May 2008

Comments received on *Progress in reducing foreign exchange settlement risk*

Contents

ABN Amro (January 2008)

We would like to thank the BIS Committee on Payment and Settlement Systems for the opportunity to respond to the Consultative report with regards to the progress in reducing foreign exchange settlement risk.

We compliment the CPSS with the excellent work, resulting in a valuable report which we trust will help the industry to take the necessary next steps for further improvement in the area of FX settlement risk.

The report was discussed within the ABN AMRO High Value Payments forum with representatives from Treasury Liquidity management, FX trading and prime-brokerage, Asset and Liability management, Treasury Operations, Risk Management and Transaction Banking Financial Institution and Corporate services (CLS third party business). We are of the opinion that this had to be looked at from these different angles in order to represent the ABN AMRO global view.

Our response is structured around some key findings of the report which are listed below. If you have any questions with regard to our response, we are more than happy to further discuss these.

1. FX obligations by settlement method

The conclusion of the report is clear; there has been a huge shift from 85% to 32% away from settlement via correspondent banking toward other settlement methods with less settlement risk over the last 10 years. However, due to the fact that the total FX market in the same period tripled, the total amount settled via correspondent banking did increase from 900 billion to 1.2 trillion.

If we analyse the breakdown of the settlements via correspondent banking, roughly 100 billion is due to I/O Swaps, 300 billion results from intraday trades between CLS members and 800 billion is settlement with or between non-CLS banks.

In our opinion the greatest potential for a further decrease of settlement risk in the correspondent banking area, lies with this last category. A further increase of parties reachable in CLS will further decrease the value settled via correspondent banking, and will have the largest contribution to the elimination of risk. We refer to the following arguments:

- Although the I/O swap is re-introducing a (small) part of the settlement risk that was reduced by CLS, it is absolutely mandatory to continue with this practice. The Liquidity risk associated with the settlement of CLS is in this way controlled and manageable and certainly outweighs the re-introduction of a small settlement risk.
- The 300 billion of intraday deals between settlement members represent only a limited risk if you take into account that these are largely done between the largest market participants. In addition we consider the short timeframe in which these deals are concluded. A second settlement cycle in CLS for USD and CAD could help to further reduce the intraday settlement risk. However, a second cycle in CLS including the ‘European time-zone currencies’ would lead to unmanageable liquidity constraints and would introduce an unacceptable liquidity risk. In order for such a solution to become viable, further significant changes are needed in the field of monetary policy, collateral management and infrastructures in order to ensure harmonisation and a level-playing field across the globe.
- The deals with the non-CLS counterparties represent the average lower value deals with higher risk-profile counterparties, and include future value deals. From a risk management perspective the risk associated with these deals is far larger then the risk associated with the larger deals with CLS member banks.

2. Size and duration of total settlement exposure

One of the most remarkable observations presented here was the fact that for the non-CLS settled FX exposure, 63% of the respondents to some extent underestimate the amount they had at risk, typically because they failed to capture the extent of their overnight risk.

We are of the opinion that the current rules around FX settlement risk should be assessed and changed in order to be brought in line with today’s situation in the FX settlement space, more specifically regarding intraday deals. It can be seriously questioned whether for those deals the approach described in the BIS report Settlement risk in foreign exchange are appropriate standards for today's (settlement) environment and practice.

With regard to the options to further decrease the exposure period, we would like to consider/address the following points:

- The different currency pairs show different patterns with regards to their exposure on a single or a multiple day settlement obligation. It would be worthwhile to further investigate these individually and determine whether above average exposure timelines are caused by common factors not controlled by individual institutions. This will help to give direction to next steps to improve these timelines.
- Solutions in this field will need coordination and cooperation by all parties involved (industry groups, regulators and market infrastructures). Individual actions may lead to the reduction of risk for one party, but can increase risk for other parties. For example, one party could start delaying its outgoing payment in order to shorten the exposure period, but by doing that, it would directly impact the exposure timelines of the other party. Furthermore, solutions in the direction of real-time reconciliation need industry wide attention in order to ensure the proper level of standardisation and market practice so all parties can benefit. Developments in this area may lead to a competitive advantage for early adaptors, but should not re-introduce or increase settlement risk for the industry in total.

3. Bilateral exposures

Due to the many assumptions needed to get to an overview of bilateral exposures it is more difficult to interpret the findings.

4. Bilateral netting

This is probably the most discussed item in relation to FX settlements over the last year. For any further developments in the FX settlement world, netting is an issue that must be addressed. In our opinion it would be worthwhile for the industry going forward to receive more guidance from the regulator with regard to this subject on the following points:

- Clear guidance on the legal framework around netting, whereby we imagine that there should be a distinction between the various variants of bilateral netting (pre-settlement netting, cash flow netting, pre-trade netting). This in order to determine to which extend Bilateral Netting can be seen as valid alternative to PVP settlement methods.
- Assessment of the legal finality of forms of netting, whereby a number of underlying deals and whereby several jurisdictions are involved are subsumed into a single new FX transaction.
- Close involvement of the regulator in the developments in this field in order to ensure improvements with regards to settlement risk and avoid back-sliding.

5. Incentives to improve and the risk of backsliding

In this section of the report 2 remarks were made, which in combination could play an important role in the development of the FX settlement market.

On the one hand the conclusion was that 88% of the respondents failed to account for the full range of costs associated with the different available settlement methods, raising the potential risk for ill-informed choices about which settlement method to use. And on the other hand the observation was made that for the largest growth market such as algorithmic trading, the high volume and low value profile of this business would naturally lead the participant to seek to minimize (transaction) costs.

There are 2 important issues which need attention:

- First, cost-benefit analysis at individual bank level could lead to sub-optimal solutions, as individual banks will have different interests and approaches with regards to (risk) cost calculations. Regulators could help to create an environment where alignment of these differences is reached for the benefit of the overall system.
- Second, the differentiation with regard to settlement operations and settlement risk between high volume/low value and high value/low volume business makes sense. But if this differentiation leads to finding different solutions, there is the risk of sub-optimisation, leading to an overall increase in costs and settlement risk.

