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How Might Financial Institutions React to Glass–Steagall Repeal? Evidence from the Stock Market

David P. Ely and Kenneth J. Robinson

Managing Cross-Border Settlement Risk: The Case of Mexican ADRs

Sujit "Bob" Chakravorti

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Managing Cross-Border Settlement Risk: The Case of Mexican ADRs

Sujit "Bob" Chakravorti

Recent and proposed changes to the clearance and settlement process for Mexican securities should ease considerably the difficulties associated with cross-border transactions, including those involving American Depositary Receipts.

Technological advances and a global securities market enable individuals to buy shares of foreign companies with a click of the computer mouse. Such investors rarely ponder the underlying intricacies involved because these cross-border transactions usually occur without problems. This article analyzes the international transfer of funds and securities and one financial market's commitment to improving the process.

Deregulation of financial markets around the world, together with new technology, has led to rapid increases in the value and volume of cross-border transactions and capital flows, especially to emerging markets. Daily foreign exchange turnover rose from $717 billion in 1989 to $1,572 billion in 1995 (Bank for International Settlements 1996a). From 1990 to 1996, annual private capital flows to emerging markets increased dramatically, rising from $45.7 billion to $235.2 billion (Folkerts-Landau, Mathieson, and Schinasi 1997).

With the increase in cross-border transactions, risks in financial markets have also increased (Federal Reserve Bank of Kansas City 1997; Group of Thirty 1997). In the global marketplace, the failure of a participant in one part of the world may have dire consequences for participants elsewhere. Such a crisis occurred in the foreign exchange market when the authorities closed Bankhaus Herstatt in 1974. At the time it was closed, the German bank was involved in foreign exchange transactions that had not been completely settled. The bank had received Deutsche mark payments from foreign exchange transactions but was closed before it could deliver U.S. dollars to its counterparties. The Herstatt case highlighted the potential for problems caused by different parts of foreign exchange transactions settling at different times in different countries. This type of risk has become known as Herstatt risk, or foreign exchange settlement risk.[1]

Differences in settlement times are also common in the settlement of cross-border securities transactions. Various components of a transaction may settle in different countries on different days. This article focuses on the difference in the Mexican and U.S. settlement periods. In Mexico, securities transactions are settled two business days after a trade, whereas in the United States these transactions are settled three business days after a trade.[2] This difference in settlement periods can increase the risk of settlement fails in Mexico.

This article analyzes steps taken by Bolsa Mexicana de Valores (BMV)—the Mexican stock

This article is based on interviews and correspondence with market participants, financial market regulators, and clearinghouse operators. I would like to thank Jorge Familiar, Alfonso de Lara, Hector Perez Galindo, Rhys Jones, Gerardo Orendáin, José Quijano, Alicia Rodriguez, Ruben Shiffman, Francisco Solís, Lilia Sumiko, and the staffs of various banks and brokerage houses for providing details on the workings of the Mexican securities market.

[1] For a discussion of foreign exchange settlement risk, see Chakravorti (1995) and Bank for International Settlements (1996b).

[2] In this article, I focus on the clearance and settlement of equity transactions.

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exchange—and S.D. Indeval to reduce settlement fails resulting from cross-border securities transactions. Indeval is responsible for clearing and settling securities transactions. It does so by operating Sistema Interactivo para el Depósito de Valores (SIDV), the Mexican securities transfer system, and is the central securities depository. The BMV and Indeval impose penalties on participants that do not settle on time, and they have created an electronic securities lending facility. To further improve the efficiency and liquidity of the settlement process, Indeval has proposed that a clearinghouse be established. These initiatives help ensure the timely settlement of securities in Mexico and reduce both general and cross-border settlement risk. (See the glossary on page 22 for a definition of this and other terms in this article.)

SECURITIES CLEARANCE AND SETTLEMENT

The severe downturn in global stock markets in 1987 led to the recognition that securities clearance and settlement systems worldwide needed strengthening. In October 1987, substantially increased volume and price volatility increased the financial risks to clearinghouses and their members (U.S. Securities and Exchange Commission 1988). The Brady Report, the product of a presidential task force created to study the October 1987 stock market downturn, suggested that problems with securities clearance and settlement systems resulted in less liquid markets, leading to increased investor uncertainty (Presidential Task Force on Market Mechanisms 1988).[3] Gerald Corrigan, then president of the Federal Reserve Bank of New York, later said that "the greatest threat to the stability of the financial system as a whole in that period [October 19–26, 1987] was the danger of a major default in one of these clearing and settlement systems" (Corrigan 1990, 129).[4]

The 1987 incident also highlighted the strong international linkages of national securities markets. As a result, central banks and other financial regulators started coordinating their efforts to strengthen domestic clearing and settlement systems (Bank for International Settlements 1992, Group of Thirty 1989, Organization for Economic Cooperation and Development 1991, U.S. Securities and Exchange Commission 1988, Stehm 1996). The need for coordination continues to be a major issue in the international financial community.

In 1989 the Group of Thirty, a private-sector nonprofit organization concerned with the workings of international financial markets, recommended improvements that have since become standards for securities clearance and settlement systems. (See the box entitled "Group of Thirty Recommendations for Securities Clearing and Settlement" for a complete list.) One of the nine recommendations was that securities markets reduce their settlement period to $T + 3$, where settlement occurs three business days after the trade date, T.

In June 1995 the U.S. securities market moved to $T + 3$ settlement from $T + 5$, the trade date plus five business days. When the move to $T + 3$ was proposed, individual investors were concerned that because of the time required to send checks and securities by mail, the shorter period would limit their participation in the securities market. Another obstacle to moving to $T + 3$ settlement was the flow of information between the various participants in a transaction during the clearing process. Greater coordination between investment managers (firms that order a trade), broker-dealers (firms that execute a trade), and securities custodians (firms responsible for the safekeeping of securities) would be necessary to settle at $T + 3$ than at $T + 5$. (For a description of these interactions, see Weiss 1993, chapter 12.)

These obstacles were overcome, and the subsequent move to $T + 3$ resulted in safer clearance and settlement systems. The report issued by the Bachmann Task Force (1992) calculated that the move could reduce by up to 58 percent the risk faced by National Securities Clearing Corporation (NSCC), the primary provider of centralized clearance, settlement, and information services to the U.S. securities market. The implementation of $T + 3$ settlement resulted in a decrease in settlement fails, and today financial analysts agree that the move benefited all participants by reducing settlement and systemic risk (Levitt 1996, Grasso 1996, Lindsey and Pecora 1997).

