3 RISKS IN CROSS-BORDER SETTLEMENT

A. Introduction

The BIS analyzed risks in cross-border settlement in its report on cross-border securities settlements in March 1995. In November 2001, the International Organization of Securities Commissions (IOSCO) and the Committee on Payment and Settlement Systems (CPSS) of the central banks of the Group of Ten countries issued 19 recommendations for the design and operations of securities settlement systems.[12] G30 published the report, *Global Clearing an Settlement: A Plan of Action* on January 23, 2003 and set out 20 recommendations (see Annex B) to promote best market practice that clearing and settlement systems in most advanced countries should aspire to meet within roughly 5–7 years. The G30 report recommends wide ranging reform of clearing and settlement processes, including creation and implementation of global standards in technological and operational areas, improvements in risk management practices, further harmonization of global legal and regulatory environments, and improved governance for providers of clearing and settlement services. G30 puts an emphasis on how to mitigate risk in cross-border settlement in recommendations 9 to 16. While it is impossible to eliminate risks in cross-border settlements completely, there are several ways to reduce them. We present here major risks involved in cross-border securities settlements.

[12] See IOSCO website for more information: http://www.iosco.org/pubdocs/pdf/IOSCOPD123.pdf

B. Settlement Risks in General

BIS analyzed risks in domestic securities settlements in its report on DvP in securities settlement systems in September 1992. The report explained the types and sources of risk in securities settlements and clarified the meaning and implications of DvP. BIS further analyzed DvP in its report on cross-border securities settlements in March 1995 and concluded that the risks identified in the DvP report are equally applicable to cross-border securities settlements and that the only inherent differences between risks in cross-border settlements and domestic settlements are differences in legal risks and the potential for foreign exchange settlement risks to arise in a cross-border context. The following are general descriptions of risks in cross-border securities settlement based on these BIS reports.

(i) **Credit risk.** A credit risk is the risk that a counterparty will not settle an obligation for full value either on due date or at any time thereafter. In exchange-for-value systems, the risk is generally defined to include replacement cost risk,[13] principal risk,[14] custody risk,[15] cash deposit risk,[16] finality risk,[17] and pre-settlement risk.

(ii) **Operational risk.** An operational risk is the risk that deficiencies in information systems or internal controls

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[13] A replacement cost risk is the risk that a counterparty to an outstanding transaction for completion at a future date will fail to perform on the settlement date. This failure may leave the solvent party with an unhedged or open market position or deny the solvent party's unrealized gains on the position. The resulting exposure is the cost of replacing, at current market prices, the original transaction. This risk is also called as market risk or price risk and includes pre-settlement risk.

[14] A principal risk is the risk that the seller of securities delivers a security but does not receive payment or that the buyer of securities makes payment but does not receive delivery. In this event, the full principal value of the securities or funds transferred is at risk. A principal risk is the credit risk that a party will lose full value involved in a transaction. In the settlement process, this term is typically associated with exchange-for-value transactions when there is a lag between the final settlement of the various legs of transactions (i.e. the absence of delivery versus payment). Principal risk that arises from the settlement of foreign exchange transactions is sometimes called cross-currency settlement risk or Herstatt risk.

[15] A custody risk is the risk of loss of securities held in custody occasioned by the insolvency, negligence or fraudulent action of the custodian or of a subcustodian.

[16] A cash deposit risk is the risk associated with holding of cash balances with an intermediary for the purpose of settling securities transactions.

[17] A finality risk is the risk that a provisional transfer of funds or securities will be rescinded.

will cause unexpected losses. For example, it is a risk of human error or a breakdown of some components of the hardware, software, or communication system that is crucial to settlement.

(iii) **Liquidity risk.** A liquidity risk is the risk that a counterparty (or participant in a settlement system) will not settle the full value of the obligation on the due date. This risk does not imply that a counterparty or participant is insolvent since they might be able to settle the required debit obligations at some unspecified time thereafter.

(iv) **Systemic risk.** A systemic risk is the risk that the failure of one participant in a transfer system, or in financial markets generally, to meet its required obligation will cause other participants or financial institutions to be unable to meet their obligations (including settlement obligations in a transfer system) when due. Such a failure may cause significant liquidity or credit problems and, as a result, might threaten the stability of financial markets.

(v) **Legal risk.** A legal risk is the risk that a party will suffer a loss because laws or regulations do not support the rules of the securities settlement system, the performance of related settlement arrangements, or the property right and other interests held through the settlement system. A legal risk also arises if the application of laws and regulations are unclear.