We recommend that the regulators, CLS and key market players involved in the business get together to discuss the issues highlighted.

6. Recommended further action

We welcome the point mentioned in the section ‘action by central banks’ with respect to the willingness to support potential improvements in local payments law and operations of large-value payment systems.

Although the various markets have sufficient overlapping opening hours, the conditions do not facilitate cross-currency business to take place within these overlapping hours. The availability of liquidity, efficiency of the payments systems and costs associated with intra-day liquidity result in behaviour whereby payments are pushed back behind closing hours of other currencies. The solution in our opinion should not be found in an extension of opening hours, but should lie in harmonisation and a level playing field in order to influence the ‘payments’ behaviour of market participants.

The Clearing Corporation of India Ltd (September 2007)

We refer to the Consultative Report on “Progress in reducing foreign exchange settlement risk” published on the BIS website.

We congratulate you on a very comprehensive and lucid report. We have forwarded our comments on the subject to our Central bank, the Reserve Bank of India, and they would be sharing the same with you. As a Central Counterparty providing guaranteed settlement for transactions in the foreign exchange market in India, the issues raised in the report are very pertinent, and we take the liberty of also sharing some of our thoughts on the subject with you.

We understand that the main findings of the report are based on a survey of settlement methods employed in institutions in 26 countries of the 15 CLS currencies. We do understand that cross border settlements involving currencies such as the Indian Rupee, which constitute less than 3% of the total daily turnover in foreign exchange settlement are outside the scope of the report. However as the report comprehensively addresses the various models used for settlement of foreign exchange transactions, we view that the unique model adopted in India using a Central Counterparty to guarantee settlement of transactions merits a mention in the otherwise comprehensive report. The CCP approach to settle transactions in the burgeoning foreign exchange market in India is unique and efficient. The strategy adopted to address the mitigation in risks in foreign exchange settlement in India through the establishment of the Clearing Corporation of India (CCIL) as a CCP is in fact a successful combination of the second and third tracks of the three-pronged strategy recommended in the 1996 report – the Central Bank taking the initiative, the private sector designing and implementing the services and the industry group taking concerted action to support and subscribe to the services.

Currently, banks authorised by the Reserve Bank of India to deal in foreign exchange settle their FX obligations through CCIL which acts as a central counterparty and settles the trades through a process of multilateral netting and novation. CCIL guarantees settlement of all trades within the Spot Window (i.e. for all trades which are to be settled on Cash, Tom and Spot basis) providing the participating banks a certainty about settlement of all types of forex trades other than in the forward market. In the year ending March 2007, CCIL settled over 1.2 million deals for a volume of USD 1.8 trillion with an average netting factor of over 90%. The gross daily turnover in inter-bank foreign exchange transactions in India is USD 11 billion (one side) on an average, and has been as high as $56 billion on month-end dates when forward deals mature.

The CCP model adopted to settle trades in the foreign exchange market has brought in all the attendant benefits in terms of risk reduction, liquidity management and settlement efficiencies.

On the risk management front, the benefits as expected have been enormous. Multilateral net settlement with closely controlled processes has reduced the extent of risk to about the level of market risk, and this risk too is covered by margining. An efficient risk management system has brought about a drastic reduction of settlement exposures of the banks to as low as about 6.75% of the best level of settlement exposures achievable through bilateral netting, and to about 3% of gross exposures. A margining process absorbs most of the residual risk. The duration of exposure has come down from an 18 hours horizon at a minimum to a couple of hours. While we have achieved PVP for one leg of the settlement, we would eventually attempt to migrate to PVP for the second leg, given sufficient overlap in the operating hours of the two currencies, without unduly escalating costs and liquidity requirements.

Liquidity savings due to the netting arrangement is as high as 90% on an average. Calculations show that if the obligations settled by CCIL had instead been settled via other available methods, liquidity required to settle would have been 10 – 15 times higher. For example, a gross volume of $ 56 billion was settled on 31st August 2007 with actual exchange of funds of USD 1.34 billion, with a netting advantage of 97.6%.

The twin features of settlement guarantee and net settlement have spawned a host of related benefits and have resulted in tremendous operational efficiencies. Settlement through CCIL results in drastic reduction of all settlement related activities such as matching of counter-party confirmations, effecting payments through the nostro accounts, tracking payments and receipts, reconciliation of nostro accounts, effecting back-valuation or payment of interest for delayed payments, ensuring collection of interest for delayed receipts etc. An analysis shows that on any given day, the total number of payment transactions by the settlement participants could have reached as high as 26000 (2386 if all banks resorted to bilateral netting), as against the average of 72 per day through CCIL's settlement system. Cost savings and efficiency achieved by the financial market on this count alone has been substantial.

There have been corollary benefits too. The assurance of guaranteed settlement seems to have aided in a rapid expansion in Indian Forex Market which has grown at an average rate of 55% in the past few years. Another important benefit has been the ability of this system to integrate the relatively weaker entities into the system and cause significant reduction in market exposures on them.

Moreover, in markets where the foreign exchange trade is principally between the domestic currency and one of the major international currencies i.e. where the netting potential is expected to be significant and where it is difficult for the currency to become a CLS currency due to non-availability of strong banking network which can provide adequate credit lines and liquidity in the currency, the CCP system has the potential, like in India, to be able to mitigate the risk to efficiently support an orderly growth of the market. Such system can then be integrated to CLS for providing a secure mechanism for settlement of cross currency transactions. This will not only mitigate the risk for the banks in the country of the currency but to the overseas banks as well, as their exposures on the domestic banks will remain under control. In fact, by virtue of its status as Central Counterparty and its role as settlement agency, CCIL has been able to provide CLS third party services at an aggregated level for all banks in India, offering ease of use, margin leverage and economies of scale.

CCIL works actively with the central bank for introducing more products in the frame of guaranteed settlement. The CCP route adopted in India will facilitate introduction of more instruments such as currency forwards and futures for settlement, as and when permitted for inclusion, extending the benefits of risk mitigation, netting and guarantee. Risk mitigation for exposures arising out of liability products like forwards, swaps, options and futures can perhaps be provided only by a settlement system like CCIL's which operates as a CCP.

