Do International Agreements Make Reforms More Credible? The Impact of NAFTA on Mexican Stock Prices

Michael Tomz
Department of Government
Harvard University
Cambridge, MA 02138
voice: (617) 495-8283
email: tomz@fas.harvard.edu

Prepared for delivery at the 1997 Annual Meeting of the American Political Science Association, The Sheraton Washington Hotel, August 28-31, 1997. This work was completed while the author was a National Science Foundation Graduate Fellow and an Associate at the Harvard Center for International Affairs. The author is grateful for the support of these institutions, as well as comments from Jorge Domínguez, Robert Keohane, Lisa Martin, and Aaron Tornell.

ABSTRACT

This paper argues that international commercial agreements can enhance the credibility of trade liberalization by mitigating two problems – adverse selection and time-inconsistency – that sometimes lead investors to doubt the longevity of an otherwise well-designed commercial policy. Using stock market data from Mexico, the paper offers strong evidence that NAFTA made trade liberalization more credible to domestic and foreign investors. The findings should be of interest not only to scholars concerned about the consequences of international institutions, but also to policy makers who are opening their economies to foreign trade.

During the past decade, governments throughout the developing world have dismantled barriers to foreign trade, thereby exposing their economies to competition from abroad. The clearest signs of this policy transformation are visible in Latin America, where tariff and non-tariff barriers have fallen precipitously since the mid-1980s, but obstacles to trade have also receded in Africa, Eastern Europe and Asia (Dean, Desai, and Riedel 1994). According to neo-classical economic theory, these reforms should enhance overall economic welfare by encouraging investors to allocate resources in ways consistent with the principles of comparative advantage. As trade becomes freer, investment should shift to industries that can produce at the lowest cost and compete effectively in global markets. Trade liberalization also may generate dynamic gains by encouraging technological innovation, learning-by-doing, and economies of scale (Dornbusch 1992).

The economic success of these new policies will depend, however, on the *political credibility* of trade liberalization. An economic policy enjoys credibility to the extent that relevant actors, such as domestic and foreign investors, believe the government will implement and sustain the program of reforms that it has announced. The identity of relevant actors may vary across time and space, but the issue of credibility seems inescapable, given the sequential nature of economic decision-making. At least in principle, a government that dismantles protectionism today can restore it tomorrow, just as a government that cuts taxes now can escalate them later. The record of trade liberalization in developing countries abounds with examples of governments that promised one policy but delivered another, or implemented reforms that were subsequently retracted (Michaely, Papageorgiou, and Choski 1991).

If investors doubt the longevity of free trade, they may decide not to shift resources from inefficient, import-competing industries to more dynamic, export-oriented ones. The deterrent to investment arises because exporting involves costs that would be difficult to recover if the government reinstated protectionism. For instance, physical capital is typically expensive to install and uniquely appropriate to a particular industry. Likewise, investments in human capital (hiring and training) perform best in the activity for which they were designed, and networks of foreign tomato buyers are useful only to tomato exporters. Firms will avoid making export-related investments in client networks and physical and human capital, unless they believe that public authorities will persist in keeping the economy open. If investors anticipate a policy reversal, then commercial liberalization will hurt import-competitors without stimulating the growth of exports, and the liberal policy will become unsustainable (Rodrik 1992).

In addition to deterring investment, low levels of credibility can catalyze consumption by distorting the inter-temporal structure of prices. Suppose that a government implements reforms today but consumers expect the government to reimpose protectionism in a subsequent period. Under these conditions, we should observe a surge of imports propelled by speculation against the reforms. The rush to buy durable goods at temporarily depressed prices will produce a current account deficit that grows as the expected period of liberalization shortens (Calvo 1987). In turn, the deteriorating current account will depress savings and deplete foreign reserves, heightening the probability of a policy reversal (Froot 1988; van Wijnbergen 1992). Thus, an incredible reform can prove worse than no reform at all.

This paper argues that international commercial agreements can enhance the credibility of trade liberalization from the perspective of domestic and foreign audiences. International agreements are effective tools for raising credibility, because they mitigate two problems – adverse selection and time-inconsistency – that could lead investors to doubt the longevity an otherwise well-designed commercial policy. Using stock market data from Mexico, this paper provides the strong evidence that NAFTA made trade reforms more credible. The findings should be of interest not only to scholars concerned about the consequences of international institutions, but also to policy makers who are opening their economies to foreign trade.

The argument is developed in the four major sections. Section One identifies several threats to credibility that have emerged in developing countries, and Section Two recommends international agreements as devices for overcoming the threats. The third section shows why the NAFTA proceedings of 1993 offer an ideal case for assessing the proposition international agreements make reforms more credible, and the fourth section presents the results of a rigorous empirical test.

1. Two Sources of Skepticism about Reforms

The categories of adverse selection and time inconsistency can help illuminate why commercial policies sometimes lack credibility. The potential for adverse selection arises when observers lack information about the beliefs and values that are motivating a government to pursue freer trade. Scholars often represent this situation as a signaling game, with relevant actors acquiring information about the government's true "type" (Banks 1991). A different problem, time-inconsistency, arises when incentives change over time. Having induced investors to sink irretrievable assets into export-related activities, even the best-intentioned governments may feel tempted to resurrect protectionism. In the literature on economic organization, the problem of time-inconsistency is sometimes called post-contractual opportunism (Williamson 1985). Both types of problems can undermine the credibility of reforms.

1.1 Adverse Selection

In many cases, the motivations of a reforming government constitute private information, known to politicians who opened the economy but unclear to domestic and foreign observers. Without perfect knowledge of the government's type, rational observers must estimate the intentions of political leaders using whatever information is available.

History provides one reason for questioning the motivations of an avowedly reformist government. Luigi Einaudi, the Italian finance minister following the Second World War, remarked that "investors have the memories of elephants, the hearts of lambs, and the legs of hares" (quoted in Dornbusch 1993, 277). Elephantine memories can pose acute problems in developing countries, where the same leaders who favored import-substitution for decades have now embarked on commercial liberalization. Observers should feel entitled to doubt whether a *metanoia* has actually taken place. Even in countries where new politicians assume office and denounce the protectionism of their predecessors, though, a legacy of policy reversals by previous leaders can undermine the credibility of reform. Argentina provides a case in point. When the Alfonsín government announced its program of trade liberalization and export promotion in 1986, investors asked the economic team: "Why should we believe what you are saying, given the reversals we have witnessed in the past?" (Lavagna 1995).