(vi) **Foreign exchange settlement risk.** A foreign exchange settlement risk is the risk that one party to a foreign exchange transaction will pay for the currency it sold but not receive the currency it bought. This is also called foreign exchange settlement risk[18] or principal risk. It is also sometimes referred to as Herstatt risk.

[18] A settlement risk is a general term used to designate the risk that settlement in a transfer system will not take place as expected. This risk may comprise both credit and liquidity risk. A settlement risk is also the risk that a party will default on one or more settlement obligations to its counterparties or to its settlement agent.

C. Major Risks in Each Stage of Settlement

We explain several risks associated in each stage of cross-border settlement by using a flow chart of cross-border securities settlement on Japanese government bonds (see Figure 1). This flow chart illustrates instructions and back-office services of securities settlement and show risks in each stage of a cross-border settlement. We set out major risks involved in the trading, clearing and settlement, and cross-border settlement stages.

Risks in the Trading Stage

It is important to remove potential risks, mainly operational risks, in the trading stage. If these risks are not eliminated, they could cause further troubles in the next stages. Settlement through a GC can eliminate the need to use multiple communication channels and message formats and thus mitigate operational risks involved in trade settlements.

Risks in the Clearing and Settlement Stage

The risks at this stage are operational, custody, and liquidity.

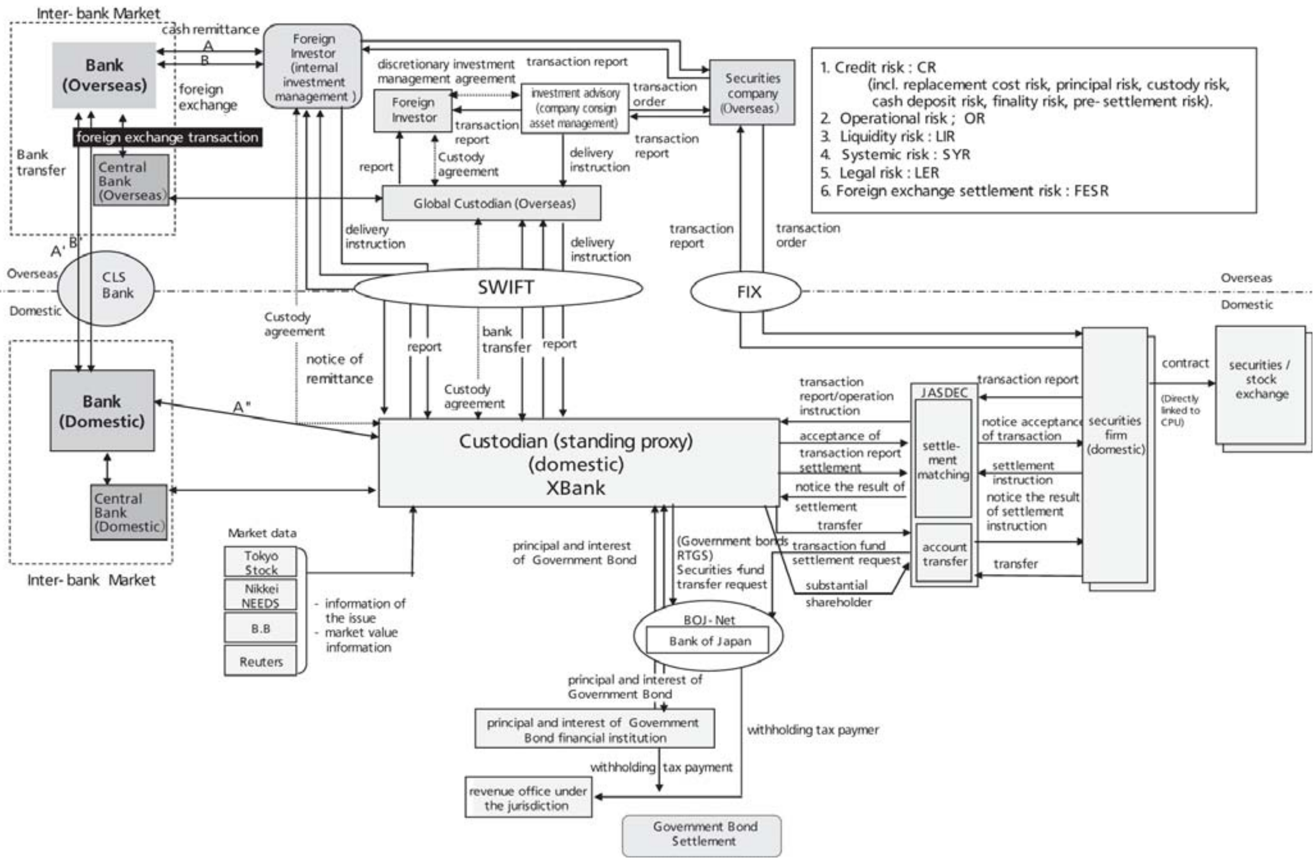
a. Operational Risk

There is a high probability that an operational risk will materialize in this stage. When it does, a credit risk and/or a liquidity risk to the counterparties could also materialize.

