

Market Revolution in Latin America: Beyond Mexico

Edited by

Masaaki Kotabe

Temple University

and

Ricardo P. C. Leal

*COPPEAD Business School at the Federal
University of Rio de Janeiro*



2001

PERGAMON

An imprint of Elsevier Science

Amsterdam - London - New York - Oxford - Paris - Shannon - Tokyo

ELSEVIER SCIENCE LTD The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK

This work is protected under copyright by Elsevier Science, and the following terms and conditions

Single photocopies of single chapters may be made for personal use as allowed by national copyright laws. Authorization of the Publisher and payment of a fee is required for all other photocopying, including multiple; or systematic copying, copying for advertising or promotional purposes, resale, and all forms of document delivery. Special rates are available for educational institutions that wish to make

single photocopies of single chapters from Elsevier Science. For Permissions Department, PO Box

pet-mis5itini@elsevier.co.uk. You may also contact Rights & Permissions directly through Elsevier's home page (http://www.elsevier.nl), selecting the 'Customer Support' link, then 'General Information'.

In the USA, users may clear permissions and make payments through the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA; phone: (078) 7508400, fax: (378) 7504/44, and in the UK through the Copyright Licensing Agency Rapid Clearance Service (CLARCS) 90 Tottenham Court Road, London W1T 0LP, UK; phone: (+44) (0)20 7631 5555; fax: (+44) (0)20 7631 5500. Other countries may have a local reprographic rights agency for payments.

Tables of Contents may be reproduced for internal circulation, but permission of Elsevier Science is required for all other derivative works, including compilations and

Permission of the Publisher is required to store or use electronically any material contained in this

Except as outlined above, no part of this work may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or

Address permission requests to: Elsevier Science Rights & Permissions Department, at the mail, Fax

No responsibility is assumed by the Publisher for any injury and/or damage to persons or property as a matter of products (liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be

Market revolution in Latin America : beyond Mexico / edited by Masaaki Kotabe and Investments-Latin America. I Kotabe,

Masaaki. II. Leal, Ricardo P. et al. IYI'sciis

The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992

Privatization, Financial Liberalization and Stock Market Performance: The Case of Mexico

KOKILA DOSHI, ROBERT JOHNSON, EDGAR. ORTIZ AND LUC SOENEN U

INTRODUCTION

Emerging stock markets have received ample attention by academia as well as the investment community and policy makers over the past few years. Indeed, thanks to greater availability of stock market data, research has evolved from simple market efficiency studies and benefits of diversification into those markets to sophisticated econometric studies that aim to determine its main risk-return characteristics, correlation, linkages and co-movements with other markets, and capital reversal issues. Three other important sets of inter-related studies have focused on the relationship between macroeconomic variables and stock returns, the impacts of financial liberalization, and the impacts privatization of state owned enterprises, Economic literature on liberalization and on privatization has concentrated in determining their macroeconomic impacts, stressing for the case of developing economies the impact of market activity on economic growth. Financial literature has stressed the impact of financial liberalization on market structure and institutional changes, the contribution of stock markets to

The authors would like to thank Ephraim Clark, Raul Delgado, Vicent Dropsy, and Joan Anderson for helpful observations. The work has also benefited from comments received from two anonymous referees of the Multinational Finance journal. Edgar Ortiz would like to acknowledge support from Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica (PAPI IT), Project IN3I279S, Universidad Nacional Autónoma de México.

privatization processes, emphasizing analysis of IPOs, and the impact of privatization on corporate efficiency and market returns. However, the impact of privatization on the overall performance of emerging markets has not been examined. Moreover, the literature on emerging markets liberalization and privatization is abundant, but financial research on Latin America is limited, even though most countries of the region have implemented ambitious financial liberalization programs to end 'financial repression' and foster their capital markets; several countries have also made considerable advances in privatizing their state-owned enterprises.

Mexico is an excellent showcase to study these issues. Its vibrant, albeit unstable economy, along with its strong financial liberalization and economic integration (particularly NAFTA) programs and its strong programs to transfer state owned enterprises to the private sector constitute an important example of economic transformation among emerging markets. Yet, few studies have investigated the capital markets of Mexico. Moreover, except for market trends and institutional change analysis, there is not a broad based econometric study of this growing market in the context of financial liberalization and privatization programs implemented by the government. This chapter makes this contribution to the financial literature. It investigates the interrelationships between key macroeconomic variables, related to financial liberalization and privatization, and stock market returns in the emerging market of Mexico, from the perspective of domestic investors and policy makers. We use quarterly data covering the time period 1980-1995 in a multiple regression model to explain stock market behavior. We uncover useful insights into factors related to financial liberalization and privatization that impact Mexico's stock market performance, with important implications for investors and policy makers from Latin America and other developing countries in general.

The rest of the chapter is organized as follows. Section II reviews prior literature. A first part summarizes financial thought on stock markets and financial liberalization and privatization. A second part reviews recent empirical research on liberalization and privatization on emerging equity markets. Section III presents a summary of Mexico's economic liberalization and privatization programs as well as a brief historical view of the Mexican Stock Market. Section IV introduces the data and methodology. Results and their interpretation are presented in Section V. Section VI contains a brief conclusion and offers an agenda for further research.

II. THEORY AND REVIEW OF PRIOR RESEARCH

Motivations of Developing Countries for Financial Liberalization and Privatization

Surprisingly, economic and financial theory presents opposite points of view on the relationship between financial markets and institutions on economic growth. Conventional economic thought remains uninterested and skeptical. However, financial development theory (and financial economics theory), originally developed by Gurley and Shaw (1960), Ben net (1965), Goldsmith (1969), McKinnon (1973), Patrick (1966), Shaw (1973), Tobin (1965) and later further developed by Fry (1988; 1989); Galbis (1977), Gupta (1984), Ortiz (1993, 1995) and other thinkers¹ maintain that the financial sector is important for development. The growth rate and quality of development in an economy depend not only on real variables, but also on financial variables and their relationship with real variables. Equilibrium conditions for an economy can therefore be defined in terms of financial variables and financial markets. Moreover, Hargis (1998) demonstrates the link between capital market integration and domestic market development. Integration (greater market foreign participation) makes the market more liquid and enhances the benefits of diversification for investors. King and Levine (1993) find evidence of causation from financial development to growth demonstrating the linkage that influences feature growth, investment and the efficiency of these investments. They used three main indicators for services provided by the financial system: M2 as a percentage of GDP as an indicator of the relative size of financial system, the relative shares of commercial banks and the central bank in total credit outstanding, and the relative amounts of loans granted to the private and public sector. Levine and Zervos (1998) provide empirical evidence on the linkages between stock markets and long-run economic growth. They find that market liquidity, measured by the value of stock trading relative to the size of the market, and the value of trading relative to the size of the economy, i.e. GDP, is a robust predictor of real per capita gross domestic product growth, and productive growth. Banking development as measured by bank loans to private enterprises divided by GDP, is also a good predictor of economic growth.

However, the processes of financial intermediation and financial market activity in the developing countries have traditionally been distorted by government intervention in the economy and excess

regulation of financial markets. 'Financial repression,' as this phenomena is correctly known, is characterized by government control on savings and credit rates, selective credit to 'priority sectors,'* exchange rate controls, very restrictive entry and exit laws, and excessive regulation. In addition, the government intervenes directly in the economy operating state-owned enterprises and development banks. These controls and regulation, and direct intervention in the economic activity and repressed entrepreneurship led to low savings and investment rates, and poor allocation of resources due to an insufficient development of pricing mechanisms, and due to imperfect markets. For those reasons, development financing theory and financial economists consistently stressed financial liberalization. Developing countries resisted those recommendations for several decades, following World War II. However, economic and financial globalization, the rise of strong economic blocs, important political changes such as the fall of the Berlin Wall and the fail of state-led socialism, and the debt crisis experienced during the 1980s led policy makers from those countries to implement strong 'modernization' programs based on economic liberalism. Programs implemented have included opening to foreign trade and investments (direct and portfolio investments), economic integration schemes, and financial liberalization and deregulation. One important aspect of financial liberalization has been to foster the development of equity markets. The goal has been to promote well-functioning capital markets that promote local savings and investments, promote foreign investments, promote an efficient allocation of resources, create new alternatives of financing to promising projects, and to broaden up patterns of corporate governance traditionally dominated by family-owned-groups with strong ties with the banking sector.