Observers also may doubt the sincerity a government that adopts reforms under pressure from international lending institutions. Is the administration bent on economic openness, or is it mimicking a reformist type to elicit support from official creditors? Between 1979 and 1988 the World Bank provided 155 adjustment loans to 57 countries. Nearly two-thirds of the loans involved trade policy components, which developing countries accepted in exchange for badly needed credit (Thomas and Nash 1991, 26). The IMF similarly required its clients to rationalize their commercial policies in exchange for short term aid. Against the backdrop of economic crisis and international pressure, the true intentions of a reforming government can become ambiguous. "Conditionality makes the well-meaning government's job harder by causing it to be confused with less committed counterparts" (Rodrik 1992, 91).

Finally, frequent shifts in political power can create uncertainty about the preferences of *future* leaders. Most countries in Latin America prohibit a president from serving twice in succession, and few economic advisors last the entire presidential term. Even when investors feel convinced that the government in office genuinely favors reform, they may expect new administrations to harbor somewhat different objectives. Jorge Domínguez (1982, 202ff) has described a "sexennial rhythm" that marks political time in Mexico. Shaped by six-year presidential terms, this rhythm contributes to policy swings between administrations, even though the president hand-picks his successors and the same party has always won the presidential elections. Swings are even more pronounced in other parts of Latin America, where no single party maintains an iron grip on power. Uncertainty about the proclivities of future governments can deter investment and savings today.

1.2 Time-Inconsistency

The problem of adverse selection arises from private information about the intentions of present and future governments; time-inconsistency, by contrast, involves no informational asymmetries. Investors may know that the government sincerely prefers economic openness to closure, yet anticipate that the government’s incentives will change over time. After investors have dedicated their assets to export-related activities, the government may determine that higher tariffs would serve a variety of economic and political objectives, such as raising revenue for the national treasury and palliating the victims of commercial liberalization. In short, reforms that proved optimal at time t could become inefficient at $t + 1$. Observers who expect this change of incentives will not regard trade liberalization as credible.

Any number of adverse macroeconomic developments could prompt the best-intentioned governments to seek protectionism *ex post*, even though free trade was superior *ex ante*. For instance, incentives could shift due to a deterioration in the fiscal balance. In the countries of Asia and Latin America, licenses and tariffs provide approximately 15 percent of government revenue, and the average climbs above 20 percent in much of Africa. Hence, a program of commercial liberalization could conflict with the objective of fiscal retrenchment (Greenway and Milner 1991), and if the fiscal situation becomes desperate, governments may feel compelled to reimpose protectionism as Colombia did earlier this year (Ramirez 1997). Following the same logic, a deteriorating current account could prompt a return to protectionism. Unless they receive compensating investment, countries that run persistent trade deficits will deplete their foreign reserves and encounter difficulty in servicing their foreign debts. Renewed protectionism can temporarily alleviate this problem, particularly after investors have shifted their assets to export-related activities that earn foreign exchange. Thus, the temptation for "true" reformers to escalate tariffs may prove irresistible once investors have committed themselves.

Distributional conflicts could provide yet another incentive to reverse course. In their corollary to the pure theory of international trade, Stolper and Samulson demonstrated that protectionism redistributes income from locally abundant to relatively scarce factors of production, whereas trade liberalization produces the opposite effect. Some evidence indicates that distributional conflicts occasioned by changing exposure to international trade can harden into powerful political coalitions (Rogowski 1989). Once investors have transferred their assets to the export sector, a government that draws support from an import-competing coalition could appease that group by restoring the status-quo ante. Rational investors should expect this behavior from governments and tailor their optimal strategies accordingly. In particular, an investor who recognizes the *ex-post* inefficiency of trade liberalization should not commit to exporting in the first place.

The analysis in this section has focused on the credibility of commercial policy in a single country, but international trade involves political and economic actors in many nations. Problems of adverse selection and time-inconsistency could lead observers in the home country to doubt that *foreign* governments will keep their markets open, even if reforms in the home state are viewed as fully credible. For instance, Canadian and Mexican investors worried throughout the 1980s and early 90s that protectionist sentiments in the United States could undermine free trade in North America, even if the Canadian and Mexican governments seemed determined to stay the free-trade course. Skepticism about the type of government in a major trading partner, or fear that the foreign government will find new incentives to restrict imports, could dissuade actors in the home state from investing in export-related activities. Thus, the problem of credibility has a multinational dimension that international agreements are uniquely capable of addressing. Section Two shows how international agreements can enhance the credibility of reform both at home and abroad.

2. How Agreements Enhance Credibility

International agreements can overcome the problems of adverse selection and time-inconsistency that otherwise would subvert the credibility of reforms. By signing an international agreement, a government can signal its genuine interest in economic openness and dispel doubts about its true type. At the same time, agreements can address the problem of time-inconsistency by weakening the *ex-post* incentive to reverse course. This section explains precisely how international agreements can make reforms more credible.

A government can lessen the problems of adverse selection and time-inconsistency by undertaking two generic activities: sending signals and tying hands. Signals convey information about the preferences of political leaders. The most effective signals are more costly for fakers than for true reformers to emit, since the differential cost may deter fakers from sending the signal, thereby enabling observers to discern which governments honestly prefer to keep the economy open. A second generic approach, tying hands, alters the structure of incentives that governments face. Through commitment devices such as international agreements, a government can raise the payoffs from continued liberalization and increase the costs of deviating from the announced policy of economic openness. Knowing that the government not only has promised to stay the course but also has changed its material incentives, investors will believe in the sustainability of reforms and allocate their assets to the export sector.

The formal literature has not fully appreciated the relationship between signals and commitments. *In a setting of imperfect information, all commitments are signals but not all signals are commitments*. Consider a commitment device that makes trade liberalization the optimal policy in all future periods. A government that institutes this degree of commitment will tie its hands, eliminating the incentive to deviate from reforms that it has announced. At the same time, the act of hand-tying will expose the leaders as genuine reformers, since fakers would not lock themselves into a policy of perpetual liberalization. Thus, commitments can overcome the problems of time-inconsistency *and* adverse selection simultaneously. Next consider a costly signal, such as appointing a finance minister who endorses the Chicago School of laissez-faire economics. The appointment conveys information about the kind of government in office, because the political fallout from making the appointment would be worse for mere fakers than for genuine reformers. Nevertheless, the signal involves no commitment to sustain the reforms. Once investors have sunk their assets into the export sector, the appointment will become contractually inefficient, and fakers will have every incentive to appease their constituents by replacing the minister with someone less conservative. Signals address the problem of adverse selection, but they leave the problem of time-inconsistency untouched.

International agreements are effective devices for enhancing credibility, because they tie hands and send signals simultaneously. I begin by considering the hand-tying aspects of international agreements, and then explain why such agreements serve as signals.

