

Settlement Risk and Payment System Solutions

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I. INTRODUCTION

A. Importance of Payment Systems to Central Bank Concerns

Payment systems are one of the prime concerns of central banks and their legal counsel. The other major central bank concerns - monetary policy and bank supervision - are impacted by problems, concerns and issues affecting payment systems. While payment systems are rarely the subject of front page newspaper treatment as monetary policy often is, or as bank failures sometimes are, the impact that they have on these other central bank concerns and on the real economy, both domestically and internationally, is immense.

B. Globalization of Payment System Concerns

The increasing globalization of the economy and the internationalization of the banking and finance industry have put a spotlight on payment systems. While it has long been recognized that problems with payments systems could have immediate and detrimental impacts on a domestic economy, central banks over the past decades have come to the realization that payment system problems are no longer limited to their domestic effects due to the globalization of payment flows. Central banks need now to be concerned about payment systems and other financial system utilities operating far outside their countries' borders. When we talk about systemic risk now we are talking about global systemic risk and I can think of very few countries that are insulated from this risk.

C. Report on Settlement Risk in Foreign Exchange (Committee on Payment and Settlement Systems)

My discussion will examine a particular risk that many central bank have been concerned about and that raises a number of issues with respect to payment systems. It is also a risk which the private sector (albeit with the active encouragement and accommodation of the central banks) is currently attempting to solve by developing an industry utility that eliminates this risk. This initiative is something of a laboratory for public/central bank cooperation. The paper will first discuss settlement risk, describing the origin of central bank concern of the issue and central bank responses to the risk. Most particularly, I will describe in some detail the findings and recommendations contained in the Report prepared by the Committee on Payment and Settlement Systems of the central banks of the Group of Ten countries, "Settlements Risk in Foreign Exchange Transactions ("Report"). The paper will then describe current private sector efforts to address concerns of the Report through the formation of CLS Bank.

CLS Bank has devised a payment methodology for cross-border foreign exchange payments

settlement that purports, upon becoming fully operational, to eliminate the settlement risk identified in the Report.

II. SETTLEMENT RISK IN FOREIGN EXCHANGE

A. What is Settlement Risk?

As the Report notes, settlement of a foreign exchange transaction requires the payment of one currency and the receipt of another. The risk to a counterparty to a trade is that it will pay out a currency and not receive its countervalue in return. This is settlement risk, or, as it is sometimes called, Herstatt risk. Other risks come into play when there is a failure. These include liquidity risk which occurs when a party that fails to receive an expected payment must go into the market to get what it did not receive. Parties must also replace forward contracts in an environment that may have moved against them.

It is important for financial institutions to be able to measure this risk as well as determine the length of time during which the institution is exposed. The Report offers a methodology for quantifying this risk and comes to what were surprising conclusions about the duration of the risk.

B. Origins of Central Bank Concerns with FX Settlement Risk

While the various risks associated with settling financial transactions have long been recognized, the issues surrounding foreign exchange settlement risk became most prominent after the Herstatt incident in 1974. In this now famous (at least to central bankers) incident, a relatively small German bank, Bankhaus Herstatt, which had a large trading book of foreign exchange transactions, was closed by its banking supervisor at the end of the German banking day (approximately 10:30 am in New York). Unfortunately, a number of institutions had made payment in Deutsche Marks in Germany to Herstatt on foreign exchange transactions. These institutions expected the dollar leg of these transactions to settle in New York during the New York banking day. However, Herstatt's United States correspondent stopped making payments in New York upon the closure of the bank and the non-defaulting institutions were forced to scramble to replace what had not been delivered. This incident forced parties to recognize the perils of having to settle transactions through different payment systems located in different jurisdictions and different time zones. The

risk of making payment but not receiving countervalue has since been known as Herstatt risk.

The report notes a number of other incidents in the decades since that have further raised concerns about the cross-border, cross-time zone risks of settlement in the modern financial environment. These included the collapse of Drexel in 1991, the collapse of BCCI in 1991, the Soviet attempted coup in 1991, and the problems at Barings in 1995. There were also heightened concerns in the foreign exchange community during the recent Asian crisis with entities fearful of paying into a local market with little comfort that they would be paid.

III. THE REPORT ON SETTLEMENT RISK IN FOREIGN EXCHANGE

A. Measurement of Exposure: Legal status of trade

The Report noted that in order, at least on an individual bank level, to properly approach and provide for these risks associated with settlement of trades, an institution needs to measure its current and future settlement exposure. Most important in this analysis is an understanding of the legal status of a trade, most particularly when it has made its payment irrevocably and received the counterpayment with finality. In order to achieve this the entity must assess the legal status of the trade at any given point in time.