b. Custody Risk

When a nonresident (or any other party) holds its securities through an intermediary, those securities are exposed to a custody risk. The possibility of loss will emerge in the event of insolvency of the intermediary. The degree of the seriousness of a custody risk will be determined by various factors such as the legal status of the securities, the accounting practices and safekeeping procedures employed by the custodian, the custodian's choice of subcustodians and other intermediaries, the contractual allocation of the risk of loss, and the law governing the custody relationship. The accounting practices and safekeeping procedures employed by the custodian

Figure 1: Operational Flow Chart of Cross Border Securities Settlement of Japanese Government Bonds



and subcustodians may be the most important factor in determining the investor's risk of loss. Separation (segregation) of the investor's assets from the assets of the custodian and other customers is often the key to protecting the investor's interests.

Shortfalls in custodial holdings may occur for a number of reasons, including failure of expected settlements, poor accounting controls, or intentional fraud. Shortfalls may happen just for a brief period of time, or they might last for a long period. Allocating the risk of loss to the investor varies depending on the circumstances under which the shortfall arises. If the custodian is solvent, the risk of loss from direct actions of the custodian might be small. If the custodian is insolvent, if or the shortfall arises from fraud or insolvency on the part of a sub-custodian or CSD, then the investor's risk of loss may be serious. In a cross-border context, the involvement of multiple legal jurisdictions and multiple settlement intermediaries increases the importance of custody risks and greatly complicates their analysis.

c. Liquidity Risk

Generally, DvP does not eliminate the risk that a counterparty will not settle an obligation on due date but rather on some unspecified date thereafter. Settlement systems do not eliminate failures. They often loan funds or securities to participants to facilitate settlements and to reduce liquidity risk, but the amount of available credit is limited. While liquidity problems of settlement failures are manageable in most cases, it is probable that they will lead to systemic problems if they occur in unstable financial circumstances. Under such circumstances, the failure to settle on the due date may undermine confidence in the creditworthiness of counterparties inducing some participants to withhold delivery or payments and, in turn, to prevent others from meeting their obligations.

Risks in the Cross-border Settlement Stage

A cross-border settlement requires access to systems in different countries and/or the interaction of different settlement systems. Cross-border settlement is a complex process and will be exposed to various kinds of risks. Operational risk, legal risk, Herstatt risk, and liquidity risk are the most serious risks in this stage.

a. Operational Risk

An operational risk can occur at any one of many intermediaries such as banks acting as custodians or money-settlement agents, clearing corporations, money managers, securities brokers, and dealers. Failure to mitigate operational risks in this stage will cause systemic problems.

b. Legal Risk

A legal risk in this stage may be caused by laws of the country in which the nonresident counterparty is located. Therefore, it may differ from a legal risk in domestic settlements. Choice of laws and conflict of laws might cause uncertainty regarding the finality of transfer, ownership interests, or collateral rights. In particular, such problems might complicate the use of collateral to mitigate credit exposures arising from cross-border transactions. In addition, differences in bankruptcy laws could result in uncertain or conflicting outcomes regarding the disposition of securities in the event of insolvency of a counterparty or an intermediary. Predictability of outcome is essential to avoid financial problems, but widely divergent legal frameworks make it hard to achieve predictability in a cross-border context.

c. Herstatt Risk

In cross-border transactions, DvP is rarely achieved in foreign exchange settlement, due to the differences in operational hours of the national payment systems. Consequently, counterparties of foreign exchange transactions face principal risks called Herstatt risks in reference to the failure of the Bankhause Herstatt to meet its foreign exchange obligations in 1974. The Continuous Linked Settlement (CLS) Bank is very effective in mitigating and/or avoiding Herstatt risk.

d. Liquidity Risk

ICSDs request smaller balances of securities and cash for their internal trade settlements from their customers compared with local agents reflecting the lower opportunity costs, liquidity risks, and cash deposit risks of these internal transactions. Extensions of credit by the ICSDs greatly facilitate their customers' efforts to minimize their holdings of cash balances. ICSDs report their respective fund positions to their customers early in the morning of a European business day for most currencies. ICSD customers can cover overdrafts or wire out excess funds within the settlement day without incurring overdraft charges or losing opportunity costs. Lower cash balances at ICSDs imply lower opportunity costs and smaller cash deposit risks. In addition, the reporting of transaction results by ICSDs early in the business day reduces liquidity risks by reducing customers' uncertainty about funding requirements and by allowing customers more time to meet their obligations.