Although the Group of Thirty recommended $T + 3$ settlement, an even shorter period may be preferable. Grasso (1996), Levitt (1996), and Litan (1997) argue that a shorter period could further reduce risk because it would reduce participants' credit exposure to their counterparties. However, Levitt identifies potential impediments to adopting same-day settlement. First, individual investors who choose to hold the physical securities or who are registered shareholders instead of holding stocks in "street name" might be unable to participate fully because sufficient time might not be available to deliver the securities.[5] The Bachmann Task Force (1992) suggested that

[3] Improvements to the clearance and settlement of securities in the United States were implemented as a result of the 1987 stock market downturn. For details, see Lindsey and Pecora (1997).

[4] Although clearance and settlement problems did not cause extended stoppages to U.S. securities markets, the Hong Kong Futures Exchange experienced problems that led to its closure for four days in October 1987. See Folkerts-Landau et al. (1995).

[5] When securities are registered in street name, they are registered in the name of a brokerage house, bank, or depositary. Such securities are easier to process since they are ready for delivery.

Group of Thirty Recommendations for Securities Clearing and Settlement

1. Trade Comparison
By 1990, all comparisons of trades between direct market participants (that is, brokers, broker/dealers, and other exchange members) should be accomplished by T + 1.

2. Trade Affirmation
Indirect market participants (such as institutional investors, or any trading counterparties which are not broker/dealers) should, by 1992, be members of a trade comparison system which achieves positive affirmation of trade details.

3. Central Securities Depository
Each country should have an effective and fully developed central securities depository, organized and managed to encourage the broadest possible industry participation (directly and indirectly), in place by 1992.

4. Trade Netting System
Each country should study its market volumes and participation to determine whether a trade netting system would be beneficial in terms of reducing risk and promoting efficiency. If a netting system would be appropriate, it should be implemented by 1992.

5. Delivery Versus Payment
Delivery versus payment (DVP) should be employed as the method for settling all securities transactions. A DVP system should be in place by 1992.

6. Same Day Funds
Payments associated with the settlement of securities transactions and the servicing of securities portfolios should be made consistent across all instruments and markets by adopting the "same day" funds convention.

7. T + 3 Settlement
A "Rolling Settlement" system should be adopted by all markets. Final settlement should occur on T + 3 by 1992. As an interim target, final settlement should occur on T + 5 by 1990 at the latest, except where it hinders the achievement of T + 3 by 1992.

8. Securities Lending
Securities lending and borrowing should be encouraged as a method of expediting the settlement of securities transactions. Existing regulatory and taxation barriers that inhibit the practice of lending securities should be removed by 1990.

9. Common Message Standard
Each country should adopt the standard for securities messages developed by the International Organisation for Standardisation [ISO Standard 7775]. In particular, countries should adopt the ISIN [International Securities Identification Number] numbering system for securities issues as defined in the ISO Standard 6166, at least for cross-border transactions. These standards should be universally applied by 1992.

SOURCE: Group of Thirty (1989).

individual investors be charged a fee for the issuance of securities in paper form and be required to deliver the securities to their brokers before selling them. Second, as described above, various parties may be involved in a securities transaction. Changes in current business practices, such as when trades between the different parties involved are confirmed, would be necessary before the settlement period could be reduced further.[6]

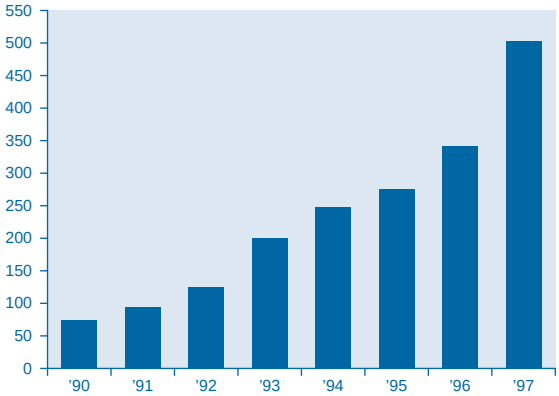
Securities in Mexico are settled two business days after the trade date.[7] The short settlement period is possible because all exchange-traded securities must be deposited with Indeval, the only central securities depository in Mexico. Furthermore, tax incentives ensure that almost all equity trades are made via the exchanges. Because, for the most part, the physical securities are stored with Indeval, book-entry transfers are possible for almost all transactions, allowing shorter settlement periods.

Mexican participants are concerned about settlement delays in their market resulting from cross-border transactions involving foreign markets where the settlement period is longer. The longer U.S. settlement period, for example, complicates timely settlement of cross-border transactions because one part of the transaction is settled at $T + 2$ in Mexico while the other part is settled at $T + 3$ in the United States. However, financial market participants, exchanges, and clearinghouses have increased the likelihood of timely settlement in Mexico by imposing penalties for late settlement, increasing the efficiency of the settlement process, and improving the liquidity of the underlying securities.

American Depositary Receipts

A description of the trading, clearing, and settling of an American Depositary Receipt (ADR), a popular instrument U.S. investors use to participate in foreign markets, provides a framework for discussing cross-border settlement risk in the Mexican context. (For a discussion of the benefits and types of ADRs, see the box entitled "American Depositary Receipts" on page 17.) What have become known as depositary banks began issuing ADRs in 1927. After receiving the underlying shares in the home country of the firm that issued them, the deposi-

Chart 1
Trading in Listed Depositary Receipts
Billions of U.S. dollars



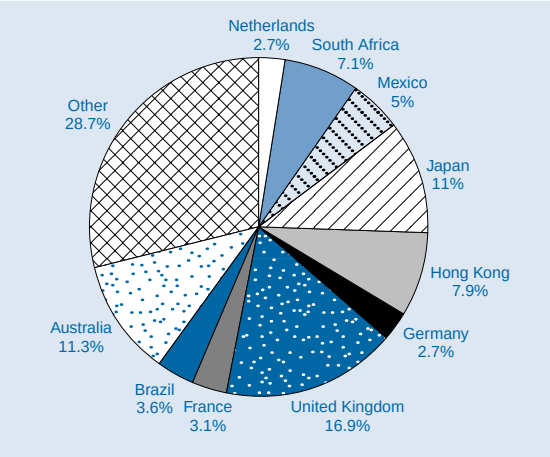
NOTES: Trading volume data is for Depositary Receipts (ADRs and GDRs) listed on U.S. exchanges only. In 1997, listed programs accounted for 457 of the 1,358 programs.

SOURCE: Bank of New York (1998).

[6] According to Levitt (1996), in November 1995 less than 10 percent of the institutional trades submitted to Depository Trust Company, the main securities depository in the United States, had settlement instructions at *T*.

