

CHAPTER 3
Business Process Description
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CHAPTER 3

Business Process Description

3.1 INTRODUCTION

[143] This chapter describes the business processes at a conceptual level. The aim is to define a high-level design, which embodies the fundamental principles and issues detailed in the previous chapter. The emphasis is therefore on a design framework within which every component can be identified, viewed within context and appropriately addressed. This design will serve as a common basis for further analysis and numerous independent projects.

[144] The core components of the envisaged business process are detailed in the following paragraphs.

3.2 THE PAYMENT PROCESS (Figure 8)

[145] The following distinct phases of the payment process were identified in Chapter 1 and are described in more detail as follows:

- Deal agreement, resulting in a payment instruction;
- payment initiation;
- clearing (incorporating netting);
- settlement (incorporating netting);
- payment finality;
- deal completion, resulting from a payment confirmation;
- synchronisation of delivery and payment; and
- synchronisation of information.

3.2.1 Trading system : Deal agreement and payment instruction

[146] Most payments originate in trade in various markets, ranging from retail and corporate trade, through to trade in formal and more informal markets. Each of these markets utilises its own market-specific systems. For example, the retail market may utilise point-of-sale systems, whereas the financial markets may use electronic dealing systems. These systems are developed by the market participants themselves and fall outside the domain of the NPS.

[147] These systems should, however, be able to integrate with the NPS, through standardised NPS interfaces, thereby extending the network for the generation of payment instructions that will ensure that electronic payments in particular enter the payment system as quickly and efficiently as possible. This will enhance the trade-related systems and enable CPSPs to provide value-added services from a payment perspective.

[148] To facilitate DVP in a more formalised market, a 'delivery instruction' has to be synchronised with the 'payment instruction'.

3.2.2 Payment system : Payment initiation

[149] The emphasis during this phase is to accept³⁷ the payment instruction formally into the banking industry. Two channels can be distinguished through which a payment can be initiated:

- An electronic credit-transfer channel, routing payment instructions to the paying bank; and
- a debit-collection channel, routing payment instructions based on debit-pull principles to the collecting bank.

[150] The bank receiving the payment instruction will accept responsibility for driving the payment to finality. The payment instruction will be verified, validated and fated (credit push) in accordance with the requirements of the specific payment instrument. At this point, the bank has the opportunity to add whatever value-added processing it requires, for example, tag it as a guaranteed payment or integrate it with other inhouse systems.

[151] Banks will be able to schedule the payment instruction to be either processed as part of a bulk clearing process, or routed directly through a single payment-clearing process for settlement.³⁸

[152] Processing of a payment instruction could be via the same or different institutions. If both the buyer and the seller bank with the same bank, the payment instruction is referred to as *on-us* and need not necessarily follow the rest of the NPS process.

3.2.3 Payment system : Clearing

[153] Single³⁹ payment instructions can be cleared, transformed into a settlement instruction⁴⁰ and forwarded to the settlement process by the paying bank.⁴¹

37. The handshake between the trading system and payment system has taken place when:

- the customer has given a payment instruction;
- the bank has taken over the obligation; and
- the bank takes responsibility for the transaction.

Therefore, transfer takes place at the point of acknowledged receipt.

38. In the longer term, debit instruments for high-value payments will be discouraged and phased out. As a special arrangement during the implementation, high-value instructions could be forwarded to the paying bank by the collecting bank and converted to a credit-transfer type of payment instrument.

39. Where the underlying payment will be related to a specific customer.

40. The settlement instruction will contain information pertaining to the beneficiary bank, the preferred settlement option and, if applicable, any special agreement, for example, for which bilateral/multilateral netting stack it is intended.

41. A high-value payment system does not exist as an entity, but the functionality is embodied in the following components:

- Electronic payments, based on the principles of credit transfer;
- electronic interfaces, integrated into various trading systems to generate payments at the source;
- a direct route for high-value and urgent payments to be settled in central bank money by means of an online settlement system; and
- a principle of granting finality of payment after finality of settlement has been achieved.

[154] The bulk clearing process will be accomplished through PCHs, on a bilateral or multilateral basis. Conceptually, there may be various PCHs, each specialising in a specific type of payment stream and/or payment instrument. The payment instructions will be totalled within certain guidelines, and the PCH will then issue a settlement instruction on behalf of the participating banks. The PCH will also make the details of the payment instructions, bulked together for settlement purposes, available, to enable banks to provide payment finality (implicitly or explicitly) once settlement has taken place.

3.2.4 Payment system : Settlement

[155] Both of the processes handling payment instructions, namely, the 'bulk clearing of payment instructions' and the 'single clearing of payment instructions', will generate standard⁴² settlement instructions, which will be forwarded, for irrevocable interbank settlement, through the settlement system at the SA Reserve Bank.

[156] As a result of the settlement process, confirmation messages will be generated to both the originator and beneficiary banks, as well as for delivery versus payment (DVP) purposes, where applicable.

3.2.5 Payment system : Payment finality

[157] Upon receipt of the confirmation messages, both the originating and beneficiary banks will be able to do their own inhouse and customer accounting and provide payment finality to their customers. The details pertaining to the bulked payments will be obtained from the bulk clearing process (and the associated PCHs) and reconciled⁴³ with the settlement. Payment finality, therefore, follows settlement finality. (Refer to the fundamental principle in section 2.5.12.)