First, international agreements can raise the cost of a policy reversal by altering reputational incentives. When a government signs an international agreement, it puts its reputation on the line to a much greater extent than if it reforms unilaterally, without declaring its intent to an international audience. If the government reneges on the international agreement, it damages its reputation with many actors. Even scholars in the tradition of classical realism acknowledge that, "in the long run ... a nation that has the reputation for reneging on its commercial obligations will find it hard to conclude commercial treaties beneficial to itself" (Morgenthau and Thompson 1985, 313). By abrogating an international trade agreement, the government also might spoil its reputation on a number of related issues, such as portfolio and direct investment. International agreements thus deter policy reversals by elevating the cost of changing course.

Trade agreements can solidify trade liberalization by raising the specter of legal action. In many countries, international trade agreements automatically become part of domestic law such that, if a firm thinks policy makers have violated the agreement, the firm can sue for damages. According to the former trade-minister of Colombia, the threat of domestic lawsuits provides a powerful motivation for the Colombian government to keep its international trade agreements, and it helps convince domestic and foreign investors that the government will not reverse its policy of commercial liberalization (Ramirez 1997). A government that breaks its international trade agreements also may suffer from unwanted cross-border suits, a possibility that I consider at greater length in the concluding section, where I discuss mechanisms for dispute resolution.

Some authors add that free trade pacts enhance credibility because they "bind together diverse export industries in their opposition to increases in protection" (Gould 1992, 20). This argument, although partly valid, forgets that anti-protectionist lobbying is a collective good. Exporters could minimize the likelihood of a reversal by lobbying in unison, but each group would prefer letting others petition the government to uphold the agreement. Of course, the same logic also applies to proponents of protectionism: the temptation to free-ride could sap their collective power since, once a free trade agreement exists, the restoration of protectionism will become a collective good as well. Predicting the net effect of these free-rider problems would be difficult *a-priori*. Nevertheless, it seems clear that agreements can help deter opportunistic behavior by changing reputational incentives and risking legal action.

International agreements not only mitigate the problem of time-inconsistency by altering the incentives of governments, but they also resolve the problem of adverse selection by signaling the genuine preferences of governments. Signaling occurs in two ways. First, agreements send signals because they involve costly commitments: the price of entering an agreement will fall more heavily on fake reformers, who would rather not tie their own hands, than on leaders truly desirous of freer trade. If the difference in costs incurred by the two types is steep enough, accession to an international agreement could constitute the most effective signal that sincere reformers could send. But agreements can signal preferences even in the absence of commitments if, as seems likely, getting an agreement approved and implemented through the relevant domestic procedures entails different costs for different types of actors.

I have argued that international agreements make trade liberalization more credible by reducing the problems of adverse selection *and* time-inconsistency. The next two sections test this claim against the null hypothesis that international agreements are brittle stalks, weak commitments that do not enhance the credibility of commercial reform.

3. Designing an Empirical Test

The theoretical literature on credibility is growing but empirical work on the subject remains limited, partly because credibility is a difficult concept to measure directly. It may be possible to ask investors whether they think politicians will keep the economy open, and to see whether those opinions change after the passage of an international agreement. This type of data is difficult to collect, however, and it suffers from problems of confidentiality and respondent honesty that are common to industrial surveys.

An approach that focuses on behavior rather than opinion is therefore more appropriate: to determine whether international agreements enhance credibility, researchers should specify the behavioral implications of a credible reform and see whether that behavior becomes more prominent after an agreement is put in place. As argued earlier, a policy of trade liberalization should encourage investment to shift from inefficient, import-competing industries to those enjoying a comparative advantage in exports. The more credible the reforms are, the more pronounced the shift in investment should be. Thus, if international agreements make reforms more credible, the passage of an agreement should cause investments in export-oriented sectors to surge beyond levels that would have obtained in the absence of an agreement.

A particularly powerful test would examine investments that respond quickly to new developments, such as the announcement of a trade liberalization package or the ratification of an international accord. Investments in machinery, human capital and foreign clienteles do not satisfy this condition, because such investments occur gradually even in the context of highly credible reforms. Fortunately an ideal short-term measure is available: the prices of securities quoted on the stock exchanges of developing countries. If portfolio investors believe that international agreements enhance the credibility of reform, the passage of an agreement should lead immediately to an abnormal rise in the price of stocks issued by firms that would benefit most from the freeing of international trade. We can detect and quantify this movement in price by conducting an "event study," using techniques that have been developed in the field of financial econometrics.

Three criteria should guide the selection of an agreement whose passage will count as the critical event. First, the developing country that enters the agreement should enjoy a clear competitive advantage in certain economic activities, so observers can agree about which sectors would gain from trade liberalization, were the liberalization perceived as credible. Second, the agreement should, as much as possible, codify prevailing levels of protection and plans for future liberalization. This condition is important for distinguishing the credibility-enhancing effects of an agreement from the impact of news about liberalization itself. Finally, it should be easy to say precisely when the agreement will affect the stock market. If investors know in advance that the agreement will pass, they will capitalize this knowledge in the stock market sometime before the final legislative vote or presidential signature, making it difficult to determine which movements in stock prices might have been caused by news about the pact. An unanticipated agreement would, therefore, allow a sharper test of the hypothesis than an agreement that everyone expected.

The NAFTA proceedings of November-December 1993 fit these criteria particularly well. Mexico possesses a relatively abundant supply of low-wage labor, so a credible policy of trade liberalization should cause investment to move into labor-intensive industries. Furthermore, US-Mexican trade was substantially free by the end of 1993 and both governments had planned future reductions in protection, so the agreement mainly codified the status quo. Finally, few observers expected the US House of Representatives to pass NAFTA enabling legislation on November 17, 1993. The decision by Canadian Prime Minister Jean Chrètien to endorse the NAFTA on December 2 likewise shocked political and economic observers, since Chrètien had campaigned against the agreement for most of 1993. These points, developed at greater length below, imply that the NAFTA proceedings of 1993 are ideal for testing the hypothesis of this paper.

3.1 A Clear Advantage in Labor-intensive Goods

Through its effect on credibility, the passage of NAFTA should have raised the stock prices of Mexican firms engaged in labor-intensive activities. During the twelve months prior to November 1993, Mexico conducted more than 76% of its total trade (exports plus imports) with the United States and nearly 91% of its trade with North America, the European Union and Japan (INEGI 1997). In relation to these commercial partners, Mexico possessed – and still possesses – a large endowment of unskilled, low-wage workers. On the eve of NAFTA, Mexican wages stood at 14% of US-Canadian levels and one million Mexicans were entering the labor market each year, thereby applying constant pressure to keep wages below levels in the industrialized world (Leamer 1993, 60; Morici 1993, 51). At the same time, the Mexican economy was relatively deficient in industrial and financial capital. Thus, a credible program of trade liberalization should have benefited labor-intensive producers at the expense of capital-intensive ones.