[7] In Mexico government and bank securities settle at *T*.

Chart 2
Distribution of Depositary Receipt Programs, 1997



NOTE: In 1997 there were 1,358 Depositary Receipt programs, 292 of them unsponsored.

SOURCE: Bank of New York (1998).

tary bank in the United States issues ADRs that are dollar-denominated negotiable instruments. (For details on ADRs, see Coyle 1995, Deutsche Morgan Grenfell 1996, Riley 1998.) ADRs can be traded over the counter or on exchanges.

ADR programs can be either sponsored and unsponsored. To start a sponsored program, foreign firms can approach depositary banks directly or use broker-dealers to set up depositary contracts. All exchange-traded ADRs must belong to a sponsored program, in which a depositary contract exists between the depositary bank and the foreign firm issuing the shares.[8] To start an unsponsored program, broker-dealers set up programs with depositary banks without informing the foreign firm that issued the underlying shares. Regardless of the type of program chosen, the U.S. Securities and Exchange Commission (SEC) must be notified.

According to a study commissioned by Citibank, 51 percent of U.S. portfolio managers prefer making foreign investments through ADRs to directly purchasing shares in the local market (Citibank 1996). Some U.S. market participants that otherwise restrict themselves to investments in domestic securities participate in ADRs because they are treated as U.S. securities, even though they are fully backed by foreign shares. During the 1990s, the trading volume in these instruments has increased dramatically. Dollar volume for exchange-listed ADRs and Global Depositary Receipts (GDRs) rose from $75 billion in 1990 to $503 billion in 1997 (*Chart 1*).[9]

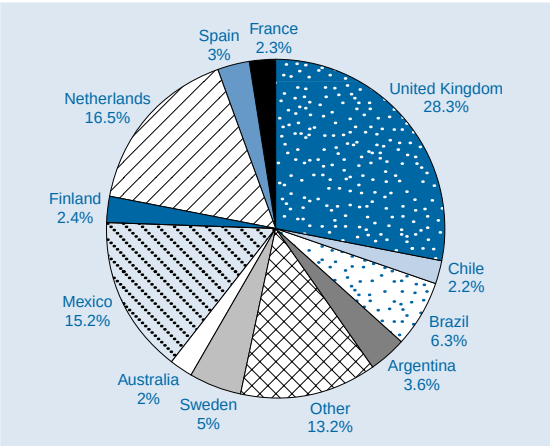
In 1997 Mexico did not rank among the world leaders in the number of ADR and GDR programs. But in terms of ADR and GDR share volume on U.S. exchanges, Mexico trailed only the United Kingdom and the Netherlands with 15.2 percent (*Charts 2 and 3*). Nearly 100 Mexican companies have ADR programs. However, the majority of the trading occurs in thirty companies (Riley 1998).

ADR Purchase

When U.S. investors place a buy order for Mexican ADRs with U.S. brokers, the brokers have two means of purchasing the ADRs: (1) the brokers can purchase existing ADRs in the U.S. market, making what is known as an intramarket trade, or (2) they can purchase the underlying shares in Mexico and have a depositary bank issue ADRs.[10] Most ADR transactions are intramarket trades. However, if the U.S. market lacks sufficient liquidity, brokers access the Mexican market. The creation of each ADR usually starts with the purchase of the underlying shares in Mexico.

In the first case—intramarket trades—existing ADRs trade, clear, and settle like any U.S. security. These securities usually clear and settle through the Depository Trust Company (DTC) and settle at $T + 3$ (see Chart 4a).[11] ADRs can be held in physical form, but most are held in book-entry form. In the second case, U.S. brokers purchase the underlying shares, either through their Mexican offices or a Mexican

Chart 3
Depositary Receipt Dollar Trading Volume, 1997



NOTE: Trading volume data is only for Depositary Receipts (ADRs and GDRs) listed on U.S. exchanges, accounting for 457 of the 1,358 Depositary Receipt programs in 1997.

SOURCE: Bank of New York (1998).

[8] Some unsponsored ADR programs that existed before the Securities Exchange Acts of 1933 and 1934 are exempt from this rule.

[9] Global Depositary Receipts are depositary receipts that trade in more than one country. The GDRs included in these figures trade in the United States and at least one other country. However, GDRs need not trade in the United States, although most do.

[10] This article uses the terms *brokers* and *broker-dealers* interchangeably.

[11] In addition to being a central securities depository, the DTC is a clearinghouse for securities transactions for member banks and broker-dealers. Both the DTC and the NSCC are involved in the clearance and settlement of securities in the United States. After netting securities transactions among its members, the NSCC settles the net securities positions on the books of the DTC. For more on the DTC's role, see Depository Trust Company (1996) and Citibank (1998).

For simplicity, I have not included the NSCC's possible role in netting these transactions. By using the NSCC, participants reduce their cost of transacting due to the multilateral netting of a given type of security and the netting of funds.

