.33
(-50 to - 5)	-8.63	-2.21**	11.11

* Significant at the 5% level.

** Significant at the 1% level.

Chapter 7: Summary and Concluding Remarks

This dissertation examines the equity issuance process, both initial public offerings as well as seasoned equity offerings, in the context of international equity offerings. Specifically, this study considers equity offerings by Mexican firms over the period 1989 to 1997 that included a foreign tranche in the US (NYSE/AMEX or 144A) in addition to the domestic component in Mexico. Despite the internationalization of capital markets and the accompanying increased interest in US ownership of foreign stock, this line of research remains relatively unexplored mainly due to lack of availability of data. Moreover, there is little empirical evidence and few published studies of the Mexican market about some of the well documented stylized facts of equity issuance such as IPO underpricing, long run stock price underperformance, and share price response to seasoned equity offerings. This study uses data that has only recently been made public by the Bolsa de Valores. In the process, it allows an assessment of the robustness of current theoretical models of equity issuance (both IPOs and seasoned equity) that rely heavily on US institutional and regulatory framework.

A Mexican firm going public or issuing seasoned equity has a choice of making a purely domestic offering or simultaneously raising capital outside the home jurisdiction by making an American Depositary Receipt (ADR) offering. Further, it has a choice of making a Level III ADR offering (a public offering) or a 144A (private placement offering), which differ in terms of trading venue, the requirement to comply with US Generally Accepted Accounting Principles, and the level of continuing disclosure.

This dissertation provides empirical evidence on several interesting questions raised by such corporate choices within the equity issuance process such as (i) whether there is a separating or pooling equilibrium in terms of firm quality, offering venue (domestic or global), and the type of international offering (Level III public offering or 144A private placement issue) and (ii) the effects of international listing on firm valuation. More specifically, the objective of this study is to examine underpricing, aftermarket stock price and operating performance of ADR IPOs compared to a control group of domestic IPOs, and the share price response to seasoned global issues. A distinction is maintained between Level III and 144A placements for the ADR issues.

Certain unique institutional characteristics of ADRs imply that the pricing, aftermarket performance, and share price response of equity issues (IPOs as well as seasoned) with a foreign tranche in the form of an ADR may be different from purely domestic offerings. ADR IPOs and ADR seasoned equity offerings are generally undertaken by large internationally known firms with substantial foreign income, including joint ventures with foreign companies. These ADR issues are typically associated with prestigious underwriters that are less inclined to conduct a global equity offer if a firm is not of the requisite quality or if the offer is not of sufficient size.

ADR issuers incur substantial costs such as listing fees and increased disclosure of information costs that are incurred in preparing accounting statements that accord with SEC rules and the US GAAP. In addition to the signaling content of ADR issues, there are the benefits of international listing that include an enlarged investor base, increased investor recognition as well a higher degree of monitoring and certification. This suggests that, ADR IPOs and ADR seasoned equity offerings should show superior results (in terms of underpricing, aftermarket stock price and operating performance, and share price response to seasoned equity issues) than

purely domestic equity offerings. This argument becomes weaker in the context of 144A placements as the issues in this market are exempt from SEC registration and participation is limited to QIBs.

The empirical evidence is consistent with the above hypothesis. All three sub-groups NYSE, 144A and domestic IPOs show very modest underpricing with the median level of underpricing not exceeding 5 percent for any the sub-groups. These results are robust to any industry effects, hot issue phenomena, or any firm characteristics such as age or issue size. This result is in contrast to the average first day return of approximately 15 percent reported for the US and UK markets. However, this unusually low underpricing is consistent with the characteristics of Mexican firms. Sample firms are large and well established with long operating histories and high levels of family ownership concentration.

The difference between Mexican firms that go public versus US firms that go public is well illustrated by the fact that the mean age of domestic IPOs in Mexico is 16 years (NYSE and 144A IPOs have even a higher age with mean figures of 35 and 30, respectively) compared to 6 years for the typical US firm. The results for the NYSE and 144A IPOs are also explained by the above discussion on

ADRs, since the inclusion of an ADR in the offering is a positive signal. The low underpricing observed for domestic IPOs is somewhat surprising considering the absence of a foreign tranche (and the related arguments) and the relatively smaller size of these companies. It is plausible that a listing on the Bolsa itself represents an important form of self selection, with only approximately 200 firms trading on the Bolsa.

The poor long run stock price performance reported for the US market is not observed for the Mexican IPOs (NYSE, 144A or domestic issues). This result is consistent with the results on underpricing in Mexico that suggest there is less information asymmetry and less likelihood of market timing by firms. The Mexican results are also consistent with the finding of Carter, Dark and Singh (1998) that long run underperformance is less pronounced for IPOs associated with more prestigious underwriters. Furthermore, Ritter (1991) in his study of long term performance finds that on partitioning aftermarket performance by age, firms older than 20 years have initial returns of 5.42 percent and do not show any long run stock price underperformance (in fact, they outperform the matching firms).

The results for operating performance do not show a peak in operating performance in the year prior to the initial public offering followed by a sharp subsequent decline for any of three subgroups (NYSE, 144A or domestic). This implies that Mexican companies going public are not attempting to time the market. Such a timing action would be arguably futile in Mexico since firms that go public have (i) long operating histories and (ii) are less speculative than IPOs in the US. Therefore, there is less incentive for Mexican firms to engage in market timing or performance manipulation. Specifically, Mexican firms are distinctly different from many of the IPOs conducted in the US during the 1980's that were dominated by firms in the computer, electronics, medical related, and oil and gas industries (Mikkelsen et al., (1997)). The activities of firms in such areas entail growth options that are relatively difficult to price and hence such firms may be more likely candidates for over optimism by investors. Mexican results are also consistent with studies by Jain and Kini (1994) and Mikkelsen et al., (1997) who find the deterioration in operating performance to be concentrated in smaller, younger firms rather than a phenomenon characteristic of IPOs in general.