Certain sectors, in particular, should have experienced marked gains in the wake of NAFTA. Any short list would include textiles, apparel, horticulture, and processed food, which require a labor-intensive mix of inputs. Many analysts added that free trade would improve the fortunes of glass and ceramic producers in Mexico, while undermining capital-intensive manufacturing. Economic actors and politicians were fully aware of these predictions during the

NAFTA debates of 1993. In the United States, organized labor opposed free trade with Mexico, as did growers in California and Florida and apparel-manufacturing interests in South Carolina, New York and Maine. The sectoral consequences of economic openness were similarly evident in Mexico and Canada. To most observers it seemed obvious who would win and who would lose from a credible policy of free trade.

3.2 A Codification of the Status Quo

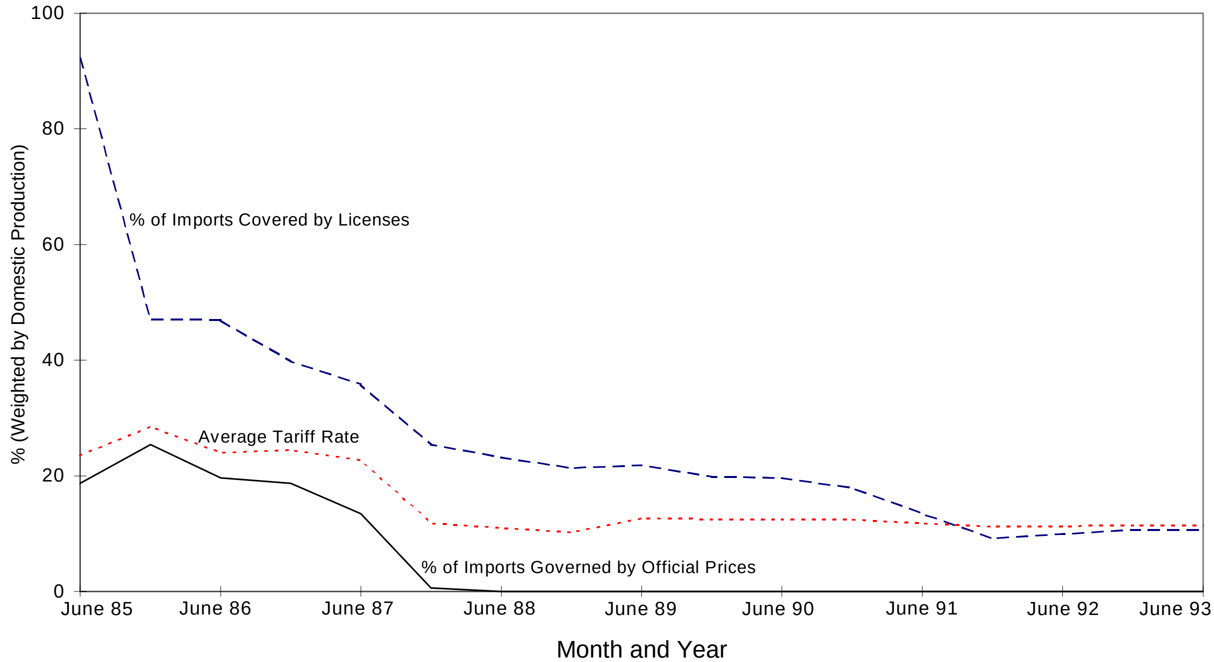
Prior to 1985, Mexico ranked among the most protectionist countries in Latin America. Quotas and licenses covered virtually all imports, the average *ad valorem* tariff exceeded twenty-five percent, and a system of official prices prevented importers from under-invoicing the products they were purchasing from abroad. As was common in other developing countries, Mexico relied most heavily on quotas and licenses to protect its domestic producers and maintain external equilibrium. Following a balance-of-payments crisis in 1981, all imports became subject to quantitative restrictions. Mild reforms began in 1983 under the leadership of President De la Madrid, but the level of protectionism remained extremely high as late as June 1985.

The following month, President De la Madrid inaugurated a program of commercial liberalization that eventually transformed Mexico from insularity into one of the most open economies in the developing world. Observers close to the President stress that the debt crisis catalyzed the reforms, which seemed necessary to modernize the productive structure and help Mexico earn foreign exchange. The disappointing performance of non-oil exports further inspired the liberalization by convincing the President and his economic team to reduce the bias against exporting enterprises. In sum, "the rapid and extensive liberalization of the merchandise trading regime which began in 1985 was part of a broader growth-oriented stabilization and adjustment program. The aim was to expand the tradables sector, and open up the economy to international competition in order to encourage efficiency in both exporting and import-substitution activities" (Dean, Desai, and Riedel 1994, 66).

Figure 1 depicts the evolution of import protection in Mexico, starting with the reforms of 1985. In July the government eliminated licenses for almost 3600 tariff lines, leaving only 908 subject to quantitative controls. Weighted by domestic production, the coverage rate of import licenses fell from ninety-two percent to forty-seven percent before the end of the calendar year. To compensate domestic industries for some of the protection they had lost, the government temporarily raised the average tariff and expanded the coverage of official prices, but these forms of protectionism soon waned as well. In less than three years, Mexico had become one of the most open economies in the developing world: quantitative restrictions had fallen by sixty-seven percent, official prices had disappeared for nearly every product, and the average tariff rate had tumbled to one-half of its earlier level.

Figure 1: Evolution of Import Protection in Mexico, 1985-93

The Mexican Government began reducing barriers to imports in June 1985. Within three years it eliminated official prices for imports and sharply curtailed tariffs and import license-coverage, Thus, the Mexican economy was effectively open prior to the NAFTA debates of 1993.



[Source: Ten Kate (1989); Mendoza (1994), 25 & 43.]

Soon after launching the reforms, De la Madrid and his administration sought Mexican membership in the General Agreement on Tariffs and Trade (GATT). Talks proceeded quickly, producing an agreement that Mexico signed in July 1986. The protocol of accession committed Mexico to reduce quantitative restrictions on imports, keep the maximum tariff below fifty percent, and abolish the system of official prices by the end of 1987.