A strong private sector capable of becoming competitive at the international level and becoming a solid engine for growth cannot be developed in an environment of excessive direct participation of the state in the economy. Government, monopolies distort prices, assign scarce resources to under-performing projects, and a deficit of state-owned corporations leads to excessive government borrowing, public deficit and inflation. Consequently, a complementary policy to economic and financial liberalization has been the selling of state-owned enterprises (SOE). Countries have engaged in large-scale privatization programs for three reasons: (1) the evidence is now conclusive that privately owned firms outperform SOE; (2) empirical evidence also shows that privatization significantly

improves the financial performance of divested firms; (3) governments have eliminated a source of public deficit and raised significant revenues from the sale of public enterprises (Megginson and Netter, 1999).² These revenues have helped to overcome fiscal deficit, make payments on their sovereign foreign debt services, and channel funds to development projects. Total privatization revenues for a sample 79 developing and transition economies amounted to US\$ 131,048 million dollars for the 1988-1995 period. In the case of Mexico, revenues from privatization during that period were of US\$ 27,331 million dollars for a total of 211 privatizations. The contribution of foreign investors to the purchase of Mexican SOE amounted to US\$ 2,502 million dollars. In addition to these revenues, privatization led to greater efficiency of previously SOE, and welfare gains through additional commitments to invest. (Bouton and Sumlinski, 1997).

Prior Research

Financial liberalization and privatization have played an important role in transforming the economics of many countries, making them more efficient and capable of responding to the challenges and opportunities derived from globalization and economic integration schemes. They have also played an important role in the growth of stock markets in the developing countries. Consequently, governments from the developing countries have further opened up their economies and accelerated privatization (Doshi, 1994).

The literature on liberalization and privatization on emerging economies is ample, but few studies include capital markets. As shown in the survey article by Gibson and Tsakalotos (1994), previous research studies that have investigated financial structure and deregulation of capital markets have focussed on the effect of financial liberalization on savings, investment and economic growth. One important study by Warman and ThirlwatI (1994) used a regression model to test the impact of financial liberalization on economic growth for the case of Mexico. They test the Mckinnon- Shaw hypothesis, which implies that liberalization raises interest rates and stimulate savings, leading to higher investment and higher economic growth. Regression results, for the 1960-1990 period, show that financial savings is positively related to interest rates. However, the interest rate is not a significant variable determining total savings or growth. The study concludes that there is no support for the Mckinnon-Shaw hypothesis, except for financial savings.

Some recent studies on emerging capital markets examine the relationship between key macroeconomic variables and the market. Aggarwai (1997) found that foreign portfolio investment is significantly impacted by inflation rate, real exchange rate, index of economic activity, and share of capital market in the world market capitalization. Atje and Jovanovik (1993) found a significant correlation between growth and the value of stock market trading relative to GDP for a sample of 30 countries. However, the work by Harris (1997) found that stock market activity has some explanatory power on growth in per capita output for the developed countries, but the stock market effect is weak for the case of developing countries. An extensive study by Kwok and Li (1993) focuses on the role of traditional macroeconomic variables, inflation and real output in determining stock prices in the newly industrialized countries of HongKong, Singapore, South Korea, and Taiwan. They test this interrelationship through a set of three hypotheses. Using a simple regression analysis, their first hypothesis tests the relationship between output and inflation. The remaining two hypotheses are akin to this study. Their second hypothesis tests the relationship between real stock returns and real output level (industrial production); the third hypothesis tests the relationship between real stock returns and inflation. OLS regression results show that only in the case of Taiwan current growth has a strong positive relationship, but with low explanatory power. Regarding future relationships, future industrial production ($t+1$) in Singapore is significant and positively related to current real stock returns. The tests on the third hypothesis show an overall negative relationship between stock returns and inflation. Nonetheless, only the results for Hong Kong and Korea over the contemporaneous measure show a strong negative relationship: the explanatory power for Hong Kong is the highest among the other three countries. Similar results are presented by Chatrath and Ramchander (1996) on the study on stock prices, inflation and output in India. Regression results show that a strong negative relationship between stock returns and inflation. Regressions of stock returns on lagged contemporaneous real activity show a strong positive relationship too. Finally, tests on the hypothesis on stock returns versus inflation and real activity are found to be contrary to Faraa's (1981) proxy effects. The negative association between real stock returns and inflation is found to persist despite controlling for the inflation—real-activity relationship.

Nevertheless, none of these studies have linked financial liberalization to stock market performance. Bridging this gap, Kwan and

Reyes (1997) show the impact of opening up the Taiwan stock market to foreign investors on stock prices and their volatility. Using GARCH analysis for weekly data for the 1988-1994 period, their results show that liberalization reduced the volatility of stock returns. A comparison of pre- and post-liberalization (enforced in January 1991) also shows that the moving average term is statistically significant in the pre-liberalization period, but not in the post-liberalization period. Elimination of serial correlation suggests improved efficiency in information processing in the Taiwanese market.

Concerning the Mexican case, the works by Chavez, Fischer and Ortiz (1996a, 1996b) and Fisher, Gueyie and Ortiz (1996) constitute important contributions to the financial literature in this area. These works concentrate on bank solvency, but also deal with overall market performance before and after financial liberalization. Chavez et al. (1996a) examine the impact of business cycles and financial liberalization on market activity and bank solvency for the case of Mexico, using quarterly data for the 1976(1)-1992(12) period. The pricing model is used to value bank assets options. An EGARCH(1) model is used to estimate unconditional variances. Financial liberalization is analyzed taking as central point to the liberalization process the lifting of control on interest rates (April 1989). Economic cycles were identified using a Hodrick and Prescott Filter (1997). Part of their study included regressing value of assets, value of stock and probability of bank insolvency on a set of macroeconomic variables: M1, consumer price index, exchange rate, the balance of merchandise, and the level of foreign portfolio investment in the country. Dummy variables are used to identify the impact of financial liberalization and business cycles. Results show that financial liberalization introduces a substantial amount of uncertainty in stock market activity and banks trading in the Mexican Stock Market. This observation is supported by the observed increased volatility of stock returns and the sign of the dummy variables in the conditional variance regressions. However, this uncertainty is accompanied by a substantial increase in stock prices. The same is concluded about business cycles that appear to affect both the level and volatility of market activity and of stock returns.

Chavez et al. (1996b) assess the changes in market-based asset values and risk exposure measures for commercial banks before and during financial liberalization processes for the cases of Brazil, Greece, Mexico and Thailand. Their analysis uses again an options model to determine the value of bank assets, and then determine the theoretical value of bank failure. The analysis and statistical tests

suggest that market activity became more volatile after liberalization. Similarly risk exposure of commercial banks increased following financial liberalization.

Extending this analysis and statistical tests to the cases of Malaysia, Taiwan and Thailand, Fischer, et al. (1996) show that following financial liberalization, volatility of stock markets increased; similarly, risk exposure of commercial banks increased. Their study measures the first and second moment of bank returns using a GMM statistical procedure. Banks asset prices are estimated using an options prices model. The results tend to support the proposition that moral hazard and bank risk taking may increase after financial liberalization is enforced. The results also indicate that banking crisis that often follow financial liberalization may be more due to the behavior of bank managers than previously reported in the financial literature.

Concerning privatization of SOE, the book edited by Lieberman and Kirkness (1998) present 13 works which survey impacts of privatization on emerging equity markets on five different issues: privatization trends and emerging markets; provision of critical mass to kick-start new stock markets; supply of investment opportunities that deepen existing stock markets; impact of privatization of telecommunications of emerging markets; and generation of new and broader types of investment participation. Studies are descriptive; no econometric modeling is used. Perotti and van Oijen (1996) investigate whether privatization in emerging economies has significant indirect impact on stock market development. Their sample includes 12 emerging markets from Asia, Latin America, including Mexico and Europe (Turkey). They conclude that, besides additional listings, successful privatization processes gradually strengthen the institutional framework by forcing a resolution of political and legal uncertainties, which leads to increased confidence and investment, and their study includes analysis of turnover and key market indicators (turnover ratios, trade value, capitalization and the resolution of contractual and legal uncertainty in emerging markets). In a similar vein, Lubrano and Urrutia (1998) examine privatization schemes, trends, and capital markets changes for the period 1985-1996 for the cases of Argentina and -Mexico. Market capitalization, market deepening (capitalization/GDP), number of listed companies, and average trading values are examined. Some key cases are also analyzed closely. In relation to Mexico, the case of Telmex, carried through shares sales, and the privatization of the banking sector through an auction system.