The Central Bank has already made considerable progress towards enactment of a Payments and Settlements Bill to strengthen the legal foundations for netted settlement. The Central Bank also actively reviews the risk management processes in CCIL. In fact, CCIL's risk management has been audited by several experts from the banking industry, including from the ECB and the Bank of France, and by a team of experts from the Indian Institute of Management, all of whom have found the risk processes abundantly satisfactory.

The model introduced in India certainly bears emulation in the emerging economies and we request you to consider a reference to the model in your report.

CLS Bank International (December 2007)

CLS Bank International (CLS Bank) appreciates the opportunity to provide comments to the Committee on Payments and Settlement Systems (CPSS) on the above consultative paper. CLS Bank is very pleased to see the renewed focus on this issue as our institution is the collective initiative undertaken by the financial industry to address settlement risk in the foreign exchange market. CLS is pleased to see that many of the points it has made in its discussions with the central bank overseers resonate in the report and strongly supports the proposed recommendations.

CLS Management would like to offer the following observations:

- It is of interest to CLS that the survey indicates a significant percentage of the FX settlement obligations still subject to settlement risk was between CLS users and that much of this activity was accounted for by same day and next day trades, trades involving a non-CLS currency, or the outside leg of in/out swaps. In support of further elimination of settlement risk, CLS Bank has modified its eligibility criteria for currencies and membership to potentially expand the number of currencies settled in CLS Bank. In addition, CLS will be investigating the feasibility of implementing multiple settlement sessions, which would allow for the inclusion of the settlement of same day trades. The success of the initiative for multiple settlement sessions will require the expressed support of market participants, RTGS operators, and central banks.
- As noted in the FX survey, approximately eight percent of the total FX obligations are managed through bilateral netting. It was indicated that some of this activity arises between participants not using CLS or because the trade involves a non-eligible CLS currency. The potential initiatives noted above could provide a payment versus payment (PVP) alternative for settlement of these.
- In those cases where bilateral netting is employed, we welcome the statement that there needs to be effective settlement of the net position. CLS Bank s analyses have indicated that these residual settlement exposures could be significant.
- The report recommended that there should be clearly established senior level responsibility and authority for measuring and managing these exposures and the implementation of institution-wide business policies that address the appropriate risk assessments and comprehensive cost benefit analyses. Financial supervisors might seek to meet periodically with executive management and the chief risk officers to ascertain the effectiveness of the management of settlement risk in order to further this purpose, especially in view of the fact that direct capital charges are not applied for settlement risk under Basel II and that the existing guidelines only require a capital charge several days after the payment failure occurs. Since some significant participants in the foreign exchange market are not regulated banking institutions, CLS supports the recommendation that the central banks work with regulators of non-bank financial institutions to explore options to mitigate this risk and create a more level playing field.

Again, CLS Bank welcomes the efforts of the CPSS to draw renewed attention to settlement risk and would be available for further discussion on this topic.

Nederlandse Vereniging van Banken (January 2008)

We would like to thank the BIS Committee on Payment and Settlement Systems for the opportunity to respond to the Consultative report with regards to the progress in reducing foreign exchange settlement risk.

We compliment the CPSS with the excellent work, resulting in a valuable report which we trust will help the industry to take the necessary next steps for further improvement in the area of FX settlement risk.

The report was discussed within Dutch Banking Association with the members of the Liquidity Management group.

Our response is structured around some key findings of the report which are listed below. If you have any questions with regard to our response, we are more than happy to further discuss these.

1. FX obligations by settlement method

The conclusion of the report is clear; there has been a huge shift from 85% to 32% away from settlement via correspondent banking toward other settlement methods with less settlement risk over the last 10 years. However, due to the fact that the total FX market in the same period tripled, the total amount settled via correspondent banking did increase from 900 billion to 1.2 trillion.

If we analyse the breakdown of the settlements via correspondent banking, roughly 100 billion is due to I/O Swaps, 300 billion results from intraday trades between CLS members and 800 billion is settlement with or between non-CLS banks.

In our opinion the greatest potential for a further decrease of settlement risk in the correspondent banking area, lies with this last category. A further increase of parties reachable in CLS will further decrease the value settled via correspondent banking, and will have the largest contribution to the elimination of risk. We refer to the following arguments:

- Although the I/O swap is re-introducing a (small) part of the settlement risk that was reduced by CLS, it is absolutely mandatory to continue with this practice. The Liquidity risk associated with the settlement of CLS is in this way controlled and manageable and certainly outweighs the re-introduction of a small settlement risk.
- The 300 billion of intraday deals between settlement members represent only a limited risk if you take into account that these are largely done between the largest market participants. In addition we consider the short timeframe in which these deals are concluded. But more importantly, we are of the opinion that the some times mentioned possible solution; a second and/or third cycle in CLS, would lead to unmanageable liquidity constraints thus introducing unacceptable liquidity risk. In order for such a solution to become viable, further significant changes are needed in the field of monetary policy, collateral management and infrastructures in order to ensure harmonisation and a level-playing field across the globe.
- The deals with the non-CLS counterparties represent the average lower value deals with higher risk-profile counterparties, and include future value deals. From a risk management perspective the risk associated with these deals is far larger then the risk associated with the larger deals with CLS member banks.

2. Size and duration of total settlement exposure

One of the most remarkable observations presented here was the fact that for the non-CLS settled FX exposure, 63% of the respondents to some extent underestimate the amount they had at risk, typically because they failed to capture the extent of their overnight risk.

We are of the opinion that the current rules around FX settlement risk should be assessed and changed in order to be brought in line with today's situation in the FX settlement space, more specifically regarding intraday deals. It can be seriously questioned whether for those deals the approach described in the BIS report Settlement risk in foreign exchange are appropriate standards for today's (settlement) environment and practice.