At the time of accession, the government had already implemented or announced each of the steps required by GATT, but authorities believed that joining would make their reforms more credible. A prominent official at the Secretariat for Commerce and Industrial Development (SECOFI) offered the following rationale for accession: "Although, generally speaking, the commitments made upon joining GATT did not go beyond what had already been done under the reforms of July 1985 and what was already set forth in the tariff reduction timetable, accession to GATT was a sign of the Mexican authorities' determination to see the outward-oriented reform program all the way through, or, in other words, it was a signal that there was no turning back. This sign was considered to be important in order to increase the credibility of the program which until then had not been strong enough" (Ten Kate 1993, 249).

The use of international agreements to enhance credibility continued under the successor government of President Carlos Salinas. Shortly after Salinas took office, Mexico began exploring the possibility of a free trade agreement with the United States. At a meeting in Washington during the summer of 1990, Presidents Bush and Salinas agreed to lay the groundwork for a free trade pact. The following year, Congress granted "fast track" authority to the White House, increasing confidence that Mexico and the United States would succeed in creating a free trade area, perhaps with the participation of Canada. Trilateral negotiations began in Toronto during the summer of 1991 and ended in August 1992. NAFTA was signed in December 1992 and ratified the following November, after the parties negotiated parallel accords on labor and the environment.

As with GATT, Mexican authorities viewed NAFTA as a tool for making reforms more credible (Tornell and Esquivel 1995). Prior to the agreement, US tariffs on Mexican goods had averaged only 3.4%, Mexican barriers to trade were minimal, and protectionism between the two countries was trending downwards (USITC 1991). The Salinas administration nonetheless pursued NAFTA to formalize and vocalize a process of integration that had been occurring silently for many years. Formalization, officials thought, would increase confidence in the Mexican free trade program.

During the negotiations and debates on ratification, experts remarked that Mexico wanted international agreements like NAFTA “as a way of locking in prior domestic policy reforms" (Whalley 1993, 357). This position appeared in statements of Mexican officials at the highest level. For instance, former finance minister Silva Herzog noted that pursuing “the permanence of the present economic strategy” was a major goal of the Salinas administration, and said Mexico had advocated NAFTA for precisely this reason. The agreement to bring “more certainty, more credibility that what we plan to do today – to export to the United States – will be maintained as our policy” (Herzog 1994, 7). In his own speeches President Salinas emphasized the same point: NAFTA would contribute to a stable policy environment that would encourage domestic and foreign investment (SECOFI 1994).

In summary, North American trade was substantially free before Mexico entered NAFTA. The Salinas administration recognized this fact and intended the agreement more as a device for enhancing credibility than as a lever for reducing protectionism. Thus, if NAFTA altered the price of securities on the Mexican stock market, we can attribute most of the alteration to the credibility-enhancing effects of NAFTA rather than news of trade liberalization itself.

3.3 A Surprise for Portfolio Investors

The NAFTA proceedings of November-December 1993 offer an ideal case for assessing the consequences of agreements, not only because Mexico enjoyed a clear advantage in labor-intensive goods and had liberalized its trade policy prior to the agreement, but also because the passage of NAFTA in the United States and Canada surprised many well-informed observers.

When President Clinton sent the NAFTA implementation bill to Congress on November 3, great uncertainty existed about the position of the US House of Representatives. One Washington analyst reported at the time, “the job of rounding up votes is fraught with an unusual amount of uncertainty because many lawmakers don’t want to tip their hands a moment too soon – both because political pressure is so intense and because the opportunity to extract concessions from the administration is so great” (CQ, Nov. 6, 1993). For the next two weeks, lobbyists and reporters polled representatives in an attempt to forecast whether the legislation would pass. Most concluded that Clinton remained several dozen votes short of the 218 needed for approval in the House. Advocates of NAFTA claimed, however, that they could sway the 42 House members who had listed themselves as undecided (CD, Nov. 15, 1993).

On November 17, 1993 the House passed HR 3450, the NAFTA implementing bill, by a vote of 234-200. This victory for Clinton eliminated the final obstacle to the passage of NAFTA in the United States, since the agreement had always enjoyed solid support in the US Senate. Important for our study, the critical vote came at 10:26 p.m., well after the Mexican stock market had closed. If NAFTA increased the credibility of reform, news of the dramatic and unexpected House vote should have been capitalized in Mexican stock prices the following day.

The Mexican senate approved NAFTA on November 23 by a margin of 56-2, leaving Canada as the only hold-out. Canadians had gone to the polls on October 25 and handed a landslide victory to the Liberal party and its prime ministerial candidate, Jean Chrètien. During the campaign, Chrètien had called for the renegotiation of several key provisions of NAFTA, so observers predicted that the Liberal victory would pose a major threat to the agreement, regardless of the US House vote. Immediately after the election, Chrètien affirmed that even though the Canadian Congress had approved NAFTA, the government could block its implementation on January 1. These statements appeared prominently in Mexican newspapers and caused considerable anxiety among proponents of NAFTA (*El Financiero*, October 27-28; *La Jornada*, October 27-28).

But Chrètien eventually relented, announcing on December 2 that Canada would implement NAFTA on New Year’s Day. Nothing foreshadowed this surprise announcement, since the Liberal party had not secured any of the concessions that it was demanding (WSJ, Dec. 3). The unexpected volte-face represents our second major event.

4. Clear Evidence that Agreements Increase Credibility

The remainder of this paper presents clear evidence that NAFTA made trade reforms more credible. The data show that two critical events, the passage of NAFTA legislation in the US House of Representatives and the decision by prime minister Chrètien to implement NAFTA, caused abnormally large increases in the stock prices of labor-intensive firms on the Mexican

Bolsa. Prices rose because investors became increasingly confident that the member-states would implement NAFTA, an agreement designed to solidify the commitment to free trade in North America.

As a first step toward quantifying the impact of NAFTA, I constructed a portfolio of stocks that, according to economic theory and independent studies, would gain from a credible policy of free trade in North America. To be eligible for inclusion, a firm needed to satisfy the following two conditions: (1) belong to the apparel, textile, horticulture, processed food, ceramic or glass industry, and (2) issue stock that was traded regularly on the Mexican Bolsa for a full year prior to the first critical event and for one month after the second event took place. As explained below, data from the yearlong antecedent period provided a baseline for determining whether the events caused *abnormally* large changes in prices.

Six firms satisfied both conditions, and their names appear in Table 1. For each firm I used price data to calculate daily capital gains or losses, denominated in percentages; then I averaged across the firms to create a portfolio in which each firm received equal weight. I also constructed a smaller portfolio composed of the first four firms, representing sectors that appeared on every analyst's short list of likely winners from free trade. Data were acquired from Bloomberg, Datastream, and officials at the Bolsa Mexicana de Valores.