Chart 4a

U.S. Broker Buys ADR in U.S. Market

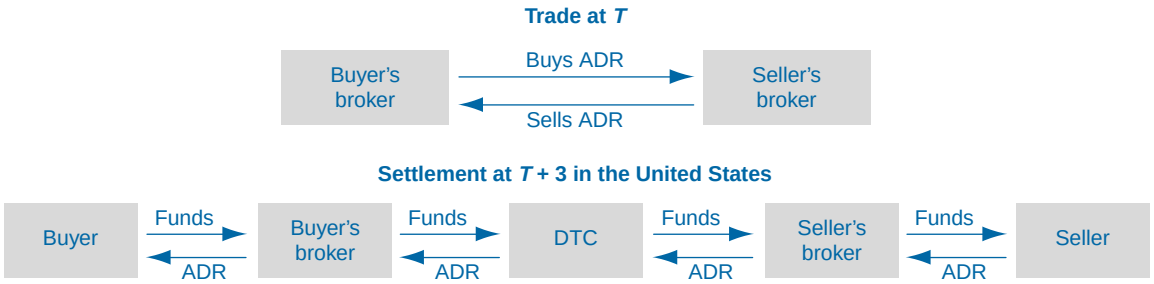
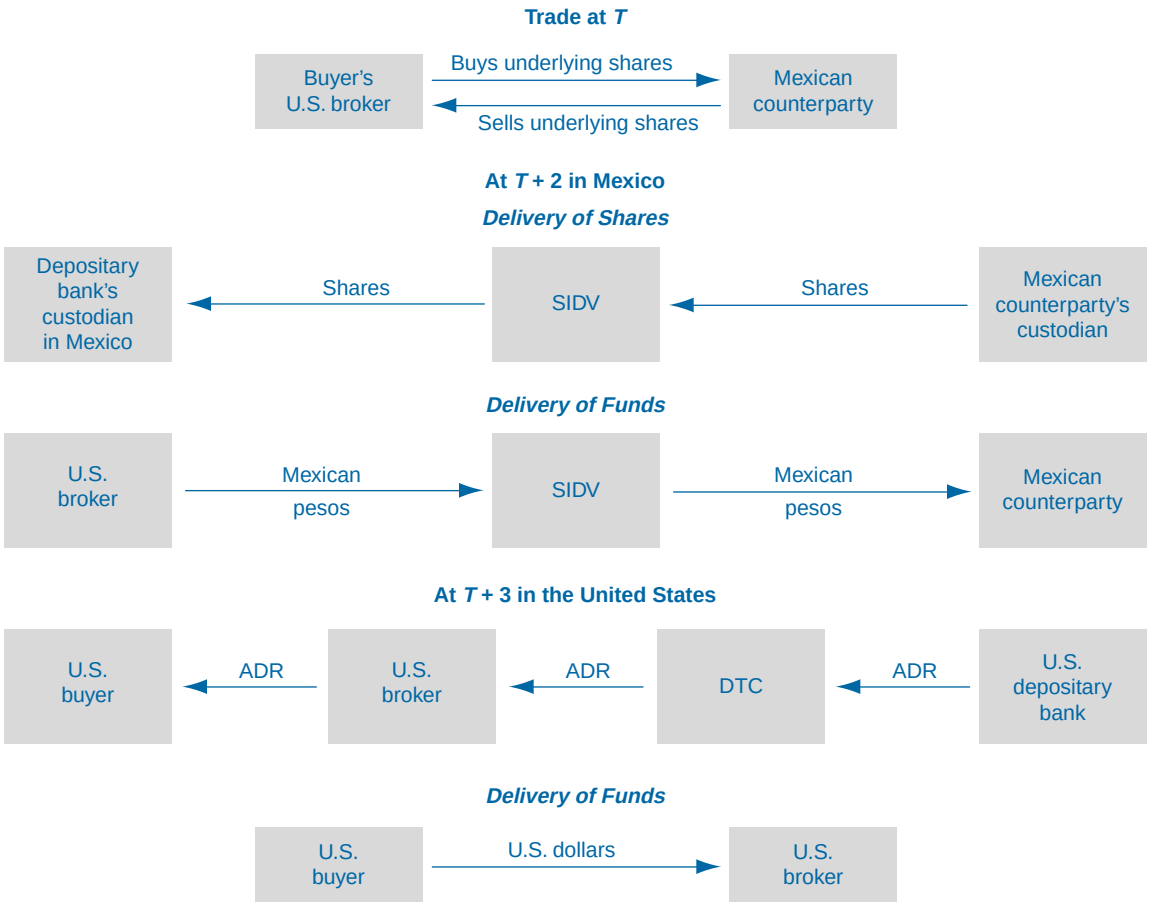


Chart 4b

U.S. Broker Buys Underlying Shares in Mexican Market



agent. Such transactions are cleared and settled via the SIDV. (For a diagram of these transactions, see Chart 4b.) At $T + 2$, settlement day in Mexico, the U.S. broker delivers Mexican pesos to a Mexican agent that in turn delivers these funds to the SIDV. However, in most cases the U.S. buyer only delivers U.S. dollars to a broker at $T + 3$ in the United States. This asymmetry in timing exposes the U.S. broker to credit risk because the broker could deliver funds in Mexico before receiving funds in the United States.[12] To reduce or eliminate this exposure, the broker could extend a line of credit—which may be collateralized—to the customer or could collect funds from the customer at $T + 2$, the settlement date in Mexico. In any case, acquiring funds is easier than acquiring the underlying securities since Mexican money markets are very liquid, whereas a given security may be considerably less liquid.[13] Although the

[12] The risk faced by the broker is the potential price decrease between when the security was purchased and the price at $T + 3$ if the U.S. investor does not deliver funds. Furthermore, the broker faces the risk that the peso will depreciate vis-à-vis the dollar if the broker has to liquidate its position because the U.S. investor fails to deliver dollars at $T + 3$.

[13] For SIDV transactions, participants settle the net funds position at the end of the day. Netting the funds side for all transactions in a given day generally reduces a participant's liquidity needs. See Chakravorti (1997a).

U.S. broker may be exposed to credit risk, the risk of settlement fail caused by the inability to deliver funds is minimal.

On the securities side of the transaction, the Mexican counterparty instructs its custodian to deliver the underlying shares to the depositary bank's custodian in Mexico at $T + 2$. These transactions are settled using delivery versus payment, whereby the funds are only delivered to the seller if the securities are delivered to the buyer. After receipt of the underlying shares in Mexico, the depositary bank issues the ADR and delivers it to the broker via the DTC in the United States at $T + 3$.[14] Also at $T + 3$, the U.S. buyer delivers dollars to the U.S. broker in exchange for the ADR.

ADR Sale

When an investor wants to sell an ADR through a U.S. broker, the broker can either make an intramarket trade or sell the underlying shares in Mexico.[15] If the trade is an intramarket one, the transaction usually settles via the DTC at $T + 3$ (see Chart 5a).

A U.S. broker that decides to access the Mexican market searches for a buyer for the underlying shares (see Chart 5b). The U.S. broker may use a Mexican agent to sell the underlying shares. At $T + 2$, in most cases, the depositary bank does not instruct its custodian to release the underlying Mexican shares.[16] Thus, for settlement to occur the U.S. broker must obtain the shares elsewhere. If the U.S. broker has the needed shares in its own portfolio, the broker could use those shares. If the U.S. broker does not own the shares needed for settlement, the broker or its agent would borrow the shares from the securities lending market. If this market lacks sufficient liquidity, a settlement fail would occur.

On the funds side, the Mexican counterparty delivers funds via the SIDV to the U.S. broker at $T + 2$. After receiving the funds in pesos, the seller's broker converts it into dollars and credits the seller's account at $T + 3$. However, as mentioned above, all SIDV transactions are settled using delivery versus payment. Thus, if the underlying securities are not delivered, the seller does not receive the corresponding amount of funds. If the transaction fails at $T + 2$, it will most likely be settled at $T + 3$ when the depositary bank releases the underlying shares.