Rigorous financial studies have so far stressed the performance of divested public corporations after privatization, using conventional productivity and financial ratios. Emphasizing the case of Mexico, the most influential work on performance of privatized firms, because of its rigor and because it was sponsored by the World Bank, is that from Gala! et al. (1992). It compares performance of 12 large privatized firms, mainly from the airlines and regulated utilities sector, from Britain, Chile, Malaysia, and Mexico. Results show net welfare gains for 11 of 11 cases and found no case where workers were made worse off, and three cases where workers had significant gains. In another study, La Porta and Lopez-de -Si lanes (1997) test whether the performance of 218 privatized firms through June 1992 improved after divestment. Comparison with industry-matched firms showed that privatized firms increased output by 54.3 percent while employment declined by half, albeit wages increased. Also, firms achieved a 40 percent point Increase in profitability, eliminating the need for subsidies equal to 12.7 percent of GDP. Finally, industry effects explain only 20 percent of gains, and productivity gains caused by better incentive plans account for 52 percent. Some other cross-sectional studies also include the case of Mexico to examine performance of previously state-owned enterprises. Finally, few studies document stock returns from investors who follow a buy-and-hold strategy of privatized stocks. However, results report both positive and negative returns in the long run. For the case of Chile, Aggarwal et al. (1993) find negative long-run abnormal returns for share issue privatizations. There are no studies on privatization and stock returns on Mexico. This chapter is a first attempt to describe this agenda.

III. BACKGROUND AND HISTORICAL PERFORMANCE OF THE MEXICAN STOCK MARKET

Financial Liberalization in Mexico

Financial liberalization began timidly in Mexico *in* the mid 1970s as a result of the 1976 crisis which put. an end to the fixed exchange rate system."⁴ Then multipurpose (universal) banking was approved. The purpose was to encourage economies of scale and efficiency in the banking sector. In 1976 the regional stock markets from Mexico City, Guadalajara and Monterrey were unified into a centralized market in Mexico City, Bolsa Mexicana de Valores. In 1978 Treasury Bills (Certificados de Tesoreria) were created and traded

at the Mexican Securities Market, giving it an additional lift. This process was interrupted in 1982 with the nationalization of the banking system.

Nevertheless, in response to the debt crisis and increased globalization of real and financial markets, the government soon adopted economic liberalism, leaving behind the inward oriented, import substitution model that prevailed before. The aim was to transform the economy, fostering competitiveness and free markets to integrate it successfully to the world markets and promote sustained economic growth.⁴ Because the banking sector remained nationalized, opening the economy to foreign competitors and investors was first pursued. Thus, Mexico joined GATT in 1985 and unilaterally eliminated excess bureaucratic requirements to import and export, and reduced tariffs throughout the decade ending in an average of 13 percent (Aspe, 1993). Similarly, Mexican authorities implemented a strong program of economic adjustment to stabilize the economy, controlling inflation and enforcing fiscal discipline. These changes and policies allowed the government of President Salinas de Gortari to advance a very ambitious, but disorderly, program of economic and financial liberalization from 1988 to 1994.

Concerning the securities market, the end of financial repression must first be stressed. First a gradual elimination of quantitative controls on credit allocations and reserve requirements was enforced by the end of 1988. All these controls were finally eliminated. Reserve requirements were replaced by a 'liquidity coefficient requirement,' and interest rates ceilings were eliminated on April 1989. In the same year, the liquidity requirement was eliminated' and replaced by a 10-year variable rate government note to be used and traded among banks to meet their voluntary reserve requirements.

Following these changes towards a market-oriented financial system, on December 1989 the government sent to the congress a wide package of reforms to the financial system, including changes to the Securities Market Law, The most important changes stressed the creation of conditions to promote the participation of capital market intermediaries in foreign markets; which redefined the treatment of privileged information, the deregulation of market operations to promote greater competitiveness and make operations more' flexible, and the creation of market specialists. The new law also allowed the participation of foreign investors in brokerage houses (up to 30 percent, with a cap of 10 percent on individual ownership). The operation of local investment funds was deregulated to

promote savings and greater market activity. The new bill also allowed integration of financial institutions into financial groups. Moreover, a new law appeared in 1989 to regulate financial groups. Finally, Mexico's securities commission (Comision Nacional de Valores) was reformed and given greater autonomy.

Further reforms were implemented in 1993. A new package to reform the financial system was sent to Congress in May and approved in December of the same year. The most important changes concerned the securities market. Its law was modified in order to strengthen its participation in international financial markets. A system of international prices was created to enhance the dealing of local intermediaries in foreign securities, as well as fostering trade in foreign markets, particularly of securities of local firms in foreign markets. Public offering of foreign issues was also allowed. The concept of privileged information was further refined.

An important step in financial reforms concerned re-privatization of state-owned commercial banks during 1991 and 1992, and opening the local market to foreign intermediaries. The integration of Mexico with Canada and the United States to form the North American Free Trade Agreement (NAFTA) deeply influenced this process of financial opening. Negotiations for NAFTA began in June 1990 and, after approval by the Congresses of the United States and Mexico and by the parliament from Canada, it officially began in January 1994. In regard to the securities market, NAFTA stipulations provide opening of local markets to foreign intermediaries, with a restriction of their participation to a share of 10 percent of total capital till the year 2000 and up to 20 and at most 25 percent beyond that year. Investment of foreign securities markets intermediaries on local intermediaries is limited to 30 percent of common stock ownership, and to 10 percent to individual ownership.

Financial reforms included autonomy of the Central Bank (Banco de Mexico) from federal authorities to manage exchange rates, control financial intermediation and financial services. The bank is administered by a Governor designated for 8 years (not coincident with the presidential term) by the Senate upon recommendation from the President.

Finally, it must be pointed out that because of the crisis ensued by the macro devaluation of the Mexican peso in December 1994 and the following months, financial opening of the local market was deepened. Formally, concerning the securities market, Mexico's securities exchange commission and banking commission were merged into a larger commission, the Comision Nacional Bancaria y

de Valores, to attain better supervision of financial groups that can include banks and brokerage houses. Similarly, the share of participation of foreign intermediaries and foreign individuals in the local market was "increased to 10 percent of total capital in the market, 49 percent of common stock ownership; the 10 percent cap for individual ownership remained unchanged-

Privatization Processes in Mexico

Privatization of public-owned enterprises in Mexico started immediately following the 1982 debt crisis. Previously, public enterprises had grown into a large but unstructured and inefficient sector. A strong participation of the state in the economy derived from the Mexican Revolution of 1910. Because the market economy was incipient and the private sector small, the state created public enterprises to promote economic growth in key areas of the economy: mainly the industrial and financial intermediation sectors. Following post-revolutionary instability, the first public enterprise created was the Central Bank, in 1925. In 1933, Banco Nacional Hipotecario Urbano, y de Obras Publicas was created to support public works. During the presidency of Lazaro Cardenas important public enterprises were created: among them Mexico's most important development bank, Nacional Financiera, and a bank for rural development. In addition, the oil industry was nationalized leading to the creation of Petroleos Mexicanos, PEMEX. Mexico's most important state-owned enterprise to date. During the following decades the public enterprise sector continued to grow. These important enterprises comprised the steel industry, fertilizers, social security (including hospitals and health services), the automotive and railroad industries, and electricity industry, resulting from nationalization of a foreign corporation (Ortiz, Torres y Cabello, 1988; Machado y Perez, 1988). However, growth of parastatal enterprises became rather disorderly, especially during the 1970s. Then this sector grew as a result of purchasing unviable, financially troubled private corporations, supposedly to rescue employment. Thus, by 1981, the number of public enterprises had risen to 1155, but the state ended up owning movie theaters, and bicycle, sugar, and bath room accessories factories.

Moreover, the sector became inefficient, incapable of maintaining and creating employment and because of widespread losses became an important source of fiscal deficit. Large subsidies had to be transferred to these enterprises to maintain their inefficient operations.