With regard to the options to further decrease the exposure period, we would like to consider/address the following points:

- The different currency pairs show different patterns with regards to their exposure on a single or a multiple day settlement obligation. It would be worthwhile to further investigate these individually and determine whether above average exposure timelines are caused by common factors not controlled by individual institutions. This will help to give direction to next steps to improve these timelines.
- Solutions in this field will need coordination and cooperation by all parties involved (industry groups, regulators and market infrastructures). Individual actions may lead to the reduction of risk for one party, but can increase risk for other parties. For example, one party could start delaying its outgoing payment in order to shorten the exposure period, but by doing that, it would directly impact the exposure timelines of the other party. Furthermore, solutions in the direction of real-time reconciliation need industry wide attention in order to ensure the proper level of standardisation and market practice so all parties can benefit. Developments in this area may lead to a competitive advantage for early adaptors, but should not re-introduce or increase settlement risk for the industry in total.

3. Bilateral exposures

Due to the many assumptions needed to get to an overview of bilateral exposures it is more difficult to interpret the findings.

4. Bilateral netting

This is probably the most discussed item in relation to FX settlements over the last year. For any further developments in the FX settlement world, netting is an issue that must be addressed. In our opinion it would be worthwhile for the industry going forward to receive more guidance from the regulator with regard to this subject on the following points:

- Clear guidance on the legal framework around netting, whereby we imagine that there should be a distinction between the various variants of bilateral netting (pre-settlement netting, cash flow netting, pre-trade netting). This in order to determine to which extend Bilateral Netting can be seen as valid alternative to PVP settlement methods.
- Assessment of the legal finality of forms of netting, whereby a number of underlying deals and whereby several jurisdictions are involved are subsumed into a single new FX transaction.
- Close involvement of the regulator in the developments in this field in order to ensure improvements with regards to settlement risk and avoid back-sliding.

5. Incentives to improve and the risk of backsliding

In this section of the report 2 remarks were made, which in combination could play an important role in the development of the FX settlement market.

On the one hand the conclusion was that 88% of the respondents failed to account for the full range of costs associated with the different available settlement methods, raising the potential risk for ill-informed choices about which settlement method to use. And on the other hand the observation was made that for the largest growth market such as algorithmic trading, the high volume and low value profile of this business would naturally lead the participant to seek to minimize (transaction) costs.

There are 2 important issues which need attention:

- First, cost-benefit analysis at individual bank level could lead to sub-optimal solutions, as individual banks will have different interests and approaches with regards to (risk) cost calculations. Regulators could help to create an environment where alignment of these differences is reached for the benefit of the overall system.
- Second, the differentiation with regard to settlement operations and settlement risk between high volume/low value and high value/low volume business makes sense. But if this differentiation leads to finding different solutions, there is the risk of sub-optimisation, leading to an overall increase in costs and settlement risk.

6. Recommended further action

We welcome the point mentioned in the section ‘action by central banks’ with respect to the willingness to support potential improvements in local payments law and operations of large-value payment systems.

Although the various markets have sufficient overlapping opening hours, the conditions do not facilitate cross-currency business to take place within these overlapping hours. The availability of liquidity, efficiency of the payments systems and costs associated with intra-day liquidity result in behaviour whereby payments are pushed back behind closing hours of other currencies. The solution in our opinion should not be found in an extension of opening hours, but should lie in harmonisation and a level playing field in order to influence the ‘payments’ behaviour of market participants.

Reserve Bank of India (October 2007)

The "Progress in reducing foreign exchange settlement risk – Consultative Report", July 2007 has been perused. The report has highlighted the various steps taken by the parties concerned for reducing foreign exchange settlement risk.

Though the report has covered the various risk mitigation measures used / that can be used for limiting counter party exposure, the unique model implemented in India, i.e. the Central Counterparty guaranteed settlement needs mention in the Report. Also, inclusion of effectiveness of back-office confirmation as a risk mitigant could also be considered.

A brief on the settlement on the risk mitigation measure adopted for the Forex transactions through a central counterparty, the Clearing Corporation of India Limited is given in the Annex.

Annex: Central Counterpart for reducing foreign exchange settlement risk

The banks authorized by Reserve Bank of India to deal in foreign exchange settle their Forex obligations through CCIL which acts as a central counterparty and settles their trades through a process of multilateral netting and novation. CCIL guarantees settlement of all trades within the Spot Window (i.e. for all trades which are to be settled on Cash, Tom and Spot basis) providing the participating banks a certainty about settlement of all types of forex trades other than in the forward market.

In the year ending March 2007, CCIL settled over 1.2 million deals for a value of USD 1.8 trillion with an average netting factor of over 90%. The gross daily turnover in inter-bank foreign exchange transactions in India is USD 11 billion (one side) on an average and has been as high as $56 billion on month-end dates when forward deals mature.

The risk mitigation measure adopted by CCIL is as under:

Forex segment

In the Forex Segment, CCIL takes up Cash, TOM & Spot INR/USD trades for guaranteed settlement from the point of acceptance of trades after matching and exposure verification. Forward trades are currently being taken up for guaranteed settlement when it enters the spot window. Settlement of the trades in the Forex segment is not on a Payment versus Payment basis. Due to settlement happening in two time zones, the US Dollar funds are received from a member only after the counter-value rupee funds have already been delivered to the credit of its account. Due to this time lag, the risk from a default in USD payment is in the nature of a credit risk. In addition, there is market risk to the extent of the change in the exchange rate. Thus, the process of ensuring that the members are financially sound is of utmost importance in the Forex Segment.