In the next section, I discuss recently established penalties for late settlement and a new securities lending facility that allows brokers to borrow securities to make settlement. I also discuss a proposed clearinghouse that would net securities transactions involving the same type of security, resulting in the need for fewer securities to settle a day's transactions. All these reforms should help foreign participants meet their settlement obligations when a depositary bank does not release the underlying shares at $T + 2$.

American Depositary Receipts

By using American Depositary Receipts, foreign companies are able to increase their investor base and visibility and, with certain types of ADR programs, raise capital. For U.S. investors that are not active traders in the home country of the ADR, the cost of investing in these instruments is considerably less than the cost of directly accessing the home country's securities market.

ADRs are issued by depositary banks, whose functions for their clients include disseminating financial and shareholder meeting information about the foreign companies and making dividend payments in U.S. dollars. The price of the ADR should be close to the price of the underlying shares because if arbitrage opportunities existed investors would buy from the market offering the lower price and sell in the one with a higher price until the profit opportunity disappeared. In globally linked financial markets these opportunities should not last long, if they do exist. However, investors do face foreign exchange rate risk because the dollar price may change due to exchange rate fluctuations. The number of ADR programs has grown from fewer than 800 in 1991 to about 1,800 today (Riley 1998).

There are five main types of ADR programs—unsponsored, sponsored–level 1, sponsored–level 2, sponsored–level 3, and restricted. An unsponsored program is initiated by a U.S. bank or broker and may not involve the foreign corporation that issued the shares. Unsponsored programs face less stringent requirements than sponsored programs. With sponsored programs, formal agreements—called deposit agreements—exist between the foreign issuer and the depositary bank. Sponsored–level 1 programs trade over the counter and are not subject to as rigorous regulation by the SEC as the two other sponsored programs. Sponsored–level 2 programs allow shares to be listed on a U.S. exchange if exchange rules and more stringent SEC requirements are met. However, these ADR programs cannot be used for public offerings. In other words, firms may not use this type of program to raise capital. Sponsored–level 3 ADR programs allow public offerings, and most meet full SEC disclosure in addition to the requirements for sponsored–level 2 ADR programs. Restricted ADRs, or Rule 144A ADR programs, are private placements with qualified institutional buyers as defined by SEC Rule 144A, introduced in April 1990 to stimulate capital raising by foreign corporations.

MEXICAN REFORMS

In the Mexican securities market, a significant portion of settlement fails results from cross-border transactions. To reduce these fails, the BMV, Indeval, and financial authorities have embarked on a series of reforms. Not only do these improvements reduce cross-border settlement risk, but they also improve efficiency and reduce settlement risk in all transactions. The greater liquidity and safer clearance and settlement process resulting from the reforms should make the Mexican securities market more attractive to foreign investors.

Timely Settlement

To promote timely settlement, institutions responsible for clearance and settlement must establish clear rules and impose penalties on participants when needed. Otherwise, market

[14] In foreign markets where the settlement period is longer than $T + 3$, the depositary bank usually waits to issue the ADR until it has received the foreign shares. The depositary bank may release the ADR before having custody of the shares, but cash collateral and proof of ownership are usually required for the issuance of the ADR.

[15] Usually, the U.S. broker accesses the Mexican market if unable to sell the ADR in the U.S. market or to offset a transaction that it was part of in Mexico.

[16] If the depositary bank releases the underlying shares without possession of the corresponding ADRs, it assumes the default risk up to the full value of the underlying shares. In other words, if the ADRs are not delivered to the depositary bank, it would still have outstanding ADRs that would need to be backed by shares of the foreign firm.

Chart 5a

U.S. Broker Sells ADR in U.S. Market

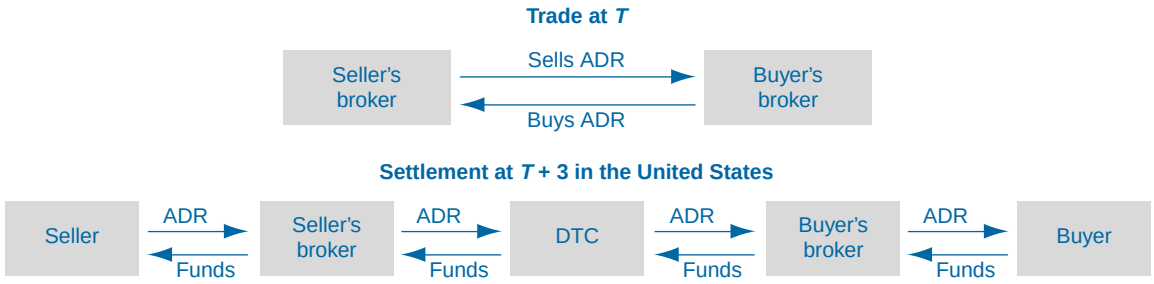
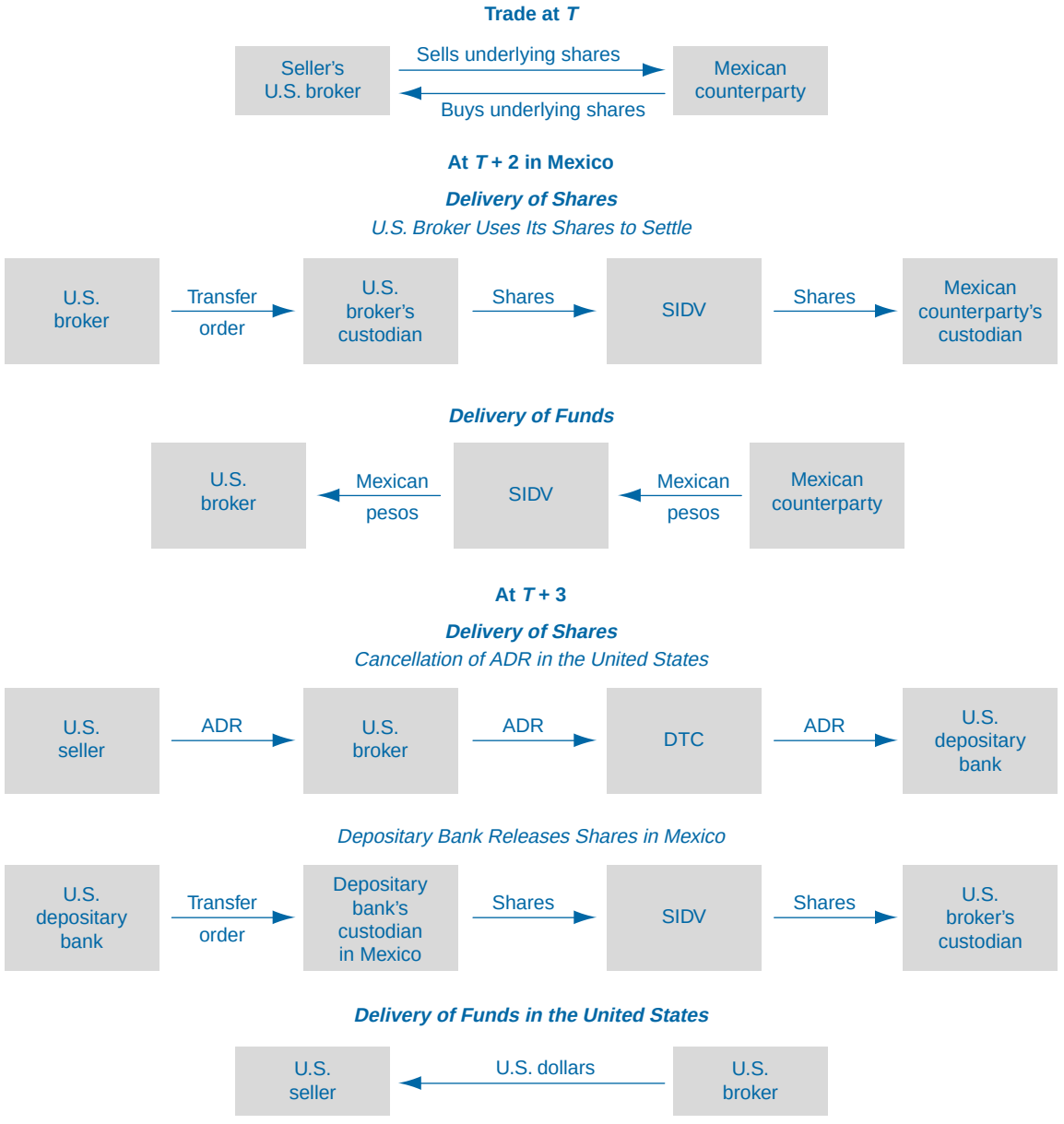