Thus, as a result of overspending, government deficit increased to 17 percent of GDP by 1982, derived mainly from deficit from the public enterprise sector, which received transfers and subsidies of 8.9 percent in relation to GDP from the federal government (Rogo- zinski, 1997).

Due to the in viability of the import substitution model, the inefficiencies and continuous deficits from the parastatal sector, and the financial pressures derived from the external debt problem, the government of De la Madrid began transforming the economy towards a market-outward oriented economy (Rogozinski, 1977). The need for a change, to modernize the economy was strengthened by an accelerated process of economic and financial globalization during the 1980s. Thus, along with a political and administrative 'reform of the State' commercial opening policies and privatization of public enterprises were enforced. Early efforts were limited and lacked planning. However, a 'rationalization' scheme of public enterprise participation and privatization began in 1985 and with president Salinas de Gortari a special Commission was created to diminish and rationalize the size of the public enterprise sector. The sale of public enterprises to private hands was one important mechanism used for this purpose; privatization was conducted using an auction system to receive bids, and the sale of shares from these enterprises through the stock market. As a result, the public enterprise sector shrunk from 1,155 firms in 1982 to 204 in 1995, as shown in Figure 10.1.

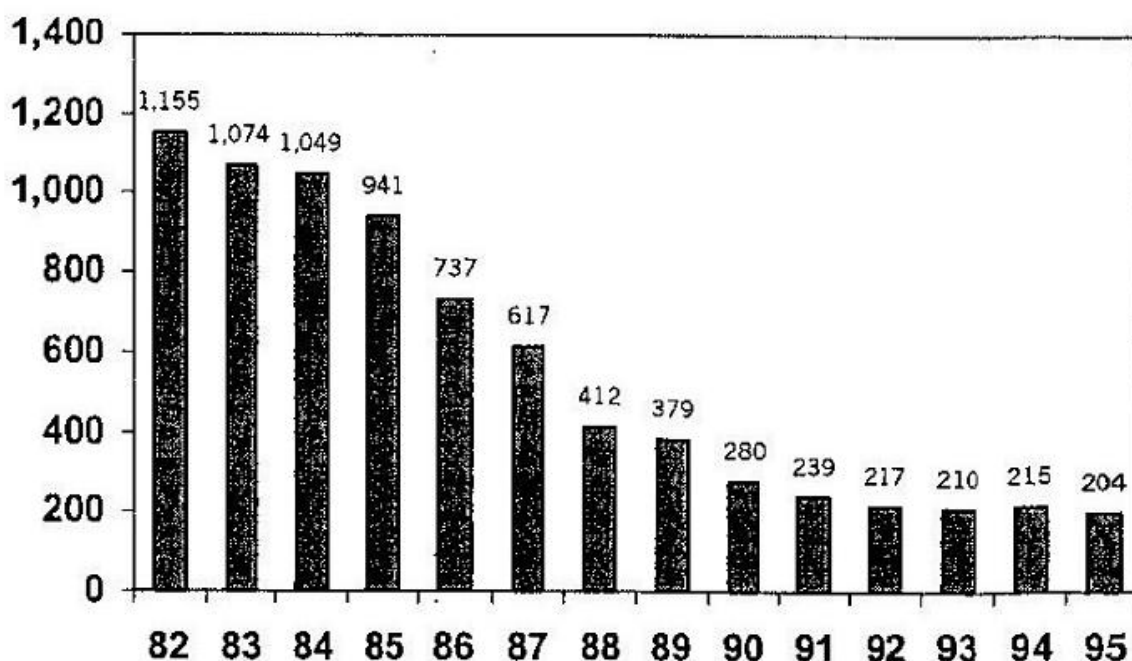


FIGURE 10.1. *Number of Public Enterprises in Mexico (1982–1995). Source: Ministry of Finance (Secretaria de Hacienda y Credito Publico, Banco de Mexico, The Mexican Economy 1996).*

Historical Performance of the Mexican Stock Market

Stock markets in emerging markets have historically exhibited high returns along with high volatility. The Mexican stock market is no exception. Tables 10.1 and 10.2 show descriptive statistics for the series of stock returns and several economic indicators for Mexico. Even though real stock market returns averaged a little over 1.2 percent per year for the period 1980-1995, the standard deviation of those returns is 22 times larger. After 1986, the average returns

TABLE 10.1. *Descriptive Statistics for the Period 1980-1995**

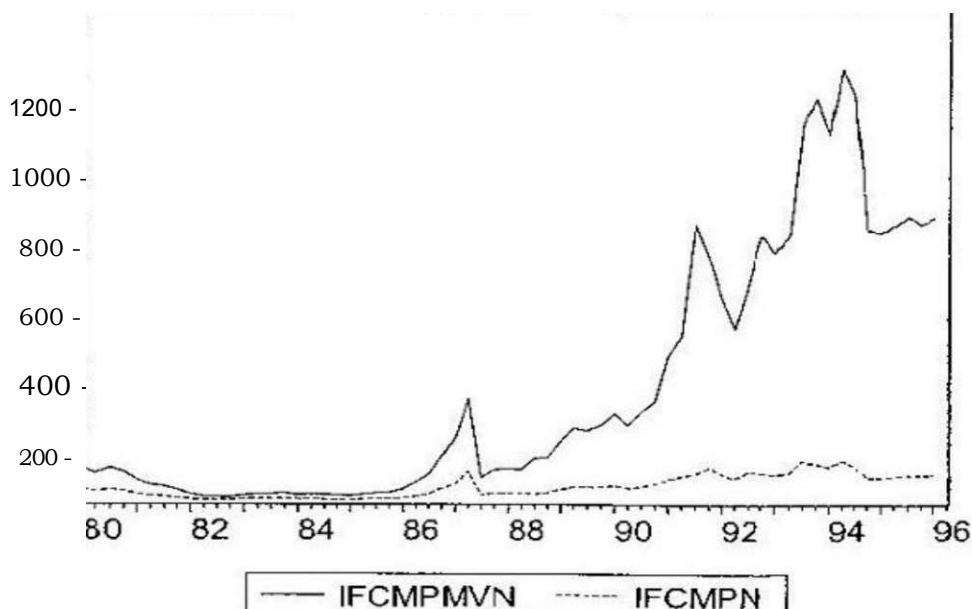
	JFCMP	GDP	MXRN	PRICE	USMXXR	CAPINV
Mean		0.2%	1.3%	9.6%	92%	0.3%
SD	26.9%	8.1%	25.1%	7.2%	* 13.6%	42.3%
Skewness	-2.212	0.024	0.263	0.983	2.07	0.825
Kurtosis	13.661	1.977	7.489		8.167	3.306
Jarque-Bera	349.741	2.753	53.627	10.465	120.753	7.395
Probability	0.000	0.252	0.000	0.005	0.000	0.025
Observations	63	63	63	63	63	63

*JFCMP is the percent change in the World Bank stock price index for Mexico in real 1978 Mexican Pesos; GDP represents the percent change in the GDP for Mexico in real 1978 Mexican Pesos; MXRN represents the average interest rate on one month Treasury EM IIs in Mexico; PRICE represents the percent change in the national consumer price index for Mexico; USMXXR represents the percent change in the number of US dollars per Mexican peso; and CAPINV represents the financial interrelations ratio measured as the percent change in the ratio of total direct capital investment to GDP (a proxy for the degree of financial liberalization).

TABLE 10.2. *Descriptive Statistics for the Period 1986-1995^a*

	JFCMP	GDP	MXRN	PRICE	USMXXR	CAPINV
Mean	6.63%	0.26%	-1.06%	8.52%	7.6%	0.9%
Std. Dev	23.05%	6.08%	30.22%	8.07%	11.4%	44.6%
Skewness	-0.8433	0.0024	0.4187	1.2629	-1.454	0.827
Kurtosis	5.5299	1.4947	5.6785	3.5375	4.400	3.401
Jarque-Bera	154077	3.7764	13.1262	11.113	17.352	4.827
Probability	0.001	0.1513	0.0014	0.0039	0.000	0.089
Observations	40	40	40	40	40	40

^aJFCMP is the percent change in the World Bank stock price index for Mexico in real 1978 Mexican Pesos; GDP represents the percent change in the GDP for Mexico in real 1978 Mexican Pesos; MXRN represents the average interest rate on one month Treasury Bills in Mexico; PRICE represents the percent change in the national consumer price index for Mexico; USMXXR represents the percent change in the number of US dollars per Mexican peso; and CAPINV represents the financial interrelations ratio measured as the percent change in the ratio of total direct capital investment to GDI (a proxy for the degree of financial liberalization).