B. Legal Status of Trades Through the Settlement Process

The Report assigns transactions to five broad categories which describe the status of the trade as it moves through the settlement process. These categories are:

Status R: Revocable. The institution's payment instruction for the sold currency either has not been issued or may be unilaterally cancelled without the consent of the institution's counterparty or any other intermediary. The institution faces no current settlement exposure for this trade.

Status I: Irrevocable. The institution's payment instruction for the sold currency can no longer be cancelled unilaterally either because it has been finally processed by the relevant payments system or because some other factor (internal procedures, correspondent banking arrangements, local payments system rules, laws) makes cancellation dependent upon the consent of the

counterparty or another intermediary: the final receipt of the bought currency is not yet due. In this case, the bought amount is clearly at risk.

Status U: Uncertain. The institution's payment instruction for the sold currency can no longer be cancelled unilaterally; receipt of the bought currency is due, but the institution does not yet know whether it has received these funds with finality. In normal circumstances, the institution expects to have received the funds on time. However, since it is possible that the bought currency was not received when due (owing to an error or to a technical or financial failure of the counterparty or some other intermediary), the bought amount might, in fact, still be at risk.

Status F: Fail. The institution has established that it did not receive the bought currency from its counterparty. In this case the bought amount is overdue and remains clearly at risk.

Status S: Settled. The institution knows that it has received the bought currency with finality. From a settlement risk perspective the trade is considered settled and the bought amount is no longer at risk.

C. The Importance of Timing Deadlines

The Report further notes that in order to classify its trades according to these categories, an institution would need to know the following critical times for each currency it trades:

(i) its unilateral payment cancellation deadline, (ii) when it is due to receive with finality the currency it bought; and (iii) when it identifies final and failed receipts.

These times depend on the characteristics of the relevant payments systems as well as on the individual bank's internal settlement practices and correspondent banking arrangements. Once an institution classifies its trades, it is a straightforward calculation to measure its foreign exchange settlement exposure.

IV. SURVEY OF MARKET PRACTICES

A. Market Practices in Minimizing Settlement Risk

The Committee surveyed approximately 80 banks in order to understand the practices of private institutions in settling foreign exchange trades. The results

of the survey were summarized in the Report and highlighted that while individual institutions were doing much to minimize their exposure, much still needed to be done at both the individual institution level and at the industry level. The Report noted particularly:

(i) Length of exposure

The minimum settlement exposure for spot and forward foreign exchange trades lasts for between one and two business days. It may also take banks additional days to know with certainty whether they had received the expected currency. This lengthy exposure period reflects the fact that many internal practices for settling foreign exchange represent operational imperatives for efficiency that may ignore settlement risk issues. While banks are increasingly becoming more automated in their settlement procedures by, for example, utilizing "straight-through" processing and the like, these processes may exacerbate the duration of settlement risk because of procedures which make it difficult, if not impossible, for a bank or its correspondent to cancel unexecuted payment instructions before settlement day.

(ii) Amount at risk

The amount at risk during the settlement period could exceed a bank's capital. In quantifying the amount at risk, banks look at two or three days worth of trades. In many cases this can easily exceed several billion US dollars.

(iii) Internal procedures

An individual bank's settlement procedures could greatly influence the size of its exposures, and good internal practices could, to some degree, minimize and control the exposures. In particular, banks could change the timing of their unilateral payment cancellation deadlines and of its identification of final and failed receipts. Banks may also put in place legally binding obligation netting of the daily settlement obligations rather than settling each trade individually.

B. Timing of Cancellation

In order to implement changes to the timing of unilateral payment cancellation deadlines banks would have to examine their own settlement practices along with their correspondent banking relationships. As noted in the Report, the New York Foreign Exchange Committee recommended in 1994 that institutions be able to cancel its payment instruction unilaterally up until the opening time

of settlement day of the local large-value transfer system, and to identify its final and failed receipts immediately upon finality of the local system.

C. Advantages of Netting

The importance of obligation netting to control of the amount at risk cannot be over emphasized and much has been done in recent years in almost all jurisdictions around the world to promote this practice and provide legal certainty. Obligation netting is the legally binding netting of amounts due in the same currency for settlement on the same day under two or more trades. Under an obligation netting agreement counterparties are required to settle on the date all of the trades included in the agreement by either making or receiving a single payment in each of the relevant currencies. This lowers the amount at risk and provides for few actual payments that have to go through the settlement system.