Table 1: Firms included in Portfolio One

These Mexican firms, representing six industries that should benefit from a credible policy of free trade, received equal weight in the first portfolio. A second, smaller portfolio excluded the ceramic and glass industries.

Name of Firm	Industry
Grupo Synkro	Apparel
Texel	Textiles
Grupo Herdez	Processed Food
Empresas la Moderna	Tobacco/Horticulture
Internacional de Ceramica	Ceramics
Vitro	Glass

If the hypothesis developed in this paper is valid, the US House vote and the declaration of prime minister Chrètien should have caused Portfolios 1 and 2 to experience abnormally large capital gains. I define an abnormal gain as the *actual* capital gain experienced by the portfolio following a critical event, minus the gain that would have been expected had the event never occurred. Let ε^*_{pt} denote the *abnormal* capital gain of portfolio p in period t, and let G_{pt} and $E[G_{pt}]$ represent *actual* and *expected* gains for the same period. Then

$$\varepsilon^*_{pt} = G_{pt} - \mathrm{E}[G_{pt}]$$

The first term on the right hand side, G_{pt}, is a known quantity, but we must model and estimate the second term.

Following the standard practice in financial econometrics (Campbell, Lo and MacKinlay 1997), I modeled the actual portfolio gain as a normally distributed random variable with constant variance σ_p^2 and assumed that its expectation was a stable linear function of G_{mt}, the capital gain in the market as a whole.

$$G_{pt} \sim \mathrm{N}\left(\mathrm{E}\left[G_{pt} \middle| G_{mt}\right] \sigma_p^2\right)$$

$$\mathrm{E}\left[G_{pt} \middle| G_{mt}\right] = \alpha_p + \beta_p G_{mt}$$

The financial literature refers to this setup as the market model, since the expectation of G_{pt} is conditional on the overall performance of the stock market (Brown and Warner 1985).

The right hand side of previous equation contains one readily available quantity, G_{mt}, the market-wide capital gain. I calculated this quantity based on the Mexican IPC, a weighed index of stock prices similar to the S&P 500 in the United States. The last equation also contains two unknown parameters, α_p and β_p. These parameters and the variance σ_p^2 were estimated by ordinary least squares regression over a period called the estimation window. This window ran for one calendar year, from November 17, 1992 until two days before the vote on HR3450 in the US House of Representatives.

Having estimated the parameters of the market model, I calculated the abnormal capital gain for each day from November 16, 1993 until the end of the calendar year according to the following formula, where the superscripted asterisks indicate that the calculation pertained to days beyond the estimation window.

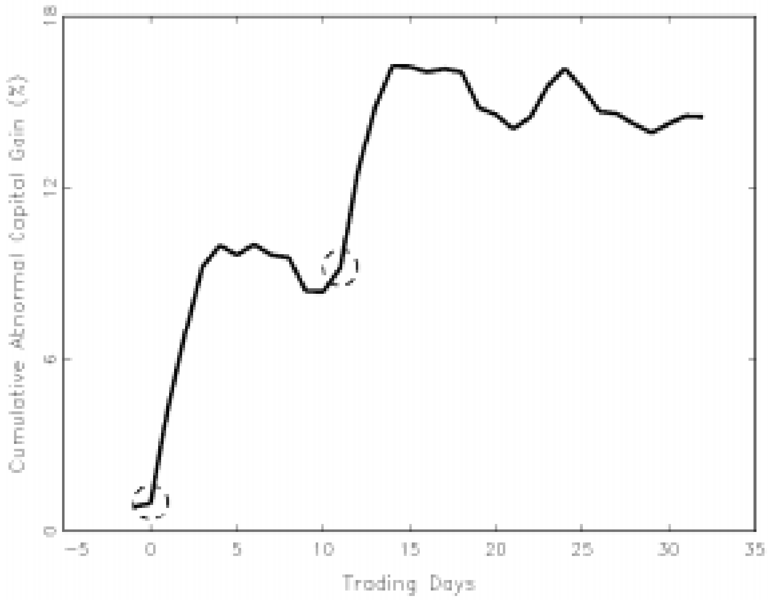
$$\hat{\varepsilon}^*_{pt} = G_{pt} - \left(\hat{\alpha}_p + \hat{\beta}_p G^*_{mt}\right)$$

Estimates of the abnormal gains are plotted in Figure 2. The horizontal axis marks time in trading days, defined as days during which the Mexican stock market was open. Our first critical event, the US House vote, occurred on day 0, and the Canadian announcement occurred 11 trading days later. The vertical axis in Figure 2 gives the running total of abnormal capital gains since trading day -1, just prior to the US House vote. A circle appears around cumulative abnormal gains corresponding to each of the two event days.

Figure 2: The Cumulative Effect of NAFTA on Selected Mexican Stocks

These plots show that two events, the passage of NAFTA legislation in the US House of Representatives and decision by Canadian prime minister Chrètien to implement NAFTA, led to abnormally large increases in the value of Portfolios 1 and 2. The events occurred on trading days 0 and 11, marked by circles, and dramatic capital gains ensued because NAFTA increased the credibility of free trade policies. Within three days of each event, the news was fully capitalized in the Mexican market and daily gains returned to normal levels, causing the curve of cumulative abnormal gains to flatten.

Estimates for Portfolio 1



Estimates for Portfolio 2

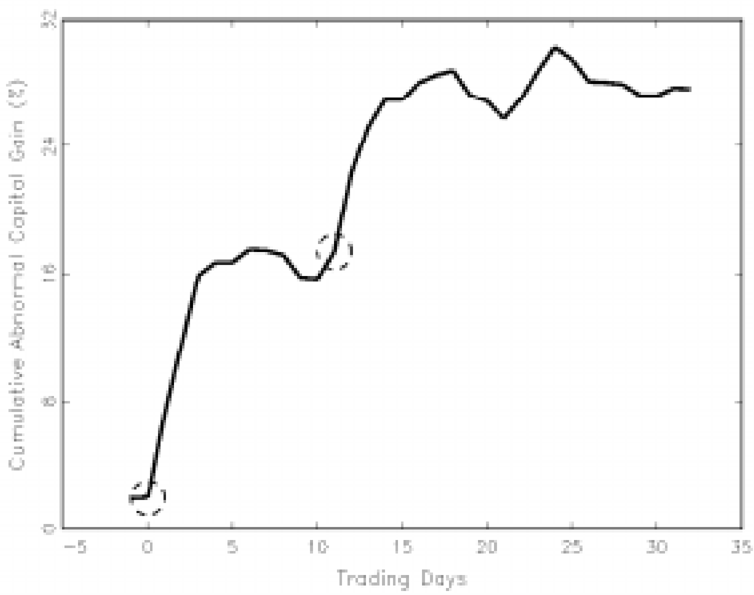


Figure 2 shows that the US House vote on day 0 caused both portfolios to register abnormally large capital gains during the next trading day. Gains returned to typical levels by day 3, causing the curve of cumulated abnormal gains to flatten until day 11. Then, news that Canada would implement NAFTA produced another striking increase in the value of the portfolios, relative to the rest of the market. Within three days the daily gains reverted to their typical levels, where they remained for the rest of the calendar year. In sum, both events caused our portfolios to outperform the market and experience much larger capital gains than would have obtained absent the agreement. These gains occurred because news about NAFTA increased the credibility of free trade policies Mexico and its major trading partners.