FIGURE 10.2. *Market Value and Stock Price Index (1980-1995)*

grew more than five times but the volatility stayed about the same.⁰ Real stock market returns are leptokurtic, with the abnormally high peaks and fat tails that are typically found for stock market returns of other countries. Real GDP, interest rates, inflation, exchange rate and capital investment series also are non-normally distributed.

For the most part, the stock market has reflected the growth in the overall economy. Prior to 1986, real GDP and the stock market in Mexico declined from its peak in the first quarter of 1982 to a low in mid 1986. Both the economy and the stock market rebounded until the world stock markets crashed in the last quarter of 1987. Like most world stock markets, the Mexican market rebounded in 1987 and continued strong until the third quarter of 1994. Over the next three-quarters the Mexican stock market lost nearly 50 percent of its value while real GDP fell by over 16 percent between the second quarter of 1994 and the third quarter of 1995.

IV. DATA AND METHODOLOGY

The data used in this paper consists of quarterly information for the period 1980(1) to 1995(1V). Data on foreign investment, domestic investment and capital expenditures was gathered from Banco de Mexico files. Stock market activity data was comes from IFCDB data

files. Finally, privatization data compiled by the authors from Banco de Mexico, the Ministry of Finance, and the Mexican Stock Market. Statistical series for all other variables were extracted from Data- stream International.

To test the impact of financial liberalization and privatization on stock returns we built a regression model selecting variables identified as relevant by economic and financial thought, as well as by the empirical findings of studies previously reported in Section II and other studies reported here in relation to the choice of our variables. We hypothesize that stock market returns are a function of traditional variables considered in other models which include short-term interest rates, exchange rates, inflation rate, GDP, and corporate tax rates. In addition to traditional macroeconomic variables, we- construct two variables, which are the focus of this study; financial liberalization and privatization. These variables are capital investment to GDP and number of privatized firms through stock market sales. Finally, we include in our model three dummy variables to capture the impact of three important events that took place in Mexico during the 1980-1995 period under analysis. The regression model can be represented as follows:

$$y = X\beta + u_t$$

where y represents real rate of stock market returns, X a matrix of five explanatory macro-economic variables, plus two proxy variables to capture the impact of liberalization and privatization, and three vectors of dummy variables to capture the impact of important facts taking place during the period of analysis, β is the vector of parameters to be estimated, and u is the vector of $n \times 1$ errors. Explicitly, taking into account the variables chosen to test the impact of financial liberalization and privatization on stock returns we have:

$$\text{IFCMP} = \beta_0 - \beta_1 \text{D1982} - \beta_2 \text{D1987} + \beta_3 \text{D1993} + \beta_4 \text{GDP} - \beta_5 \text{MXR} - \beta_6 \text{PRICE} + \beta_7 \text{USMXXR} - \beta_8 \text{CTXRATE} + \beta_9 \text{CAPINV} + \beta_{10} \text{PRIV}$$

Where,

IFCMP = real rate of return on the World Bank stock price index for Mexico in 1978 Mexican Pesos, D1982 = a dummy variable to account for the debt crisis of 1982; D1987 = a dummy variable to account for the stock market crash in 1987(4), D1993 = a dummy variable to account for the ratification of NAFTA by the US Congress; GDP = change in Mexico's GDP expressed in real 1978

Mexican Pesos; MXR = percent change in average interest rate on one month Treasury Bills in Mexico; PRICE = percent change in the national consumer price index for Mexico; USMXXR = percent change in the price of pesos in dollars; CTXRATE = percent change in the corporate tax rate from the same quarter 1 year earlier; CAPINV = capital investment to GDP; PRIY = number of SOE auctioned to the public on the stock exchange per quarter.

Thus, we hypothesize that stock market performance in a context of financial liberalization and privatization is a function of traditional variables used in other models. In other words, traditional variables used in previous studies capture events related to financial liberalization and privatization; in turn, these variables affect stock market, returns. ^a Variables were chosen on the following theoretical and empirical grounds and taking into account recent evolution of the Mexican economy.

The dummy variables were chosen for the following reasons. As a result of the debt crisis Latin American countries suffered a severe reversal on their economic growth. It was the 'lost decade' for countries of the area. Mexico grew at very irregular rates during the 1982-1988 period; corresponding to the presidential term of Miguel de la Madrid. In cumulative terms growth rate was in fact zero percent (Aspe, 1993). To a great extent, the negative pervading effect of the debt crisis was the result of inadequate policy making in previous decades, including financial repression. Over borrowing at the international markets was the result of excessive fiscal deficit, partially clue to underperforming public enterprises. Furthermore, at the onset of the debt crisis, commercial banks were nationalized.

"Hence, the dummy variable for the debt crisis can also be considered a proxy variable for 'financial repression' and over participation of the state in the economy, as practiced in previous decades. We hypothesize a negative relationship between the debt crisis and the nationalization of the banking sector, and stock returns.

On the contrary, the dummy variable, D1987, to account for the stock market crash of 1987 should capture financial openness. This is a similar situation to that of case of risk increases due to financial opening reported by Kwan and Reyes (1997) for the Taiwanese stock exchange. Stock returns should also show a negative relationship with the stock market crash of 1987.

D1993 is the dummy variable for NAFTA. After an arduous negotiation that started in June 1990, Canada; United States and Mexico

approved their trade agreement in August 1993. Uncertainty prevailed about its approval by the US Senate. Opposition to NAFTA had been strong in some labor, corporate, and political circles in the US, and they lobbied strongly among their representatives to avoid its approval. Nevertheless, the US Senate finally approved it on November 1993 and the Mexican Senate approved it in December 1993. One of the reasons the Mexican economy grew significantly during the 1988-1993 period was precisely the optimism about its future. NAFTA influenced this view because it opened up the largest and richest market of the world, the US, to Mexican goods. Thus, the final approval of NAFTA by the US and Mexican Congresses accentuated optimism about Mexico's future among all social groups. Corporate leaders and portfolio investors were extremely optimistic. This attitude should have been reflected in market returns, which we aim at capturing with DI993.

Aggregate economic activity is important to explain market behavior. The study by Kwok and Li (1993) and Chatrath and Ramchander (1996), previously reported, regressed stock returns on output and inflation. Chavez et al, (1996a) included exchange rate in their study of bank solvency and financial liberalization in Mexico, as reported earlier. Further, multiple index valuation models frequently include a set of them in their models. Arbitrage pricing models, particularly for the case of developing countries rely on macro and financial variables to define equilibrium returns (Kim and Wit, 1987; De la Calle 1991).^b Moreover, these variables are highly interrelated among themselves, which is captured in complex simultaneous equation models. Further, these variables respond to financial liberalization and privatization, for changes in one variable are transmitted along the entire system, which is for instance the case of changes in interest rates due to financial liberalization, changes in exchange rates due to the adoption of flexible exchange rate regimes, increased investments due to privatization, decreases in tax rates due to privatization, etc. In this chapter we identified five variables as sensitive or related to financial liberalization and privatization: percent change in GDP, changes in interest rates, changes in inflation rates, changes in exchange rate, and changes in total capital investment as a proportion of GDP. In turn, we use these variables to determine their impact on stock returns. Theoretically, GDP growth rates should have positive impacts on stock market activity. Interest rates should cause stock market returns to fall; anticipated inflation should have a positive effect, since investors aim to hedge against this risk. Currency devaluation or depreciation

should have a positive or negative effect, depending on whether the country is more dependent on exports or imports. Depreciation improves the international competitiveness of domestic companies and may result on Increased exports. On the other hand, depreciation causes the costs of imports to increase. These two movements help to attain favorable trade balances, which should have a favorable impact on stock market activity. However, the increase in the cost of imports leads to increases in domestic price levels, which is expected to have a negative impact on stock prices. Jorion (1990) presents evidence that the co-movement between stock market returns and the value of the dollar **is** positively related to the percentage of foreign operations of US multinationals. Ma and Kao (1990) found that, for export-dominated countries, currency appreciation reduces the competitiveness of exchange markets and has a negative effect on the domestic market. Conversely, fo^ import-dominated countries, currency appreciation lowers import costs and generates a positive impact on stock market activity. Recently, Choi and Prasad (1995) found that firm value Is significantly affected by both nominal and real exchange rates. However, subperiod analysis reveals higher exchange risk sensitivity during weak-dollar periods as compared with the strong-dollar period. For the case of Mexico we hypothesize a positive relationship between currency depreciation and stock market returns, considering the importance of US markets to Mexico. Concerning taxes, we propose benefits from reductions in corporate tax rates. Reductions in corporate tax rates have become an important part of economic and financial liberalization programs, as well as of an incentive to purchase government enterprises. Cuts on tax rates are undertaken because they increase corporate profits, which results in improved dividend payments to shareholders and increased levels of retained earnings to Take advantage of investment opportunities. These positive changes should have favorable impacts on stock market activity and increase stock returns.