V. REPORT RECOMMENDATIONS

The Report makes a number of recommendations with respect to minimizing settlement exposures. These recommendations reflect a mixed public-central bank response to the payments issues raised with the onus falling on the private sector to identify a solution. The Report highlights the following broad categories of action:

- Action by individual banks to control their settlement exposure.
- Action by industry groups to provide risk-reducing multi-currency services
- Action by central banks to induce rapid private sector progress.

Within each of these categories the Report makes further recommendations.

A. Individual Banks

Individual banks should improve their back office payments processing, correspondent banking arrangements, obligation netting capabilities and risk management controls sufficiently to permit them to (i) measure settlement exposures properly; (ii) apply an appropriate credit control process to settlement exposure, and (iii) reduce excessive settlement exposure for a given level of trading.

B. Actions by Industry Groups

The Report encourages industry groups to develop well-constructed and soundly based multi-currency services that would contribute to the risk reduction efforts of individual banks and would reduce systemic risk more broadly. With respect to this recommendation, the G-10 central banks were of the view that the private sector was much better placed than the public sector to provide multi-currency settlement mechanisms and bilateral and multilateral obligation netting arrangements. It has been recognized that multi-currency settlement services that provide for some kind of payment-vs.-payment mechanism ("I will make payment only if you make payment") could eliminate settlement risk entirely. When coupled with legally robust obligation netting arrangements significant overall risk reduction benefits would be evident. Creation of this payment utility would, of course, require cooperation of the central banks since central banks would be concerned with the overall safety and soundness of any scheme and its economic viability.

Care must be taken to assure that the scheme does not create more problems than it solves. Systems should be designed so that disruptions in one currency do not spill over into other currencies causing systemic problems. Systems should be aware also of creating liquidity pressures at times of day that are less liquid for a particular currency.

C. Action by Central Banks to Induce Rapid Private Sector Progress

The Report emphasizes private action to solve these problems, but reserves a role for the central banks. The Report acknowledges that the central banks, acting cooperatively among themselves and with private sector groups, could do much to ensure the success and achievement of the risk reduction benefits envisioned by multi-currency settlement systems. Central banks may induce private sector action by raising the level of awareness and sensitivity to issues surrounding foreign exchange settlement risk, by offering a clear definition of and guidelines for measuring foreign exchange settlement risk, and by describing how banks may improve their control of settlement risk at the individual bank level.

In working cooperatively with private industry groups central banks may: (1) attend industry working groups as observers; (2) work with industry groups to extend the operating hours of domestic payments systems; (3) work with industry groups to clarify and, where possible, to resolve legal issues and cross-border collateral issues; (4) consider granting access to settlement accounts to sound multi-currency settlement mechanisms or to their members; and (5) consider granting access, on appropriate terms to central bank credit and

liquidity facilities to sound multi-currency settlement mechanisms or to their members. Note, for example, that in December 1997 Fedwire (US large value dollar transfer system) expanded the hours for its funds transfer service and began operating from 12:30 am to 6:30 pm. The Board of Governors of the Federal Reserve determined that the expansion of this service could be a useful component of private sector initiatives to reduce settlement risk and to eliminate an operational barrier to potentially important innovations in privately operated payment and settlement services.

Finally, central banks can seek to facilitate private action by encouraging enhancements to domestic payment systems. In this regard, central banks may: (1) seek clarification of the times at which payment instructions become irrevocable and receipts become final in the settlement of foreign exchange transactions via home-currency payment systems or book-entry transfers on the accounts of correspondent banks; (2) provide for intraday final transfer capability or its equivalent; (3) remove obstacles (early cut-off times for third party transfers) that inhibit payments system direct members from acting upon late-day customer payment instructions for same-day value; (4) strengthen the risk management arrangements of privately operated systems used to settle foreign exchange transactions.

VI. ACTION SUBSEQUENT TO THE REPORT

A. Reaffirmation of Goals

While the Report expected the private sector to make significant progress in grappling with foreign exchange settlement risk over the short term, the Group of 10 central banks reiterated and reaffirmed in May 2000 their strategy, announced in the Report, to promote the reduction of foreign exchange settlement risk. This reaffirmation noted the primary responsibility that the strategy places on private sector market participants to follow through on their efforts to reduce significantly the systemic risks associated with settling foreign exchange transactions. The group noted the industry-wide effort to create CLS

Bank (discussed more fully below), a vehicle that would attempt to provide something like payment-vs.-payment for foreign currency transactions, and regretted that the initiative has encountered delays and they encouraged market participants to intensify their efforts to achieve a timely reduction of foreign exchange settlement risk.