To confirm that gains of this magnitude did not arise from chance alone, I compared the estimated abnormal gains on November 18 and December 3 to their standard errors. Table 2 reports the results: the day after the NAFTA vote, portfolio 1 experienced an abnormal gain of 3.31%, an amount 4.5 times larger than its standard error. Since the ratio of the estimated gain to its standard error is distributed as approximately standard normal, a ratio of 4.5 indicates a near-zero probability that the gain arose by chance alone and was therefore unrelated to NAFTA. Interestingly, the Canadian approval of NAFTA led to an equally large jump in the value of the first portfolio. Results were even more striking for a portfolio composed exclusively of securities from the textile, apparel, horticulture/tobacco and processed food industries. For this portfolio the House vote and the Canadian announcement led to next-day abnormal gains of approximately 5%, values five times larger than their standard errors. We can safely conclude that the abnormally strong performance of portfolios 1 and 2 occurred because investors funneled their money into sectors of the economy that seemed likely to benefit from a credible policy of free trade.

Table 2: The Gains Did Not Arise by Chance Alone

This table reports the estimated abnormal gains accruing to portfolios 1 and 2 on the day immediately following each critical event. The estimated gains are at least 4.5 times larger than their standard errors, indicating a near-zero probability that the gains arose by chance and were unrelated to news about NAFTA.

		Portfolio 1		Portfolio 2	
Influential Event	Next Trading Day	Abnormal Capital Gain (%)	Standard Error	Abnormal Capital Gain (%)	Standard Error
US House Votes for NAFTA legislation	11/18	3.31	0.74	5.30	0.97
Canadian Prime Minister Approves NAFTA	12/3	3.32	0.74	4.91	0.97

5. Implications for Future Research

This paper has presented the strong evidence that international agreements make economic reforms more credible. As expected, the passage of NAFTA increased the credibility of free trade in North America, leading investors to allocate their funds toward labor-intensive Mexican industries. The data show that agreements can exert a powerful effect on the believability of reforms, a finding that should interest not only scholars concerned with the consequences of international institutions, but also policy makers engaged in reorienting their economies from import-substituting industrialization to export-led growth.

Future research should explore the hypothesis that credibility varies not merely with the *fact* but also with the *form* of international agreements. For instance, a customs union should generate more credibility than a free trade area for at least two reasons. First, a customs union prevents members from altering their tariffs unilaterally, just as the European Monetary System (EMS) prevents central banks from manipulating the parity without the consent of other monetary authorities. Provided that the union promotes freer trade rather than greater protectionism, the inability of any member to act unilaterally should make commercial liberalization appear more permanent. Of course, an excessively protectionist union could detract from the credibility of trade policy reforms. Chile withdrew from the Andean Pact in 1976, because it wanted to reduce tariffs more quickly and comprehensively than the other members. In this exceptional case, *withdrawing* from the Andean Pact probably made the Chilean reforms more credible. More commonly, accession to customs unions should bolster the credibility of commercial reforms and do so more effectively than free trade areas.

Second, customs unions can weaken the power of protectionist lobbies by eliminating the need for rules of origin (ROOs), which are attractive targets for rent-seeking. Both customs unions and free trade areas eliminate protectionism among member states, but FTAs allow each member to determine its own external tariffs. The diversity of tariffs risks "trade deflection," a distortion occurring when goods enter through the member with the lowest external tariffs and then pass duty-free to other countries in the area. To control the possibility of trade deflection, parties to a free trade area must establish elaborate ROOs, which unfortunately can serve protectionist objectives in non-transparent ways. Since FTA-members must negotiate ROOs for each new entrant, free trade areas create more opportunities for protectionism than do customs unions (Krueger 1995). In light of these considerations, a government that wants to make its reforms more credible should prefer a customs union over a free trade area.

Three more variations on the core hypothesis deserve attention. First, the stronger is the mechanism of dispute resolution, the more credible the commercial liberalization will be. The European Court of Justice is now cited as a strong institution for resolving disputes among members of the European Community, although scholars have only recently recognized the impressive influence of the court (Burley and Mattli 1993). Other examples of strong mechanisms include the rotating boards established by the US-Canadian free trade agreement, and the World Trade Organization that emerged from the Uruguay Round of GATT negotiations.

The WTO stands in contrast to the old GATT, which allowed defendants in trade disputes to block the investigations of dispute panels.

Another refinement of the hypothesis concerns the rules for acceding to international trade agreements. More restrictive provisions for membership should enhance the credibility of trade policy reforms. In his work on multilateralism, Robert Keohane contends that open institutions like the United Nations have difficulty coping with free-rider problems, whereas institutions that place conditions on membership are more capable of eliciting cooperation from everyone who belongs (Keohane 1990, 750-53). Keohane's analysis supports the prediction that joining an agreement like NAFTA will create more credibility than joining GATT, since NAFTA imposes strict conditions upon its members, whereas GATT allows exceptions for developing countries.

Finally, governments in the developing world can make reforms particularly credible by forging agreements with a developed partner such as the United States. From the perspective of many observers, "an FTA with the United States is the most effective instrument for ensuring that hard-fought policy reforms are not reversed by weaker (or more protectionist) future governments. An international treaty with a large and rich neighbor is harder to repudiate than national legislation" (de Melo and Panagariya 1992, 12). Likewise, commercial agreements among allies and countries with relatively stable economies will bring more credibility than agreements among hostile or unstable countries, due to the “security externalities” arising from free trade (Gowa 1989; Mansfield 1994). Future research should explore these hypotheses, thereby elevating the debate about institutional design to new levels.

References

Banks, Jeffrey S. 1991. *Signaling Games in Political Science*. Chur, Switzerland: Harwood Academic.

Brown, Stephen J. and Jerold B. Warner. 1985. "Using Daily Stock Returns: The Case of Event Studies." *Journal of Financial Economics* 14 (March): 3-31.