We use capital investments as a proxy variable to capture impacts of financial liberalization on stock market activity. Financial liberalization involves eliminating restrictions on interest rates and credit flows. By raising die level of competition on the money and capital markets, financial liberalization should lead to improved resource allocation and greater efficiency of investments. Real interest rates are sometimes used as a proxy for financial liberalization (Chavez et al, 1996a, 1996b; Fischer et al, 1996). However we propose to use investments because they capture better the concept of 'Financial Interrelations Ratio' (FIR) coined by Goldsmith (1969). This ratio is

the sum of all assets over national wealth and indicates the degree of financial deepening, i.e., financial development of an economy. Proxy variables are commonly used because of the difficulties in identifying total financial assets in an economy and national wealth. Specific sets of assets or levels of investment (which depend on financing) are used to picture total assets in an economy. GDP is commonly used to depict total national wealth. Following Li (1994) we use fixed capital investment as a proxy for FIR and financial liberalization. Li's coefficient includes the state budget, domestic loans, foreign funds and self-raised funds relative to GDP levels. It captures fully Goldsmith's conceptualization of financial growth and economy. Due to financial liberalization, this ratio should increase because of deregulation of interest rate and greater credit availability. We hypothesize a positive relationship between stock returns and liberalization.

Finally, we use privatization through the stock market as our proxy variable for privatization. We chose this variable in lieu of the number of privatized firms per quarter because the number of investors in the Mexican stock market, is relatively small. Thus, privatization through the market is an important piece of information for investors. Additionally, because of the uneven composition and sometimes irrelevant firms that form part of Mexico's SOE sector, their privatization was not important for investors in the Mexican capital market.

In addition to their use in previous studies, our choice of those variables is justified by the fact that financial liberalization, specifically in the case of Mexico, involves relaxing restrictions on interest and exchange rates, which in turn affect GDP, investments, and prices. Moreover, due to the debt crisis, growth of the Mexican economy tinted the entire period under analysis by high and very volatile prices, which affected overall performance and investments. Our choice, justified on theoretical and empirical considerations, is also indirectly supported by recent dynamic econometric studies on the Mexican economy. In Eudoxio, Gastro-Quiroz et al. (1998) model the Mexican economy in a system of eight subsystems of simultaneous equations, which include real and financial variables. Among, other variables, system variables included GDP, exchange rate, "prices, investments, and taxes which are part of our regression model."

To determine which variables selected for the regression model have exerted a significant influence on the rate of return experienced by the Mexican stock market over the 16-year period, 1980–1995, all rates of return are calculated as the natural log of the

ratio of the value of a variable in the current quarter divided by its value in the preceding quarter. All variables, except for short-term interest rates, are expressed in real 1978 Mexican pesos. Quarterly real returns for the World Bank's stock price index (IFCMP) for Mexico is the dependent variable in the model.

V. MODEL INTERPRETATION AND EVALUATION

The equation below explains 80 percent of the variation in stock market returns and all variables are significant at the 5 percent level.

$$\begin{aligned} \text{IFCMP} = & -0.19 \text{ } (-4.5) - 0.34\text{D1982} \text{ } (11.5) - 1.84\text{D1987} \text{ } (2.5) + 0.19\text{D1993} \text{ } (-4.3) \\ & + 0.75\text{GDP} \text{ } (2.0) - 0.25\text{MXR} \text{ } (-3.6) - 4 \text{ } (-1.9) \\ & + 1.64\text{PRICE} \text{ } (-1) - 0.39\text{USMXXR} \text{ } (-2) - 2.04\text{CTXRATE} \text{ } (4.5) \\ & + 0.15\text{CAPINV} \text{ } (-1) + 0.06\text{PRTV} \text{ } (-1) \text{ } (3.4) \end{aligned}$$

$R^2 = 0.80$, adjusted $R^2 = 0.78$, $F = 19.5$, $D-W = 1.90$, t-ratios in parenthesis. CTXRATE is significant at the 7 percent level; all other variables are significant at the 5 percent level. Lagged variables were used for the case of prices ($t - 1$), exchange rates ($t - 2$), capital investments ($t - 1$), and privatization ($t - 1$) to adjust for investors behavior. No evidence of serial correlation or multicollinearity was found.

All of the expected relationships are supported by the model. As pointed out earlier, three events had a significant impact on the Mexican Stock market between 1980 and 1995. The first event concerns the debt crisis. Following preceding trends, and due to increases in international interest rates and a fall in oil prices, along with financial repression which limited local savings, in 1980-1981 Mexico financed a large current account deficit with massive international borrowing from international banks. Oil prices began to fall in 1981 and plunged in 1982. Thus when oil prices plunged and interest rates soared, the peso collapsed and the debt crisis ensued. The onset of this crisis and a temporary moratorium on debt payments sent the peso into free fall, and inflation spurred to 100 percent, a 60-year high. High inflation caused real interest rates to fall by 25.2 percent and gross domestic investment fell by 28.7 percent; GDP fell by 0.6 percent (and by 5.2 the following

year). Additionally, in September 1982, commercial banks were nationalized. To a great extent this event took place due to an excessive intervention of the state in the economy and financial repression. Indeed, PEMEX is to date Mexico's largest state-owned enterprise and weights significantly in the evolution of the economy. Moreover the Mexican government decided in the 1970s and early 1980s to expand its operations widely. Risks of making the main engine for growth a large state monopoly, making the economy dependent in one export that was subject to international competition were not taken into account. The dummy variable D1982 captures well the impact of this event on the stock market. According to the model, real equity returns fell an average of 34 percent for each quarter of 1982 as a result of the underlying reasons of the debt crisis.

The second event refers to the world stock crisis of 1987. As expected, it had large negative effect on the rate of return of the Mexican stock market. Currency devaluation along with a rise in direct investment caused a surge in real stock returns from the first quarter of 1986 through September 1987. The stock market index, in real terms, rose from 1986(11) to 1987(111). The stock market crash in October 1987 brought the bull market to an end, causing the index to fall back in 1987(1V). These movements reflect to a large extent economic opening in the economy, which began in 1985 with the integration of Mexico to GAIT. The dummy variable D1987 suggests that real equity returns fell 1.84 percent for each point of fall in international stock returns.

The third event occurred in 1993. The period before the 1994 crisis was characterized by falling oil prices, rising fiscal deficits and high inflation. Media hype and promises of extraordinary economic gains from NAFTA fueled a short but dramatic speculative escalation in stock prices. The dummy variable D1993 captures the impact of investor euphoria that led up to the ratification of NAFTA by the US in November 1993 and by the Mexican Senate in December 1993. Investors reaped a 19 percent quarterly return for the 12 months leading up to that event.

All the hypothesized relationships with respect to economic activity, financial liberalization and privatization are supported by the model. Over time, real economic growth has been a major force driving stock prices in Mexico. Over the period 1980—1995, real stock market returns increased by about 0.8 percent for each 1 percent growth in real GDP. As the financial literature reveals, financial factors have been found to affect stock markets in a variety of

ways. Our model supports the conclusions found in the literature concerning interest rates. A 1 percent increase in short-term interest rates is predicted to cause a 0.3 percent decrease in real market stock returns. Seemingly, the Mexican stock market moves one-quarter before inflation, indicating that investors hedge against inflation with their holdings in stock market securities. Thus, in Mexico, equities are not sold only as a hedge against inflation, but in real returns they increase by 1.6 percent for each 1 percent increase in the price index in the next quarter.