Chart 5b

U.S. Broker Sells Underlying Shares in Mexican Market



participants may lack the incentive to settle on time. Market participants in Mexico point to the difference in U.S. and Mexican settlement periods as the cause of the majority of settlement fails. As shown in Chart 5b, the delivery of an ADR to a depositary bank occurs at $T+3$, but the settlement of underlying shares occurs at $T+2$. If the depositary bank is unwilling to release the shares before receiving the ADR in the United States, and if the U.S. broker or its Mexican agent is unable to acquire shares from another source to make settlement, the cross-border transaction results in a settlement fail.

To provide an incentive to settle on time, in April 1997 the BMV established penalties for late settlement, along with buy-in and sellout procedures for transactions not settled by $T+5$. Currently, the BMV calculates price differentials and imposes the appropriate penalties on participants unable to make timely settlement. If settlement does not occur at $T+2$, the penalty is based on when settlement does occur. If settlement occurs at $T+3$, the penalty is the amount of the position of the party unable to settle multiplied by TIIE (Tasa de Interés Interbancario de Equilibrio), the domestic interbank rate. Whether or not settlement is achieved at $T+3$, the party unable to settle must deliver the penalty amount to the counterparty at $T+3$. If settlement occurs at $T+4$, the penalty is twice the TIIE multiplied by the value of the transaction and must be delivered by the party unable to make settlement to the counterparty. If settlement has not occurred by $T+5$, the party unable to settle must pay three times the TIIE multiplied by the value of the transaction at $T+5$.

In addition, if the trade remains unsettled at $T+5$, the party able to make settlement invokes a buy-in or sellout.[17] If the party unable to settle is the seller, then a buy-in procedure is conducted. In a buy-in, the security is bought on the market by the buyer, and the seller must pay the difference between the market price and the agreed selling price, plus the penalty. If the agreed selling price is above the market price at $T+5$, no price differential is collected from the seller and the buyer acquires the securities at the lower price. If the party unable to settle is the buyer, a sellout procedure is used. In a sellout, the security is sold and the buyer must pay the difference between the agreed trade price and the market price, plus the penalty. If the market price is higher than the agreed trade price, the buyer does not pay the price difference and the seller receives the higher market price from the sale at $T+5$.

Between April 1997 and February 1998, the average monthly percentage of trades that failed—that is, trades in which one party could not make settlement—was 0.16 percent. Of these fails, almost 77 percent were settled at $T+3$, 22 percent were settled at $T+4$, and less than 1 percent went into a buy-in procedure. The sellout procedure was never initiated. In other words, in none of the settlement fails was the buyer unable to deliver funds eventually.[18]

Increasing Liquidity at Settlement

The imposition of penalties for settlement fails may raise the cost of transacting in the Mexican market for brokers that sell shares underlying ADR sales in the United States. This is because the delivery of the underlying shares usually occurs at $T+3$. These brokers have two options for avoiding the penalty. First, they can carry reserves of the underlying securities and use them for settlement; however, the cost of holding these securities for the purposes of making settlement may outweigh the benefits of holding the reserves. Second, the brokers can borrow the securities until the depositary bank releases the underlying shares.

The Group of Thirty (1989, 16) recommended that "securities lending and borrowing should be encouraged as a method of expediting the settlement of securities transactions. Existing regulatory and taxation barriers that inhibit the practice of lending securities should be removed by 1990." The group stressed that securities lending should be fully collateralized and the lender should be compensated for temporary use of its securities. The group also cautioned financial markets not to interpret this recommendation as promoting the sale of securities without owning them and that explicit safeguards are needed to ensure operations are conducted smoothly and at minimal risk. The International Organization of Securities Commissions (1992) echoed the need for securities lending to promote the timely settlement of transactions but cautioned against its use for speculative purposes.

In 1992 the Mexican National Securities Commission began allowing brokerage firms to lend securities to clients unable to deliver securities because of differences in settlement periods, time zones, and business days among different markets (Group of Thirty 1992). At that time, Indeval did not participate in securities lending.

To promote market liquidity and help participants meet their settlement obligations, in

[17] However, if a participant fails before $T+5$, a buy-in or sellout procedure occurs before $T+5$.

[18] The fact that the buy-in procedure was sometimes necessary while the sellout procedure was never used is consistent with the argument that settlement fails more often reflect the difficulty obtaining securities than the difficulty obtaining funds.