The risks emanating from the Forex Settlement operations are covered by CCIL through its processes for setting up exposure limits, margining and Loss Allocation as discussed below:

a) Membership norms: CCIL has strict membership norms in place and restricts membership in this segment only to those Authorised Dealers who meet the minimum admission criteria designed to assess the member’s financial strength and standing.

b) Net Debit Cap (NDC), Margin Factor & Exposure Limit: The risk management process relating to forex settlement operation stipulates fixing of Net Debit Cap (NDC) for each member on its net USD sale position per settlement date so as to keep the maximum credit exposure on a member within acceptable limits. NDC computation is based on two factors: the counter party risk assessment (CPRA) grading for the member given by a reputed credit rating agency and the net-worth of such member. Based on the CPRA grading of the member, margin factors are also arrived at. Contribution of a member to Settlement Guarantee Fund (SGF) is in US Dollar and is equal to margin factor percentage of NDC for such member. Members are required to contribute to the Settlement Guarantee Fund (SGF) in US Dollar and based on their contribution, Exposure Limit (EL) is computed. Trades concluded by a member are accepted for settlement only as long as the Exposure Limit is not breached, i.e., the net US Dollar sale obligation of the member for the settlement date is within Exposure Limit set for the member.

c) Arrangement of liquidity: CCIL’s primary commitment is to ensure uninterrupted settlement and for covering its liquidity risk, CCIL has in place a collateralized Line of Credit (LoC) limit from its overseas Settlement Bank. CCIL draws against the LoC in case a member fails to deliver its currency obligation to CCIL on the settlement date. Apart from this, additional Clean LOC is also available to support the liquidity requirement.

d) Default handling: CCIL has a well defined process for handling any settlement shortage either in US Dollar leg or in Rupee leg. Since inception of settlement in this segment in 2002, settlement shortages have been met by CCIL based on this process

The twin features of settlement guarantee and net settlement have spawned a host of related benefits and have resulted in operational efficiency. In markets where the foreign exchange trade is principally between the domestic currency and one of the major international currencies i.e. where the netting potential is expected to be significant and where it is difficult for the currency to become a CLS currency, the CCP system has the potential, like in India, to be able to mitigate the risk to efficiently support an orderly growth of the market. CCIL as a CCP has been able o provide CLS third party services at an aggregated level for all banks in India, offering ease of use, margin leverage and economies of scale.

Siddhartha Roy, India (October 2007)

I refer to the above-mentioned report and would like to offer the under-noted comments for your consideration. It occurs to me that although CLS Settlement is largely believed to be an efficient solution for Risk Management in the Forex Market, some critical aspects of CLS settlement perhaps do not get necessary focus:

a) Only settlement risk is taken care of by CLS System. Market risk inherent in Forex Settlement operations remains uncovered.

b) The risk is actually taken care of for the Settlement Members of CLS Bank only (merely 67 banks). Other market entities do not really get the benefit of PvP [explained in para 2 below]

   Although the transaction carried out by these CLS Settlement Member banks amongst themselves are substantial part of the transactions in the market, the transactions carried out by other entities either with these settlement members or amongst themselves are substantial enough to be taken into account for assessing the efficacy of the risk mitigation capabilities of CLS settlement process.

c) Due to huge expansion in the Forward and Currency Derivates market, the market risk component of the total risk carried by various market entities have increased substantially. CLS Settlement do not take care of this risk. Although the focus of the current study is limited to Reduction of Settlement Risk, the scope for an assessment of this type perhaps should be increased to look beyond the mitigation of Principal Risk.

d) CLS System is now taking for settlement :

   i) *Option excerise related contracts:* by nature these transactions are at prices away from the prevailing market prices.

   ii) *Payments for Option Premium:* one sided payments without any counter-value ; and

   iii) *Forward contracts for settlement at deal prices:* these are normally at prices away from the prevailing market prices.

   It also understood that CLS Bank has entered into an arrangement with DTCC, New York for settlement of their Derivatives Processing related net payments through CLS Systems. There is also another arrangement for settlement of net payments of Forex Settlements of Chicago Mercantile Exchange-Reuters Forex Trading Platform. These transactions are either settled at original exchange rates or are payments without any counter-value getting settled. These type of transactions are likely to create possibility for significant market risk accruing in the settlement process. As the volumes in respect of these new initiatives increase, it may become difficult to tackle the incidental risk within the risk management measures of CLS Settlement Process.

2. As indicated above, CLS system manages Settlement Risk only and that too mainly for the Settlement Members of CLS Bank. All other entities settling through Settlement Members are required to take exposures of unlimited amounts on the Settlement Members due to their not having any flexibility to ask for Payment versus Payment (PvP) vis-a-vis these Settlement Members. In reality, due to settlement through CLS System, their entire settlement related exposures get concentrated on one Settlement Member, which may have an undesirable consequences in a stress scenario.

3. There is also a feeling that CLS Settlement Process has been able to convert the whole settlement process into a PvP process. In reality, it is not so. For currencies like Yen, Australian Dollar, Singapore Dollar etc. the payments received through CLS System cannot be used in the domestic market by the recipients as the RTGS for these currencies close before the cut off time for receipt of funds through CLS System. To take care of this, all Settlement Members usually extend intra-day credits to the banks settling their transactions through such settlement banks. This, in effect, result in credit exposures of significant amount getting created just outside the periphery of CLS System.

4. CLS system is also aggressively including new currencies into its fold. Many of these currencies like Korean Won, Isareli shekel, South African Rand, etc. are traded to a limited manner outside their home countries and most of trades in these currencies are vis-a vis a single currency like US Dollar. For these currencies, liquidity availability is limited and access to the settlement infrastructure for these currencies are also not available to all the settlement members. It is felt that the risk mitigation offered through inclusion of such currencies is much less than the new risk of dislocation of the existing system created by such inclusion. If CLS system is to be kept efficient at least for managing settlement risk, inclusion of currencies other than true international currencies into CLS settlement fold should be stopped.

5. Since CLS System allows settlement of forward trades, there is an illusion created that such settlements also provide risk mitigation. It is understood that many banks do not insist on counterparty limits for entering into such forward deals as long as the settlement is through CLS System (as in case of trades in spot window). In reality, till these trades go for settlement, the counter party exposure for such trades remain identical irrespective of whether those are for CLS Settlement or not?