According to prior studies, devaluation and depreciation of a country's currency can have a negative or positive effect in its economy, depending whether the country is more dependent on exports or imports. According to our model a 1 percent devaluation of the peso against the US dollar is associated with a 0.4 percent decrease in real stock returns two quarters later. This is not surprising given the importance of the US as an export market for Mexico. Indeed, as a result of NAFTA, import—export activity between the two countries has increased sharply to reach levels of over US\$ 100 billion dollars each. Mexico has become the second most important trade partner for the US.

The negative impact of rising interest rates on stock market returns is well documented. Our model suggests that a L percent increase in short-term interest rates results in a about a 0.25 percent decrease in real stock market returns in Mexico. The literature also suggests that stocks are used by many investors as an inflation hedge. Our model predicts that the Mexican stock market is not only a hedge against inflation, but that real returns increase with inflation.

The results of our regression equation also provide strong support for the hypothesis that corporate tax cuts, financial liberalization and privatization bestow real rewards to investors. Mexico has reduced its corporate tax levels on five occasions, reducing them from 42 to 34 percent in 1995. We estimate that for every 1 percentage point decrease in the corporate tax rate, real stock market returns increased by 2 percent one quarter later. Financial liberalization, i.e., financial deepening in Mexico due to financial liberalization, has also increased real stock returns. For each unit increase in capital investment, real stock returns increased by 0.15 percent one quarter later. The effect of privatization is small (0.06 percent for each auction) but significant, and the impact takes one quarter to take effect. This is understandable taking the characteristics of Mexican capital market described before. To the extent that

reform efforts contribute to economic growth, they stimulate the stock market through the strong positive relationship between GDP growth and real market returns. The findings offer strong evidence that tax cuts, financial liberalization and the privatization of public enterprises in Mexico have had positive effects on the stock market. Figure 10.3 shows the actual, fitted, and residual time series for the model.

VI. CONCLUSION AND RESEARCH AGENDA

Much has been written about the economic benefits of financial liberalization and privatization. Most of the econometric analyses of these efforts by emerging economies have concentrated on their positive effects on savings, investment and economic growth. Our analysis suggests that investors benefit as real stock prices are buoyed as a result of financial liberalization and privatization policies. Equity financing is a major source of new investment capital for new ventures and expansion of existing firms; it promoted broader and more efficient patterns of ownership and control. Rising stock prices encourage firms to seek new capital funds. Guts in the corporate tax rate allow firms to keep a larger share of profits for reinvestment. These results should offer encouragement to

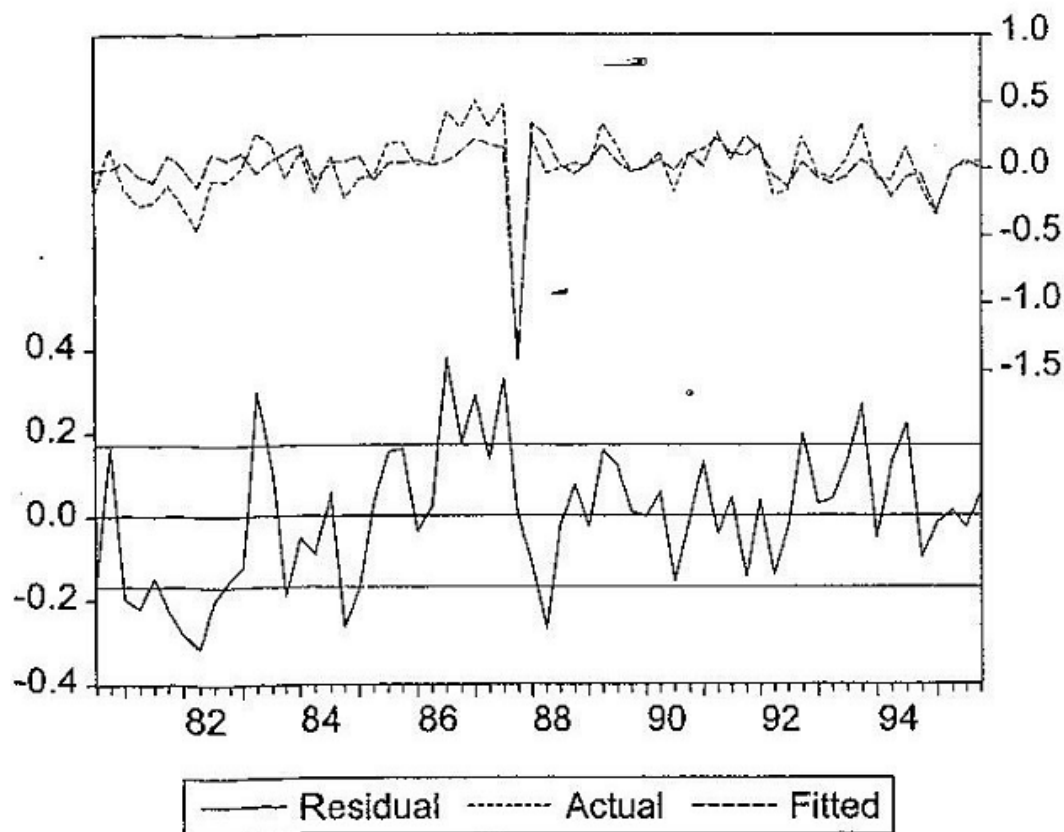


FIGURE 10.3. *Actual and Predicted Quarterly Stock Returns (1980–1995)*

policy makers from developing countries to continue these efforts in the future.

Results from this study also show that the agenda for further research on emerging markets is still wide open. Concerning financial liberalization and privatization more analysis is warranted to examine the impact of financial liberalization, privatization and the corporate tax rate on foreign direct investment. More studies could also be directed to validate and refine previous research, like the studies by Kwok and Li (1993) and Chen, Roll and Ross (1986) for the case of Mexico. Further analysis on this area should also include examining stock market behavior for subperiods to estimate parameters under different market regimes. Event studies to examine stock market reaction to liberalization and privatization announcements and enforcement should also be carried out. Finally, due to the strong importance to Mexico of the US economy, and to a lesser degree of the Canadian economy (with which it needs to strengthen its ties), future studies on the Mexican stock market should include macro and financial variables from these countries; comparative and financial integration studies of these markets should also be included in future research works,

NOTES

1. Levine (1997) presents an excellent survey on financial and economic development. Its bibliography lists the most important works on this topic. Other useful bibliography can be found in Ortiz (1993; 1995), Ivanova (1998), and Cabellero (1999).
2. This work is an excellent survey on empirical studies on privatization.
3. Unless otherwise indicated, this section on financial liberalization is based on the works by Cabello (1997; 1999).
4. A detailed analysis of Mexico's profound and somewhat feverish changes can be seen in Aspe (1993).
5. We include data for the 1986-1995 data to capture economic and financial liberalization, and privatization, 1986 marks the beginning of Mexico's participation at GATT; the same year 'rationalization and divestment of public enterprises' consolidated due to a new bill on public enterprises and decentralized organizations was passed.
6. The work of Kim and Wu (1987) develops a CAPM multifactor model for the US. The work by De la Calle (1991) applies APT theory to the case of Mexico. Variables included are: unexpected changes in domestic inflation, unexpected growth in the domestic money supply; unexpected devaluations of the Mexican peso, innovations in the domestic rate of productive activity, unexpected changes in the international price of oil, and innovation in the S&P price index.