January 1997 Indeval started operating an electronic securities lending facility, called Valores en Préstamo (VALPRE). For a fee, participants owning securities lend them to participants lacking those securities.[19] In addition, if a participant is unable to acquire the underlying security to make settlement, the BMV can access VALPRE to complete settlement if the underlying security is available. So far, only one loan transaction has been conducted in such a manner. In most cases, participants without the securities access VALPRE directly. Consistent with the Group of Thirty's recommendations, all securities transactions are collateralized. All securities pledged for collateral are discounted from their market value, based on the type of security used.

Although quantifying VALPRE's effect on the frequency of cross-border settlement fails is difficult, the ability to borrow securities does help participants involved in both cross-border and domestic transactions make timely settlement. In February 1998 VALPRE handled 622 transactions, valued at 633.63 million pesos.[20] VALPRE transactions accounted for 0.64 percent of all equity transactions. The average time securities were borrowed was 1.6 days.

Benefits of Netting and the Role of a Securities Clearinghouse

Another way brokers in ADR transactions can avoid late-settlement penalties is to net securities of the same type. By doing so, on average a broker has to deliver fewer securities. For example, suppose a broker engaged in ten transactions, each involving ten shares of the same security with the same counterparty.[21] In five of these transactions the broker sold the shares, and in the other five it bought the shares.

Without netting, the broker might not be able to offset securities to be delivered against securities to be received. The broker would then have three options: maintain a reserve of at least fifty shares in its portfolio and send them to the counterparty on settlement day; borrow the underlying securities and make delivery; or wait for the counterparty to send shares and then send them back to make settlement. In the first two options, the broker would incur additional costs. In the third option, if both participants wait for the other to deliver, the result could be that no settlement occurs.

With netting there would be no transfer of securities because the net position for each of the two participants is zero. If fewer securities are required to settle, fewer securities need to be borrowed, and in some cases the number of shares required for settlement of ADR transactions may be offset by other transactions in the Mexican market.

An important feature of clearinghouses is their ability to net transactions and allow their participants to settle the net amounts.[22] The netting could occur bilaterally, as described above, or multilaterally, whereby netting occurs with more than two participants.[23]

Mexico's Proposed Clearinghouse

To increase liquidity and efficiency in the clearance and settlement of securities, Indeval has proposed the formation of a clearinghouse—Cámara de Compensación y Liquidación (CCV)—that would begin operating in February 1999.[24] The primary benefit of this clearinghouse would be to reduce the cost of delivering securities for each transaction by allowing the participants to bilaterally net securities of the same type. Both foreign and domestic participants would benefit from its establishment. The clearinghouse would be the counterparty in every transaction and guarantee settlement of all transactions. In the first phase the CCV would only clear and settle BMV transactions; in the second phase the CCV would add OTC transactions. (As before, here I focus only on the clearing and settling of equities.)[25]

With the establishment of the CCV, Indeval's role in securities clearing and settlement would change. Upon full implementation of the CCV's proposed functions, Indeval would be responsible for securities safekeeping, cash and securities transfers, management of securities, issuer services, and collateral management. The CCV would be responsible for clearing, cash and securities settlement, and collateral management.

The CCV would have two types of members: indirect and direct. Indirect participants would include mutual fund firms, insurance and pension fund firms, other domestic investors, and foreign financial institutions and investors. Direct participants would be institutions that currently settle transactions through the SIDV—brokerage houses, commercial and development banks, and the Bank of Mexico. A subset of direct participants would be settling members, which would settle trades for themselves and all other members. CCV organizers hope custodial banks will participate as settling members to help in the timely settlement of cross-border transactions. Clearance and settlement would be a three-day process, or $T + 2$ settlement. Each settling member would have two clearing accounts at Indeval, one for funds and the other for securities. In addition, the CCV would have

[19] In the case of funds, the central bank has various options to increase the supply of funds in the financial market. For a description of some of these options, see Chakravorti (1997b).

[20] All these transactions involved equities.

[21] One firm may issue more than one type of share. For netting to occur, the type of share must be the same.

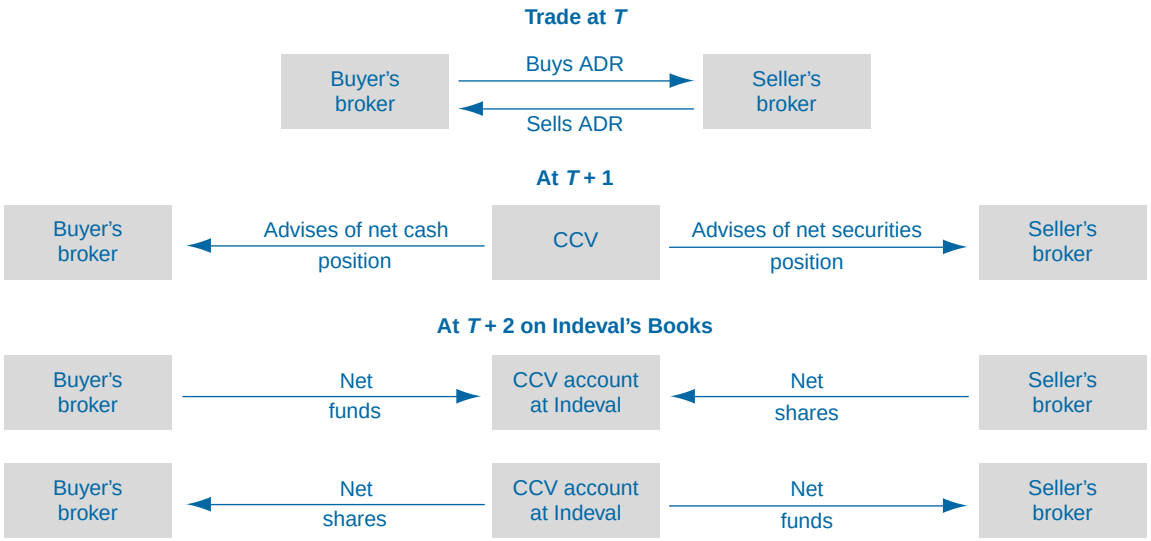
[22] By centralizing the clearance and settlement of trades and risk management services for their members and associated exchanges, clearinghouses can take advantage of economies of scale, thereby improving the efficiency of the financial market as a whole.

[23] The Bank for International Settlements (1990) recommended minimum international standards, known as the Lamfalussy standards, for netting schemes. Hanley, McCann, and Moser (1995) provide possible extensions to these standards that may be more appropriate for securities markets.

[24] The regulatory authorities have not given final approval to the establishment of this clearinghouse. The description of CCV is based on communication with Indeval.