Finally, results on share price responses to seasoned equity issues show that global issues differ from the domestic issues largely in terms of scale (market capitalization) and to some degree in terms of the age of the issuing firm. From a firm life cycle perspective, global issues represent a mature stage in the life cycle of firms, that is such offerings are by relatively large, well established firms. The results suggest that there are no significant gains for a US listing by Mexican firms or from upgrading from a lower level program to a Level III listing.

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Vita

Arun Kumar Tandon was born in India and received his bachelor's degree in Economics (Honors) from University of Delhi in 1987. He came to the United States in 1988 and received the degree of Master of Business Administration degree from Utah State University in 1991. He joined the doctoral program in Finance at Louisiana State University in 1991. He expects to receive the degree of Doctor of Philosophy in May of 1999.

DOCTORAL EXAMINATION AND DISSERTATION REPORT

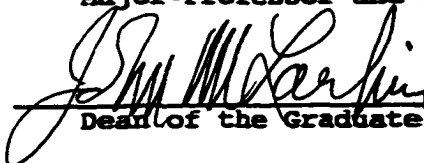
Candidate: Arun Kumar Tandon

Major Field: Business Administration
(Finance)

Title of Dissertation: Equity Issuance in Mexico

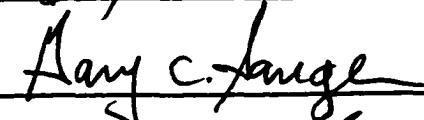
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Dean of the Graduate School

EXAMINING COMMITTEE:





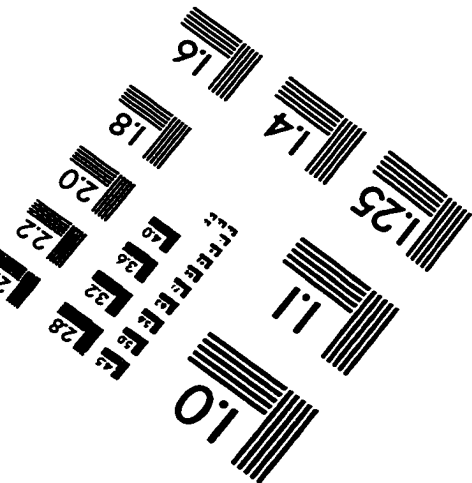
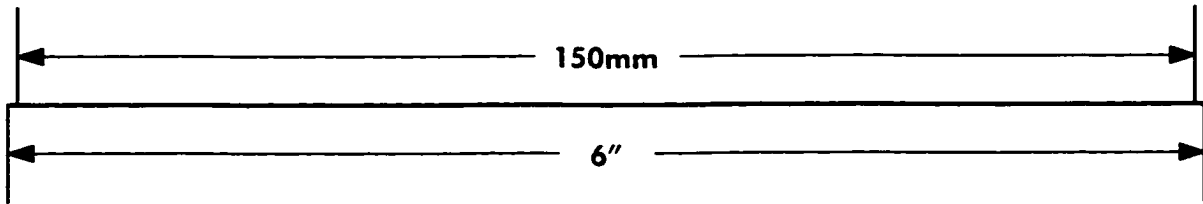
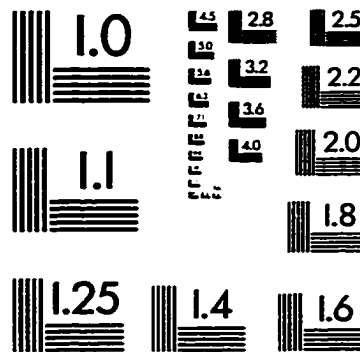
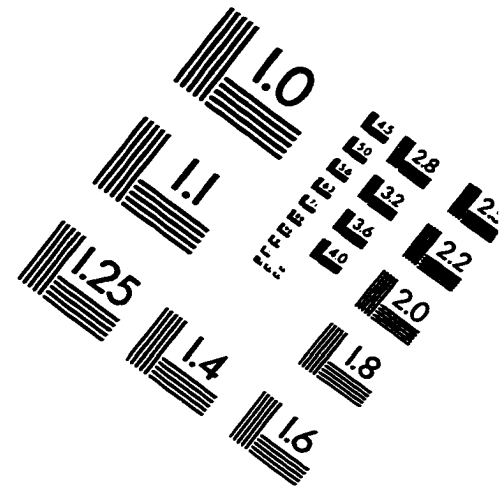
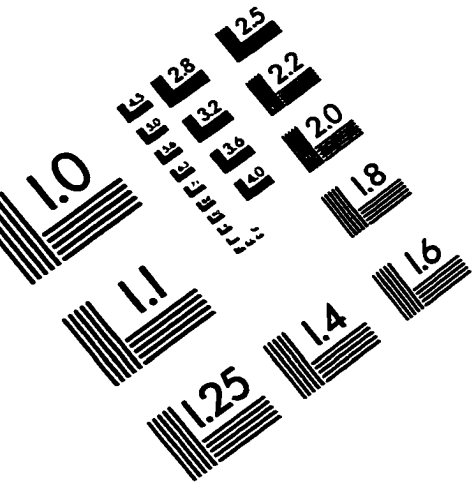




Date of Examination:

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IMAGE EVALUATION TEST TARGET (QA-3)



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