With regard to the efforts of individual banks, the Basel Committee on Bank Supervision is expected to release supervisory guidance on foreign exchange

settlement risk. This guidance is expected to take into account the developing industry initiatives.

VII. IMPORTANT LEGAL ISSUES

In order to understand and quantify the risks associated with settlement of foreign exchange transactions, institutions must review a number of legal issues. The most important issues include choice of law, finality, and legal certainty of obligation netting.

A. Choice of Law

In the cross-border modern world of payments, choice of law is a fundamental legal issue. Choice of law principles allow a party to determine under what jurisdiction its substantive rights and obligations are determined. Resolving choice of law would allow parties to determine when a payment becomes final and whether obligation netting between two parties is legally enforceable in the relevant jurisdictions. Because many jurisdictions do not resolve this issue clearly, counsel must investigate the substantive law in all potentially relevant jurisdictions. This can be an onerous task, requiring review of law in the home country of the party, its counterparty, the situs of the relevant payments systems, and the situs of the collateral. The substantive legal inquiry would, in each of these jurisdictions, be broad, including bodies of law such as bankruptcy, creditors rights, security interests, banking and securities.

An example of a country with statutory choice of law rules is the United States. Article 4A of the Uniform Commercial Code (widely adopted by the states) provides a clear choice of law regime with respect to payment transfers. The first level is that parties to a payment transfer may by contract agree to the substantive law that will govern their rights and obligations. Parties may do this by agreeing to the rules of a payment utility that specifies the choice of law. Where there is a conflict, Article 4A provides that the law of the jurisdiction with the most significant relationship will govern. Finally, if these rules do not resolve the problem, the substantive law of the party receiving the payment will prevail.

B. Finality

As noted above, it is impossible to assess settlement risk without being able to determine finality with some certainty. Put simply, finality involves the determination of whether, when, and to what extent payments (and netting) are legally enforceable. Care must be taken to understand different types of finality.

For example, while contract and local commercial law may determine that a payment is final (either by operation of law or through the rules of a payment system) if a party is involved in an insolvency, different rules as to finality may be applicable. Note jurisdictions with a so-called "zero hour" rule which, regardless of the time of day in which an entity becomes subject to the insolvency regime, may require a trustee to repudiate settlements made over the course of the day on which the entity became insolvent. This could have the effect of unwinding payments that had pursuant to other laws or rules achieved finality over the course of that day. Note too that insolvency law will very often be operative in an insolvency situation regardless of the other provisions of other laws. Insolvency law also must be able to support netting arrangements.

C. Netting

The risk benefits that netting, both obligation and close-out, offer are so important that parties should be sure of their legal basis. Over the past 15 years or so much work has been done in a number of important jurisdictions to assure that netting receives legal recognition. There has been significant work done to recognize bilateral netting and there continues to be work done to assure the legal finality of multilateral netting in payment systems. Note that one possible solution to the netting/legality problem with respect to multilateral facilities may be to substitute a central counterparty for other counterparties and then put in place bilateral netting arrangements.

(i) Master netting agreements

Many jurisdictions have put in place specific legislation that recognizes netting. This legislation may be limited to banks or certain defined financial institutions but its goal should always be to achieve systemic benefits that large scale netting affords. Industry groups, most notably the Financial Markets Lawyers Group and the International Swap Dealers Association, have published forms of master agreements that contain provisions for bilateral netting (both obligation and close-out) for a number of financial products. These organizations have then gone into the countries in which their members do business and sought out legal counsel review of these provisions of the master agreement to ensure their enforceability. These organizations have noted that legal regimes may approach netting differently, either statutorily as in the United States in FDICIA which reckons netting arrangements between financial institutions enforceable or through case law that recognizes set-off or similar rights. Statutory certainty is probably best, but other approaches based on existing concepts may provide similar comfort. Where there continues to be doubt about the effectiveness of netting in a jurisdiction, education efforts and lobbying efforts are undertaken in order to achieve some comfort. Note also that it is important for firms to have a

firm legal basis (usually through the means of a industry group opinion or through an individually commissioned opinion) for netting in order to take advantage of certain capital treatments.