[25] The CCV will eventually clear the following securities traded on the BMV: equities and Certificados de Participatión Ordinario (CPO) (ordinary certificates), fixed income securities, bonds, promissory notes, Certificados de Participación Inmobiliario (construction certificates), and commercial paper. In addition, the CCV will clear the following OTC securities: bank notes and bonds, Pagaré con Rendimiento Liquidable al Vencimeinto (promissory notes with yields payable at maturity date), CPO guaranteed by NAFIN, certificados de las tesorerié de la federación, bondes, ajustabonos, Udibonos, United Mexican States (sovereign securities issued by the Mexican government in foreign markets), and Bradys.

Chart 6
Proposed CCV System



similar accounts at Indeval. Transactions would be cleared on a bilateral net basis, security by security for each settling member. In other words, transactions involving the same security between two participants would be netted.

Chart 6 shows an example of a transaction that would be cleared and settled via the CCV. On the trade date, the CCV would receive confirmation of the trade from the BMV, an electronic trading system, or Indeval. The CCV would separate trades by settling members and nonsettling members. At $T + 1$, the CCV would inform settling members of their net cash positions and their net positions in each security with every other participant.[26] For transactions involving a foreign participant that would deliver securities at $T + 2$, confirmation from the custodian of the foreign participant would be required.

At $T + 2$, settlement day, there would be three settlement cycles—night (around 2 a.m.), midday (around noon), and afternoon (around 3 p.m.). For the night settlement cycle, Indeval would debit the accounts of participants and credit the CCV's account. Later that morning (around 10 a.m.), the CCV would collect funds from the participant that would be receiving the securities. Participants would be required to deliver funds to one of three places—the CCV's cash account at Indeval; the CCV's account at Sistema de Atención a Cuentahabientes de Banco de México—the large-value gross settlement system that transfers funds between reserve accounts at the Bank of Mexico; or CCV's account at a commercial bank. Upon receiving funds from the buyer, the CCV would release the corresponding securities to the participant that delivered funds and the funds to the participant that delivered securities. If the participant delivering securities chooses another settlement cycle, the corresponding participant delivering funds would have to deliver funds during that cycle.

If unsettled transactions remain at the end of $T + 2$, the CCV would take the following actions. If cash were not delivered at the specified time, the participant's margin would be used. There would be no grace period. If the margin were insufficient to cover the position, the settling member's previous contribution to a clearing fund would be accessed. If a shortfall still existed, explicitly stated loss-sharing procedures would be imposed on the remaining members. Additional safeguards are still under consideration, such as a reserve account that would be funded by Indeval.

For nondelivery of securities, the CCV would attempt to fill the position by borrowing the underlying securities via VALPRE on behalf of the participant unable to deliver them. The CCV would administer the collection of price differentials, penalties, and additional margin requirements. If the participant were unable to deliver the securities, a buy-in procedure similar to the one described above would be used. If a buy-in procedure were not feasible, the position would be settled with cash, and if the participant were unable to meet this cash obligation, the safeguards described above would be used.

[26] The role of the CCV would be similar to that of the NSCC in the United States, except securities are multilaterally netted per security in the NSCC and would be only bilaterally netted in the CCV.

Glossary of Terms

American Depositary Receipt An ADR is a U.S.-dollar-denominated negotiable instrument, issued by U.S. depositary banks and fully backed by foreign shares.

Bolsa Mexicana de Valores The BMV is the Mexican stock exchange.

Cámara Mexicana de Compensación y Liquidación The CCV is the proposed clearinghouse that would clear and settle securities transactions in Mexico.

Comision Nacional Bancaria y de Valores The CNBV is an autonomous agency of the Mexican Ministry of Finance and Public Credit, with executive powers established by the National Banking and Securities Commission Act.

Clearing Clearing is the processing of payment or security transfer instructions, including the netting of obligations to pay or deliver securities for establishing final settlement positions.

Cross-border settlement risk This is the risk that cross-border transactions associated with different settlement periods will lead to settlement fails.

Depository Trust Company The DTC is a U.S. clearinghouse involved in the clearance and settlement of securities transactions for member banks and broker-dealers.

Global Depositary Receipt A GDR is similar to an ADR. GDRs are depositary receipts that can trade in two or more countries outside of the underlying firm's home country.

National Securities Clearing Corporation The NSCC is the primary provider of centralized clearance, settlement, and information services to the U.S. securities market.

S.D. Indeval Indeval is the private institution responsible for the custody, administration, clearing, settlement, and transfer of securities in Mexico. It is also the only institution in Mexico authorized to operate as a central securities depository.

Settlement This is "an act that discharges obligations in respect of funds or securities transfers between two or more parties" (Bank for International Settlements 1993).

Settlement risk This is the risk that one party to a transaction is unable to make settlement.

Sistema Interactivo para el Depósito de Valores The SIDV is the Mexican large-value securities transfer system.

Systemic risk In the payments system context, this is the risk that a participant's inability to settle will result in the inability of one or more other participants to settle.

The Bank of Mexico and the CNBV would be responsible for regulatory oversight of the CCV. The CCV would also be governed by the Securities Market Act and its supplementary laws. The risk and audit committees of the CCV would issue policies concerning its operation and safety.

Market participants and financial regulators view the proposed clearinghouse as an improvement to the clearance and settlement of securities. The liquidity and efficiency of the financial markets should improve with the CCV. The use of bilateral netting should help reduce settlement fails involving ADR transactions because fewer securities should be required for settlement. In addition, many risk-reducing measures would be implemented to contain most financial disturbances, including those resulting from cross-border transactions. Furthermore, by explicitly stating loss-sharing procedures, the perception of implicit government guarantees may be reduced significantly.

CONCLUSION

Although a country's financial market benefits greatly from linkages to global securities markets, such linkages may carry cross-border settlement risk resulting from differences in settlement periods. In the case of Mexico, securities transactions settle two days after a trade, a shorter period than in most other countries. Although shorter settlement periods are preferred, unilaterally implementing such periods may pose settlement problems for cross-border transactions. As a result, the BMV, Indeval, and Mexican financial authorities have implemented policies that could ease the burden associated with the clearance and settlement of international transactions.

These policies have resulted in penalties for late settlement and an electronic lending facility that improves the liquidity of securities. A proposed clearinghouse could potentially reduce the quantity of securities required to settle transactions. With netting systems, the inability of a participant to settle may affect the settlement of other participants. To reduce such risk, Mexico's proposed clearinghouse would establish safety measures that include margin requirements, a clearing fund, and other, related provisions. Taken together, these recent and proposed reforms could go a long way toward alleviating the complications for cross-border transactions resulting from the longer settlement periods that exist in most other countries.

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