REFERENCES

- Aggarwal, R. (1997) Foreign portfolio investments in some developing countries: a study of determinants and macroeconomic impact, *Indian Economic Review*, 32(2), July-Dec.: 217-229.
- Aggarwal, R., Leal, R. and Hernandez, L. (1993) The aftermath performance of initial public offerings in Latin America, *Financial Management*, 22 (Spring): 43-53.
- Aspe, P. (1993) *Economic Transforation, The Mexican Way*. Cambridge, MA: MIT Press.
- Atje, R. and J o vano vi k, ß, (1993). Stock markets arte! development. *European Economic Review*, 37(2/3): 632-640.
- Ben net, R.L. (1.965) *The Financial Sector and Economic Development: the Mexican Case*, Baltimore, MD: Johns Hopkins,
- Bouton, L. and Sumlinski, M.A. (1997) Trends in Private Investment in Developing Countries. Statistics for 1970-1995. Discussion Paper No 31, IFC.
- Cabello, A. (1Ö97) Liberalization and deregulation of the Mexican stock market. In: D.K. Ghosh and E, Ortiz (eds), *The Global Structure of Financial Markets. An Overview*. London: Rouriedge.
- Cabello, A. (1999) *Globalization y Liberalization Financieras y la Bolsa Mexicana de Valor Del Auge a la Crisis*. México, D.F.: Plaza y Valdes.
- Casuo-Quiroz, C, Loria-Diaz, E., Mendoza, M.A, and Carvajal-Guitierrez, L. (1998) *EUDOXIO. Modelo Macroeconome trico de la Economía Mexicana*. México, D.F.: Trillas.
- Chatrath, A. and Ramchander, S. (1996) Stock prices, inflation and output: evidence from India. *Journal of Asian Economics*, 7(2) Summer: 237-243.
- Chavez, J., Fischer, K.P. and Ortiz, E. (1996a) Financial liberalization, economic cycles and bank solvency in Mexico. In: R.P.C. Lean, ß. Husted and D,R Vanden Bloomen (eds), 1996 *BALu4S Proceedings*. University of Nevada Reno.
- Chavez, J., Fischer, K.P. and Ortiz, E. (1996b) Financial liberalization and bank solvency: a multi-country study. In: J, Doukas and L. Lang (eds), *Research in International Business and Finance*, Supplement 1. Greenwich, CT: JAI Press.
- Chen, N.F., Roll, R. and Ross, S. (1986) Economic forces and the stock market. *Journal of Business*, 59(3): 383-404.
- Choi, J. and Prasad, A. (1995) Exchange risk sensitivity and its determinant: a firm and industry analysis of US multinationals. *Financial Management*, Autumn: 77-88.
- De la Calle, L. (1991) Diversification of macroeconomic risk and international capital markets: the case of Mexico. *The World Bank Economic Review*, 5(3) September: 415—436.
- Doshi, K. (1994) The rush to privatize in the Asia-Pacific region. *Business Forum*, 19(Winter/Spring): 42-46.
- Fama, E. (1981) Stock returns, real activity, inflation and money. *American Economic Review*, 71 (September): 545—564.
- Fischer, K.P., Gueyie, J .P and Ortiz, E. (1996) Financial liberalization: commercial bank blessing or curse. *Journal of International Finance*, 4(2) Fall: 67-93,

- Fry, M. (1988) *Money, Interest Rates and Banking in Economic Development*, Baltimore, MD: Johns Hopkins.
- Fry, M. (1989) Financial development: theories and recent experience. *Oxford Review of Economic Policy*, 54: 13—28.
- Gala!, A., Jones, L., Tandon, P and Vogelsang, 1. (1992) *Welfare Consequences of Selling Public Enterprises*, Washington, DC: The World Bank.
- Galb is, V. (1977) Financial intermediation and economic growth in less developed countries: a theoretical approach. En: P.C. Ayre (ed.), *Finance in Developing Countries*. London: Frank Cass.
- Gibson, H. and Tsakalotos, E. (1994) The scope and limits of financial liberalization in developing countries: a critical, survey, *Journal of Development Studies*, 30(April): 578-628.
- Goldsmith, R. (1969) *Financial Structure and Development*. New Haven, CT: Yale University Press.
- Gupta, K. (1984) *Finance and Growth in Developing Countries*. London: Croorn Helm.
- Gurley, J. and Shaw, E.S. (1960). *Money in a theory of finance*. Washington, DC: Brookings.
- Hargis, K. (1998) Do foreign investors stimulate or inhibit stock market development in Latin America? *Quarterly Review of Economics and Finance*, 38(3), Fall: 303-318.
- Harris, R.D.F. (1997) Stock markets and development: a reassessment. *European Economic Review*, 41(1): 139-146.
- Hodrick, R.J. and Prescott, E.G. (1997) Postwar US business cycles: an empirical investigation, *Journal of Money, Credit and Banking*, 29: 1-16
- Ivanova, A. (1998) Los intermediarios Financieros no Bancarios y el Crecimiento Económico. El Caso de Mexico, Doctoral Thesis, Universidad Nacional Autónoma de Mexico.
- Jorion, P. (1990) The exchange-rate exposure of US multinationals. *Journal of Business*, 63: 331-346.
- Kim, M.K and Chunchi Wu (1987) Macro-economic factors and stock returns. *Journal of Financial Research*, XX(2), Summer: 87-98.
- King, R.G. and Levine, R. (1993) Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics*, 108(August): 717-737.
- Kwan, F.W. and Reyes, M. (1997) Price effects of stock market liberalization in Taiwan. *Quarterly Review of Economics and Finance*, Summer,
- Kwok R. and Kui-Wai Li (1993) The interrelationships between macro- economic variables and stock prices in newly industrialized economies of Asia. *Research in International Business and Finance*, 10: 221—228.
- La Porta, R. and Lopez-de Silanes, F. (1997) Benefits of privatization— evidence from Mexico, *Working paper Series, Private Sector*. Washington, DC: The World Bank.
- Levine, R. (1997) Financial development and economic growth: views and agenda. *Journal of Economic Literature*, XXX V(June): 688-726 .
- Levine, R. and Zervos, S. (1998) Stock market, banks and economic growth. *American Economic Review*, 88(June): 537-558.
- Li, Kui-Wai (1994) *Financial Repression and Economic Reforms in China*, Westport, Conn: Praeger Publishers.

- Lieberman, I.W. and Kirkness, C. (1998) *Privatization and Emerging Equity Markets*. Washington, DC: The World Bank and Flemings.
- Lubrano, M. and Urrutia, L. (1998) Privatization and equity markets in Mexico and Argentina. In: I.W. Lieberman and C. Kirkness (eds), *Privatization and Emerging Equity Markets*, Washington, DC: The World Bank and Flemings.
- Ma, C. and Kao, G.W. (1990) On exchange rate changes and stock price reactions. *Journal of Business Finance and Accounting*, 17(3), Summer: 441-449
- Machado, J. and Perez, W. (1988) Evaluación Económica de la Participación de la Empresa Pública en la Industria Mexicana. In: E. Ortiz (ed.), *Public Enterprise. Current Issues in the North American and Caribbean Countries*. México, D.F.: CIDE/NAEFA.
- McKinnon, K.I. (1973) *Money and Capital in Economic Development*. Washington, DC: Brookings Institution.
- Meggison, W.E. and Neuer, J.M. (1999) From State to Market: A Survey of Empirical Studies on Privatization, mimeo, Michael F. Price College of Business, The University of Oklahoma, revised February 1999, Earlier version presented at Global Equity Markets, joint conference organized by the Bourse de Paris and the New York Stock Exchange, December 10-11, 1998, Paris, France.
- Ortiz, E. (1993) Emerging markets and economic development. In: K. Fatemi and D. Salvatore (eds), *Foreign Exchange Issues, Capital Markets, and International Banking in the 1990s*. Washington, DC: Taylor and Francis.
- Ortiz, E. (1995) Take-off into development and emerging capital markets: stages of financial development and equity financing. In: H.P. Gray and S.C. Richard (eds), *International Finance in the New World Order*. New York: Per gamón,
- Ortiz, E., Torres, M. and Cabello, A. (1988) Desarrollo Económico y la Función Financiera de la Empresa Pública Mexicana: Fundamentos Teóricos y Estudios de Caso, In: E. Ortiz (ed.), *Public Enterprise. Current Issues in the North American and Caribbean Countries*. México, D.F.: CIDE/NAEFA.
- Patrick, H.T. (1966) Financial development and economic growth in underdeveloped countries. *Development and Cultural Change*, 14(2): 77-197,
- Perotti, E. and van Oyen, P. (1996) The impact of privatization on stock market development in emerging economies. *Journal of International Finance*, 4(2), Fall: 31-47.
- Rogozinski, J. (1997) *La Privatización en Mexico. Razones e Impactos*, Mexico, D.F.: Trillas.
- Shaw, E.S. (1973) *Financial Deepening in Economic Development*. New York: Oxford University Press.
- Tobin, J. (1965) Money and economic growth. *Econometrica*, 33(4): 671-684.
- Warman, E. and Thirlwall, A. (1994) Interest rates, saving, investment and growth in Mexico 1960-90: tests of the liberalization hypothesis. *Journal of Development Studies*, 30(April): 629-649.