6. Another very important aspect in regard to Forex Market Risk Management, as highlighted above, is the increasingly higher exposures of the market players in the form of outstanding forward contracts, option contracts and currency swap contracts etc. These type of exposures are increasing steadily and hence cannot be ignored for making an assessment of risk in forex markets. CLS type of settlement system or settlement system which is used by HKMA which is effectively as RTGS system however cannot be used for managing risk for such exposures. A Central Counter party offered Guaranteed Settlement would be a very effective solution for such exposures, specially in view of increased liquidity in these markets.

7. It may be pertinent in this context to look at an extremely successful experiment has in India which now neatly takes care of the risk in Indian Rupee/US Dollar market, which is essentially a domestic market and then integrates the system into CLS system for settlement of cross-currency trades of Indian Banks. This system is a deferred Net Settlement System and actually ensures that the exposure of the banks on their counter-parties are minimized and settlement exposure actually is only on an efficiently run Central Counter-party. A time has perhaps come now to consider reviving a net

settlement like ECHO which existed in UK on pre-CLS days or the proposed MULTINET which was proposed in US at around the same time. The complexity and the volume of trades in the market has perhaps increased so much that it is now becoming increasingly difficult for a RTGS type of settlement to manage the risk in a cost effective manner.

8. I thank you all again for an wonderful study and an incisive analysis presented in the report and expect that the views expressed by me, though contrarian, will be duly considered and will find appropriate mention in the Report.

SWIFT (October 2007)

SWIFT, the Society for Worldwide Inter Bank Telecommunications, would like to congratulate the CPSS (and its sub group on FX settlement risk) for producing a very insightful assessment in relation to the systemic risk reduction arising from settling FX obligations.

SWIFT is the industry-owned co-operative supplying secure, standardised messaging services and interface software to over 8,000 financial institutions in 207 countries and territories. The SWIFT community includes banks, FX players, broker-dealers and investment managers. The broader SWIFT community encompasses corporates as well as market infrastructures in payments, treasury, trade and securities. It provides global connectivity to payment partners, including many FX players.

Since the inception of CLS, SWIFT has provided the financial messaging for the FX settlements to CLS and its community. We continue to partner closely with CLS to lower our shared members' costs, to provide standardisation and automation to the CLS community, (thereby enhancing STP rates), and are keen to assist CLS in exploring the possibility of providing same day settlement for the CLS community.

With around 300mio messages a year, SWIFT is the leading post-trade messaging services provider for the global FX market. Additionally, SWIFTNet Accord (a central matching application for FX confirmations (and an affirmation offering) services the top FX dealers matching over 12mio transactions per year. It currently sits on the FX Joint Standing Committee Operations Sub Group chaired by the Bank of England. SWIFT is reliable and integral to post-trade messaging for bilateral and multilateral settlement and is recognised as a leader in message delivery products.

In late 2006, SWIFT in conjunction with the Tower Group, performed a market landscape assessment of the UK and US markets reviewing trends in FX trading and post-trade messaging including analysis of SWIFT related message traffic. Interviews were conducted with Senior Management and Strategy Experts in FX operations. A number of the findings support, complement and expand on the points documented in the CPSS report and it is to these that SWIFT would like to comment below:-

Use of different settlement methods

The CPSS report states that 55% of the total FX obligations are currently settled by CLS leaving still 32% settled via traditional correspondent banking means, 8% bilaterally netted and the remainder via alternative methods. This indeed suggests that there is still room for improvement for further reduction of FX settlement risk and that further action is required. Not withstanding the fact that a certain proportion of the global FX obligations is not carried by SWIFT, based on internal traffic analysis of CLS settlements versus non-CLS settlements, we support the view that there remains a notable amount of settlement risk which needs to be addressed.

Reduce correspondent banking for FX settlements

Although not explicitly stated in the report, the reader is left to assume that correspondent banking does not offer any settlement risk reduction. It is therefore assumed that the industry should continue to encourage users to adopt CLS settlements where appropriate or use bilateral netting where it is not.

Trends in a changing FX market

FX volumes presently enjoy healthy growth fuelled by electronic trading, hedge fund participation and algorithmic trading.

Electronic trading creates more volume which requires STP. A vital part of STP is a centralised confirmation and settlement model such as CLS which SWIFT supports. Standardisation and automation also play a key part in enhancing STP.

We are beginning to see how increasing volumes of lower value trades is placing more pressure on back offices demanding the creation of new process models such as pre-settlement netting and alternative settlement structures.

As a result, firms may seek to internalise trading to reduce transaction cost and risk or net internally prior to CLS submission.

Automation Hedge funds are driving volumes in established markets while activity in emerging and frontier markets is driven by commercial trade.

We have already witnessed some Hedge Funds (and Investment Managers) shy away from settling their FX obligations via CLS preferring to net with their counterparties themselves. Sensing their need, commercial vendors are now offering FX netting systems to their clients. While this provides another choice for institutions to potentially reduce risk and costs, it may well introduce other risks at hte same time. For example, commercial netting systems could fail or exit the market (as in the case of FX Net) and as result the institution could be re-exposed to the same risk. Additionally, bilateral netting on its own may reduce but not eliminate exposures as pointed out on Pg 10 of the report.

The above findings and observations from our study reiterate the point made on Pg 11 of the CPSS report that growth in activities such as algorithmic trading could lead to the re-introduction of settlement risk with netting activities.

Risk management and regulatory influence

On the other hand, risk management concerns are anticipated to drive more volumes to solutions with intraday settlement. Participants in our study believe that CLS will be encouraged by authorities like the FSA and the FRB to further reduce settlement risk by increasing the number of intra day settlements, thereby reducing risk windows. At the same time, participants believe that more parties will be encouraged to settle via CLS rather than bilateral inter-bank traditional correspondent banking methods. This supports the recommendations outlined on Pg 12 under “Action by industry groups”.

Cost not necessarily the key driver

Our study findings support the CPSS’ comments on Pg 10 where it states that “less transparent cost savings such as lower cash management costs, higher STP rates and other operational efficiencies were often not fully taken into account.” Participants in our study were not always fully aware of the entire range of costs associated with the different available settlement methods. Consequently, the full cost was not regarded to be a key driver in choosing a preferred settlement method.