Burley, Anne-Marie Slaughter, and Walter Mattli. 1993. "Europe before the Court: A Political Theory of Legal Integration." *International Organization* 47, no. 1 (Winter): 41-76.

Calvo, Guillermo A. 1987. "On the Costs of Temporary Policy." *Journal of Development Economics* 27 (October): 245-61.

Campbell, John Y., Andrew W. Lo and A. Craig MacKinlay. 1997. *The Econometrics of Financial Markets*. Princeton, NJ: Princeton University Press.

Congressional Quarterly (CQ), various issues.

Congress Digest (CD), various issues.

de Melo, Jaime, and Arvind Panagariya. 1992. *The New Regionalism in Trade Policy*. Washington, DC: World Bank.

Dean, Judith M., Seema Desai, and James Riedel. 1994. *Trade Policy Reform in Developing Countries since 1985: A Review of the Evidence*. Discussion Paper 267. Washington, DC: World Bank.

Domínguez, Jorge I. 1982. "International Reverberations of a Dynamic Political Economy." In *Mexico's Political Economy: Challenges at Home and Abroad*, ed. J. I. Domínguez. Beverly Hills: Sage.

Dornbusch, Rudiger. 1992. "The Case for Trade Liberalization in Developing Countries." *Journal of Economic Perspectives* 6 (Winter): 69-85.

Dornbusch, Rudiger. 1993. "Comment." In *Striving for Growth after Adjustment: The Role of Capital Formation*, ed. Luis Serven and Andres Solimano. Washington, DC: World Bank.

El Financiero, various issues.

Froot, Kenneth A. 1988. "Credibility, Real Interest Rates, and the Optimal Speed of Trade Liberalization." *Journal of International Economics* 25 (August): 71-93.

Gould, David M. 1992. Free Trade Agreements and the Credibility of Trade Reforms. *Economic Review of the Federal Reserve Bank of Dallas*. (January): 17-27.

Gowa, Joanne. 1989. "Bipolarity, Multipolarity, and Free Trade." *American Political Science Review* 83 (December): 1245-56.

Greenway, David, and Chris Milner. 1991. "Fiscal Dependence on Trade Taxes and Trade Policy Reform." *Journal of Development Studies* 27 (April): 95-132.

Herzog, Jesús Silva. 1994. "Introduction." In *Mexico and the North American Free Trade Agreement: Who Will Benefit?*, ed. Victor Bulmer-Thomas, Nikki Craske, and Mónica Serrano. London: MacMillan.

Hudec, Robert E. 1993. *Enforcing International Trade Law: The Evolution of the Modern GATT Legal System*. Salem, NH: Butterworth Legal Publishers.

INEGI. 1997. *Banco de Información Económica: Balanza Comercial por Zonas Geoeconómicas y Principales Países*. Available by internet at www.inegi.gob.mx.

La Jornada, various issues.

Keohane, Robert O. 1990. "Multilateralism: An Agenda for Research." *International Journal* 45 (Autumn): 731-64.

Krueger, Anne O. 1995. "Free Trade Agreements versus Customs Unions." Mimeo, Stanford University.

Lavagna, Roberto. 1995. Personal Interview with the Author. Center for International Affairs, Harvard University.

Leamer, Edward E. 1993. "Wage Effects of a U.S.-Mexican Free Trade Agreement." In *The Mexico-U.S. Free Trade Agreement*, ed. Peter M. Garber. Cambridge, MA: MIT.

Mansfield, Edward D. 1994. "Alliances, Preferential Trading Arrangements and Sanctions." *Journal of International Affairs* 48 (Summer): 119-39.

Mendoza, Herminio Blanco. 1994. *Las negociaciones comerciales de México con el mundo.* Mexico: Fondo de Cultura Económica.

Michaely, Michael, Demetris Papageorgiou, and Armeane M. Choski. 1991. *Liberalizing Foreign Trade, Vol. 7: Lessons of Experience from the Developing World.* Cambridge, MA: Basil Blackwell.

Morgenthau, Hans J., and Kenneth W. Thompson. 1985. *Politics among Nations: The Struggle for Power and Peace*. 6th ed. New York: Alfred A. Knopf.

Morici, Peter. 1993. "Grasping the Benefits of NAFTA." *Current History* 92 (February): 49-54.

Ramirez, David. 1997. "Reacciones a la caída de la Emergencia: Colombia Modifica Temporalmente sus Aranceles para Importación," *Informe Economico* 13 (March 13).

Ramirez, Marta Lucía. 1997. Personal interview with the author. Kennedy School of Government, Harvard University, June 18.

Rodrik, Dani. 1992. "The Limits of Trade Policy Reform in Developing Countries." *Journal of Economic Perspectives* 6 (Winter): 87-105.

Rogowski, Ronald. 1989. *Commerce and Coalitions: How Trade Affects Domestic Political Alignments*. Princeton, NJ: Princeton University Press.

SECOFI. 1994. *Tratado de Libre Comercio de América del Norte: Documentos Basicos.* Mexico, D.F.: Secretaria de Comercio y Fomento Industrial.

Ten Kate, Adriaan. 1993. "Structural Adjustment in Mexico: Two Different Stories." In *Trade and Growth: New*

Dilemmas in Trade Policy, ed. Manuel R. Agosin and Diana Tussie. New York: St. Martin's Press.

Ten Kate, Adriaan and Fernando de Mateo Venturini. 1989. “Apertura commercial y estructura de la protección en México: Estimaciones cuantativas de los ochenta.” *Comercio Exterior* 39 (April): 312-29.

Thomas, Vinod, and John Nash. 1991. *Best Practices in Trade Policy Reform*. New York: Oxford University Press.

Tornell, Aaron and Gerardo Esquivel. 1995. “The Political Economy of Mexico’s Entry to NAFTA,” NBER Working Paper 5322. Cambridge, MA: National Bureau of Economic Research.

USITC (U.S. International Trade Commission). 1991. *The Likely Impact on the United States of a Free Trade Agreement with Mexico*. USITC Publication 2353. Washington, DC: United States International Trade Commission.

van Wijnbergen, Sweder. 1992. “Trade Reform, Policy Uncertainty, and the Current Account: A Non-Expected Utility Approach.” *American Economic Review* 82 (June): 626-33.

Wall Street Journal (WSJ), various issues.

Whalley, John. 1993. “Regional Trade Arrangements in North America: CUSTA and NAFTA.” In *New Dimensions in Regional Integration*, ed. J. De Melo and A. Panagariya. Cambridge: Cambridge University Press.

Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*. New York: Free Press.