Extensions of credit to customers by ICSDs, however, expose ICSDs to credit and liquidity risks. ICSDs seek to minimize these risks by imposing credit limits and collateralization requirements on their customers and by maintaining credit lines from their correspondents in various local markets. Nonetheless, the risks associated with these credit extensions by ICSDs may be greater than the risks associated with credit extensions by local CSDs or local agents because the duration of the exposure is generally longer for ICSDs than for local CSDs or local agents. The exposure of ICSDs will not be extinguished until payments are received from their customers. Given that the hours of operation are different in national payment systems, fund transfers by ICSD customers are often delayed until quite late on the settlement day. The collateral required by ICSDs for their credit extensions to their customers diminishes the risks they incur, but the choice of laws and conflict of laws may limit benefits of collateralization and create ambiguities about the effectiveness of the liens on securities.

Linkage with the CLS Bank provides a means of settling foreign exchange transactions finally and irrevocably and eliminates the Herstatt risk traditionally associated with cross-currency settlements across time zones. With CLS, both sides of a trade are settled simultaneously on a payment versus payment basis making it final. The CLS Bank was established in November 1999 by a group of the world's major banks.[19] Its services have eliminated settlement risk, have brought improved liquidity management and better efficiency, and have reduced operational costs. Currently Japanese yen, HK$, Korean won, and Singapore dollars are eligible[20] for CLS. It is inconceivable, however, that the remaining Asian currencies will be included as CLS eligible currencies in the near future.[21] Although there are other alternatives such as either bilateral netting between the counterparties of a foreign exchange deal or the use of a con-

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[19] CLS Bank started operations in September 2002. It enables multi-currency simultaneous payment versus payment among its members through central bank money for CLS-eligible currencies. Currently 71 financial institutions all over the world are shareholders of CLS Bank.

[20] Currently, 15 currencies are eligible for CLS settlement. They are: Australian dollar, Canadian dollar, Danish krone, euro, pound sterling, Hong Kong dollar, Japanese yen, Korean won, New Zealand dollar, Norwegian krone, Singapore dollar, South African rand, Swedish krona, Swiss franc, and US$. Those 15 currencies cover about 95% of all the turnovers in the foreign exchange markets, and the members of CLS Bank are estimated to cover around 50% of them. Currently, the gross value settled per day at CLS Bank is US$ 1.9 trillion.

[21] The difficulties for an Asian financial institution to be a shareholder of CLS Bank stem from the following reasons. First, attracting more customers like institutional investors to be CLS Bank shareholders in order to increase turnover of foreign exchange transactions seems to be a more viable business decision for CLS Bank than adding new Asian currencies with quite marginal foreign exchange turnovers. Second, CLS Bank reportedly sets the various requirements for a new eligible CLS currency including:

a. Finality of payment in the currency is secured.
b. Payment system managed by the central bank of that country works properly. A contingency plan should be established as well.
c. Tests of the reliability of the operations in each CLS Bank member are conducted periodically.
d. To be a shareholder of CLS Bank, at least two local financial institutions are required to pay in the total amount of US$ 5 million equivalent in Swiss francs plus interest/returns.
e. There are at least two banks that provide liquidity of the currency.
f. For a new currency to be included in PvP services on the book of CLS Bank against the US dollar, both approvals from the Board of the Governors of the Federal Reserve System (FRB) and the Federal Reserve Bank of New York are required. For PvP against the other eligible CLS currencies, approvals are needed not only from the central bank of a concerned eligible CLS currency but also from FRB and Federal Reserve Bank of New York.

tract for difference, these would not be a feasible way to reduce Herstatt risk in the region given the fact that Asian currencies are traded through US$ and US dollar foreign exchange transactions must continue to be settled in accounts of correspondent banks in New York, so Herstatt risk would remain unresolved.

One possibility that should be considered is a linkage between a regional settlement intermediary and CLS Bank. A regional settlement intermediary could be a shareholder of CLS Bank and function as a settlement bank for the specific currencies in the region providing the necessary liquidity for those currencies. In other words, the regional settlement intermediary would be a link between domestic RTGS payment systems and CLS Bank to eliminate Herstatt risk in the region, as most local banks can not provide such services due to limitations of capital and human resources.

Further study would be desirable on how and in what degree the Herstatt risk would impede cross-border investments in the region. The elimination of cross-currency settlement risk would require close cooperation between the private and public sectors in the region as a regional intermediary would not only need improved domestic payment systems but also a real-time system to enable simultaneous settlement of both legs of foreign exchange transaction.