FX trading will increase in emerging markets

Based on interview feedback, we expect the greatest growth in FX transactions over the coming years (and over the long term) to occur in the emerging markets region As Exchange controls diminish and ultimately disappear, trading will increase leading to e-trading and also create opportunities for speculative trading which has helped to fuel growth in more developed FX markets. With higher volumes, participants will look for CLS to add more of these currencies to the system.

SWIFT strategic FX programme

In relation to the comments made on pg 12 of the CPSS report, plans are already set in place to use the collective power of our co-operative to facilitate regular and structured discussions with our key FX users over the coming months to:-

- encourage further progress and heighten awareness among our members of the implications of backsliding, for the risks faced by FIs, their counterparties and the financial industry and in doing so drive down costs

- continue to partner with CLS to further enhance its services for reducing FX settlement risk while supporting the growth of new entrants (CLS 3rd party members), new eligible currencies and new instruments

- continue to lead the standardisation activity (thereby enhancing STP rates and reducing costs) by developing and encouraging adoption of ISO 20022 registered XML standards for FX related transactions. This was recently completed for Non-Deliverable Forwards and FX Option Premium transactions for the CLS community (they are now ISO registered and available on the iso20022.org website)

- engage and partner with Market Infrastructures or entities servicing prime brokerage and derivative processing

- extend its role and reach in middle-office services; provide support for the buy-side and prime broker FX flows and engage FX portals as key participants in the FX– eco system, as a solutions provider

- explore the provision of a bi-lateral netting system to guarantee a reliable, dependable and affordable service to the FX community, specifically targeted to the non-CLS eligible currency settlements We look forward to progressing the above mentioned initiatives with our community over the coming months.

Vidhyalakshmi S, India (October 2007)

I have gone through your article on *Progress in reducing forex settlement risk* of July 07 which talks about various forex settlement methods, however very little information on on-us settlements. Out of academic interest I request you to through some more insight on on-us settlement which might include country or region which follows on-us settlement, a practical example, etc.

Kenneth Young, USA (January 2008)

Since the members of the Committee on Payment and Settlement Systems and the Sub-Group on Foreign Exchange Settlement Risk are well acquainted with the Continuous Linked Settlement (CLS) project, some members may feel that there is little more that can be added to their understanding of the continuous concept from which CLS was developed. Even so, this paper presents a broader and more enduring interpretation of that very same concept as a genuine point of inflection for the future course of global financial integration.

Background

In the mid-1990's the CPSS began using the term continuous intra-day finality as a synonym for real-time finality or immediate finality. Though not specifically stated, it was thought that the Committee might have been considering development of a system to provide real-time gross settlement (RTGS) between central banks. If so, it seemed apparent that the idea probably originated with a central banker and a member of the CPSS who actually had hands-on involvement in the construction of a national real-time gross settlement system. Since Christian Vital was the chief architect of the Swiss Interbank Clearing System (SIC), it was assumed that the concept was most likely his. There was no way to verify that belief directly, since Mr. Vital died in August of 1997.

Several members of the CPSS were contacted about their recollections of what Mr. Vital had presented. A compilation of their responses was that he had, indeed, proposed a central bank payments platform to be built and operated by central banks to facilitate real-time gross settlement between central banks using central bank money. They also acknowledged that the Committee thought that the time, money and creativity required to build such a system would be too demanding; the idea was tabled.

From that point forward, the development of the continuous concept was undertaken by commercial banks rather than central banks. A decade later, there is an almost generic association of the word "continuous" with the CLS endeavor.

But what if the continuous concept, as originally envisioned by Mr. Vital, was viable? What if central banks could be integrated within a single unified payments infrastructure that could ultimately accommodate the entire spectrum of global payments applications? Recognizing the need and the enormous potential for such a system, development of a continuous payments utility began in 1997. What follows is a summary of how it was created.

The mechanism of exchange

My two-pronged approach was guided by a fundamental acknowledgement of the inseparable relationship between monies and the mechanisms within which they must operate. Rather than confront monetary issues head-on, I began by assembling the mechanical specifications and developing the technical infrastructure for a globally integrated payments utility. Here are some of the mechanical issues:

> Mechanical Issues – Each country has its own unique characteristics that include its place and time in the world, its language(s), as well as a host of technical, financial, legal, economic, political, cultural, etc. identifiers. Although some of these traits are somewhat static, the defining and redefining of a country's sovereignty profile is, and always has been, an ever-changing and dynamic process.

The challenge for a globally integrated utility is to evenhandedly accommodate each country's existing profile while acknowledging that future modifications to the profile are inevitable. ISO 3166-1 lists 249 countries in the world. Integration of all countries therefore required that the utility establish and perpetually maintain over 30,800 country-to-country conventions to define how each country has agreed to bilaterally deal with another. Another important mechanical consideration is that dealings between countries in a globally integrated, real-time environment would mean that today's dealings involving one country might occur yesterday or tomorrow in another.

The medium of exchange

Once the mechanical specifications of the utility were integrated and tested, its capabilities exceeded all expectations. But without a medium of financial exchange, the utility was only halfway complete. Here are some of the monetary issues:

> Monetary Issues – The selection of a country's exchange rate regime is also a vital part of its overall sovereignty profile. But no matter which regime is selected and no matter how prudent a monetary authority may act within its own jurisdiction, both the regime and the authority are subject to extra-jurisdictional influences that are unpredictable. Cross-currency positions are continuously realigned so that the value of any given currency will both increase and decrease at the same time, relative to all other currencies.

The challenge for a globally integrated utility is to accurately assess the precise value of one currency in relation to another currency, and immediately convey an equivalent measure of value, regardless of which combination of currencies is involved. Since ISO 4217 lists 177 currencies in circulation in the world, that calculates to over 15,500 currency-to-currency pairings. It should also be noted that a global utility must not inhibit a country from selecting currencies for its cross-border dealings other than the currency it uses domestically.

After years of development, the mechanical and monetary issues were all addressed within a single unified payments infrastructure that is composed of three components – a common mechanism (the Optimum VALUE platform), a common intermediary (the InterTELLER agent) and a common medium of exchange (the InterTHALER unit).