(ii) "Master master" netting agreements

Note also that financial institutions have noted the risk reductions benefits that may accrue through the use of so-called "master-master" agreements. The idea here is that netting across various product lines (the master agreements noted above, generally, provide for netting across single product lines) would lessen exposure to individual counterparties. One such form of agreement has been published in New York by the Bond Market Association and legal opinions as to the enforceability of its risk reduction provisions are being sought in a number of jurisdiction throughout the world.

VIII. CONTINUOUS LINKED SETTLEMENT

A. CLS Bank

A high profile private initiative to reduce settlement risk in foreign exchange is the creation of CLS Bank. The initial efforts to get this system off the ground predate the issuance of the Report and illustrate the long held recognition of the problems associated with settlement. In 1995 a group of major foreign exchange trading banks organized an ad hoc committee called the Group of 20 to consider how the private sector might develop a solution. The result of this study was the CLS (which stands for continuous linked settlement) concept. The concept provides for a simultaneous exchange of the currencies in each foreign exchange contract to eliminate settlement risk.

B. Development of CLS Bank

In 1997 the G-20 banks formed a company, CLS Services Ltd. to develop and build CLS Bank. The initial shareholders of CLS were the G-20 banks. In 1998, CLS added 24 international banks as shareholders. Additional banks have since become shareholder and now the number of institutions participating stands around 60 with a broad range of regions and sizes represented.

CLS Services is headquartered in London and will establish a representative office in Tokyo. CLS Services will create CLS Bank which will be based in New York and supervised as a special purpose bank by the Federal Reserve. The plan is to have CLS Bank provide payment-vs.-payment settlement for gross transactions in eligible currencies.

C. CLS Solution to Settlement Risk

CLS Bank will facilitate the reduction of the risk associated with foreign exchange settlement by virtue of the simultaneous settlement of the currency legs of a transaction across the books of CLS Bank. The principal feature of the service is that both sides of the settlement instruction will be settled, or neither side will be settled.

CLS Bank will maintain a single multi-currency account for each settlement member. It will credit a settlement member's account when it receives a funding pay-in and debit the account when it pays out settlement proceeds. CLS Bank will have a settlement account with a central bank for each currency in which it settles transactions. Settlement members will pay-in currency to their accounts at CLS Bank through the approved local payment systems; CLS Bank will pay out settlement proceeds through these same payment systems.

Each settlement member will be required to pay in balances at CLS Bank to cover currency short positions within certain limits. Prior to each day's settlement period, which will last for the few hours that the major payment systems in all time zones overlap, CLS Bank will have all the linked currency settlements for the day in a queue. The settlement process will begin and operate continuously. The settlement process involves the settlement of instructions in the settlement queue in accordance with the service's settlement algorithm and risk tests. CLS Bank will control settlement and pay-out from settlement member's accounts, ensuring that their account balances comply with risk controls at all times. To facilitate settlement, CLS Bank's settlement process will move repeatedly during the settlement cycle between three tasks: taking in funding, settling transactions in the queue, and paying out available funds in accordance with applicable rules and regulations.

CLS Bank will not guarantee that it will settle every settlement instruction submitted. In accordance with its rules, CLS Bank may refuse to settle an instruction submitted for settlement. For example, if a settlement member fails to meet its funding requirements, CLS Bank may refuse to settle further instructions. Any unsettled trades will be returned to the members who will then have to find alternative arrangements outside the system for settlement.

D. Currencies and Criteria for Inclusion

CLS Bank will start up with seven currencies: the Canadian dollar, euro, pound sterling, Swiss franc, the US dollar, the yen and the Australian dollar. Additional currencies will be added as soon as practicable. The criteria for inclusion of a currency in the service include a suitable real-time gross

settlement system (or approved payment system) with sufficient overlapping hours, a satisfactory legal environment, and available liquidity in its money market.

E. Classes of Membership

There will be two classes of member in CLS Bank: settlement and user. Both settlement members and user members may submit their customers' transactions through CLS Bank, and both types of members must be affiliated with a shareholder of CLS Services in the manner prescribed by the rules. Settlement members must meet certain membership criteria and will have a single account with CLS Bank through which it submits instructions on its own behalf as well as on behalf of sponsored user members and third-party customers. CLS Bank will treat the settlement of these instructions as if they were the settlement member's own positions. User members will be able to submit their instructions directly through a network link to CLS Bank. Settlement members will be able to control and approve the instructions that their sponsored user members introduce. Settlement members will set the level of the controls they wish to apply. Third-party customers will not have direct access to CLS Bank. Their instructions will be submitted by a settlement member or user member.