A closer look at the monetary component

Over the last 150 years, few topics have occupied economic literature more often than discussions and debates about how to establish a standard economic unit of account. During the 20th century we used a commodity (gold); we linked a commodity with a currency (Bretton Woods); we considered multi-currency indexing (i.e. tri-polar use of dollar/euro/yen); and there were theories offered for the creation of units derived from statistical/mathematical data. In that category, among others, we could include the intor unit proposed by Robert A. Mundell at Columbia or the asymptotically ideal money of John F. Nash, Jr. at Princeton. The question remains – is there something, anything, upon which a measure of intrinsic worth can be irrevocably fixed?

As was explained above, my unorthodox approach to that question was to first develop the mechanical infrastructure. That work was done with no assurance whatsoever that the utility could ever become operational without subsequent development of a common medium of financial exchange. Rather than overcomplicate this presentation with a detailed recounting of the development process, here is a brief recap of the problem and the solution.

> The Problem - Once the mechanism could be tested, its ephemeral exchange environment was found to be intolerant of fluctuations in exchange rates. The instability and turbulence of the mechanism was similar to the reaction of a gasoline engine when fueled with diesel; if it starts at all, it will smoke, shudder and die. No matter what medium of exchange was tested, there was no currency, commodity, security or anything else - individually or combined with others - that would calm the mechanism. What was required was a single fixed-value medium of global financial exchange that was specifically formulated to fuel the engine of exchange. Since no medium was found to exist, it had to be created.

> The Solution - For developmental and integrational purposes, the most rigorous monetary demands that could be placed upon the mechanism were to assume, (1) a free-floating exchange rate between all currencies, (2) uninhibited/instantaneous mobility of capital and (3) absolute autonomy in the conduct of each country's monetary authority. With those three conditions in place, it might be thought improbable, if not outright impossible, that a fixed-value medium of global financial exchange could ever emerge. The two-out-of-three limitations of the impossible trinity would seem to confirm that opinion. So how is it possible that exchange rate regimes can be both flexible and

fixed at the very same time? It is made possible because of the unique characteristics of the InterTHALER unit.

- The unit was specifically designed to withstand the mechanical demands placed upon it within a real-time, global exchange environment.
- The unit has no other pecuniary attributes except to function within the utility as an intermediating medium of exchange.
- The unit has only one value in relation to all currencies or to anything else with monetary worth.
- The unit is isolated from and immune to any influence from any outside money, market or monetary authority.
- The unit is inexhaustible; its quantity may be increased or decreased as needed without any inflationary or deflationary impact.
- The unit is internationally recognizable, without consent or consensus, as a common medium of global financial exchange.

As stated above, the InterTHALER unit is one of three interdependent components of the utility. When fully assembled, the utility affirmatively answers all of the questions that have been asked in this paper - Yes, the continuous concept envisioned by Christian Vital is viable; Yes, central banks can be integrated within a single unified payments infrastructure; Yes, the infrastructure can accommodate the entire spectrum of global payments applications; Yes, there is a common medium of global financial exchange upon which a measure of intrinsic worth can be irrevocably fixed; and, Yes, exchange rate regimes can be both flexible and fixed at the same time.

Proposal for a central bank-centric initiative

Throughout this paper every effort has been made to present this extraordinary utility in a straightforward, matter-of-fact manner. Likewise, the proposal for its implementation has been concisely stated within a single sentence:

> What I propose is to initiate a cooperative venture with central bank experts to fine-tune the capabilities of this utility to function as a vertically integrated central bank payments platform that conforms to central bank specifications and operates subordinate to central bank oversight and control so as to efficiently, economically and securely facilitate real-time gross settlement between central banks.

My contribution to the success of that mission would be the frictionless capabilities of this utility to deliver costless, riskless and instantaneous settlement between central banks with the guarantee of unconditional and irrevocable finality.

Potential for CLS in a globally integrated environment

Since the Consultative Report positioned CLS as the benchmark of success for central bank strategy over the last 10 years, and requested comments from interested parties, here is my comment regarding the unrealized potential for that project.

> The CLS application was privately developed by commercial banks to operate in conjunction with the central banks of a limited number of countries for a limited period of time each business day and is limited to foreign exchange amongst a limited number of currencies. The central bank-centric payments utility proposed in this paper positions central banks at the apex of the payments pyramid so as to uniformly integrate all countries and all currencies at all times. In doing so, it will enhance the global proficiency of any cross-border/cross-currency payments platform. For CLS, the

payment-versus-payment (PVP) certainty of settlement finality would still be assured, but the above listed limitations would all be eliminated.

Precautionary note

By definition, radical innovation produces a paradigm shift that realigns or eliminates what were previously considered indispensable participants. This utility is no exception. The long-awaited benefits of global financial integration are too important for central banks to ignore. But the harsh reality is that advancement of that objective will also mean that some global payments intermediaries will be assimilated, while others will be disintermediated. The importance of the authoritative role of central banks in that process cannot be overstated.

Conclusion

In one of George Bernard Shaw's plays he wrote, "All great truths begin as blasphemies." I confess that my work has proceeded along a line of belief that does not conform to the historical/theoretical theology of economics. Since I am an accountant, not an economist, I was unaware that economics had pronounced certain obstacles to be insurmountable until after they had already been overcome. The fruit of that labor may be perceived to be contrary to the discipline. And yet, I am confident that an 18th century economist/philosopher like Adam Smith would be pleased to know that an ordinary individual can still raise an invisible hand to resolve problems that are much greater than himself; a 19th century economist/technologist like William Stanley Jevons would recognize the harmonization of money and the mechanism of exchange from which a single tabular value has finally been realized; and a modern day economist like Robert A. Mundell will see the profound truth in his statement of optimums – "The optimum currency area is the world; the optimum currency unit is a single currency [unit]."

This paper and its proposal are respectfully submitted to the members of the CPSS and the Sub-Group for their consideration, comments and questions.