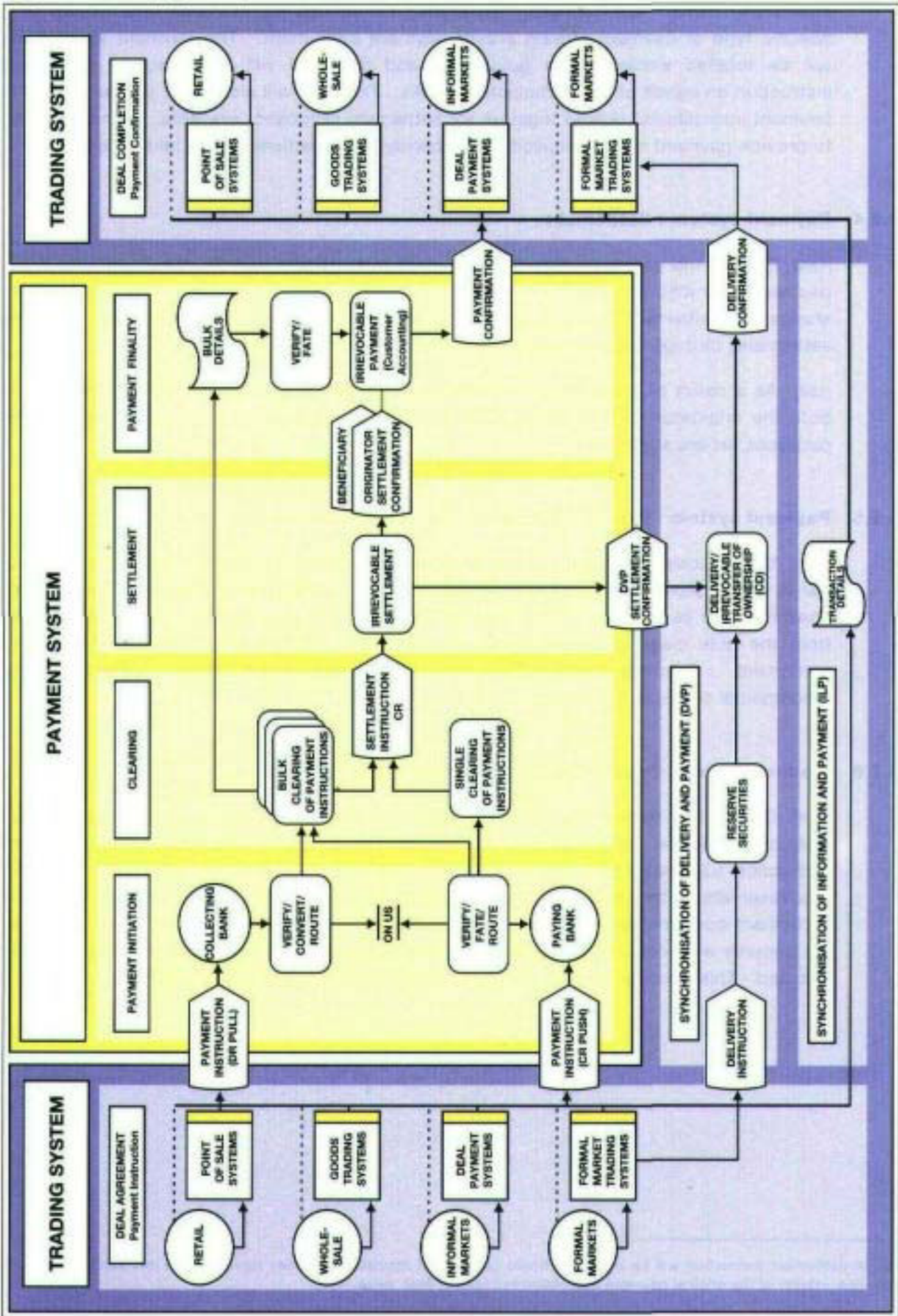
3.2.6 Trading system : Synchronisation of delivery and payment

[158] During the trading process, especially in the more formal markets, a delivery instruction will be generated in parallel with the payment instruction. This delivery instruction will ensure that the required securities are available and reserved. Following this reservation, the settlement of the payment leg can be completed, resulting in a settlement-confirmation message. Upon receipt of the settlement-confirmation message, the security will concurrently be delivered and/or irrevocable transfer of ownership will be effected. This concept is also referred to as delivery versus payment (DVP).

42. A settlement instruction will be in an electronic credit-push format, which may represent the net settlement figure (low values) or the original payment instruction in cases of high value.

43. An unpaid item is returned to the originating bank and re-enters the system as a new payment instruction.

Figure 8: The payment process



3.2.7 Trading system : Synchronisation of information

[159] The NPS will facilitate the electronic relay of information related to a payment, in parallel with the payment instruction, from the originating party to the beneficiary. This will enable a beneficiary⁴⁴ to link the payment confirmation, received from its banker, with customer and other transaction details associated with the payment instruction. This concept is also referred to as information linked to payment (ILP).

3.3 THE CLEARING PROCESS

[160] The objective of the clearing process is the exchange of payment instructions between the payer's bank and the payee's bank (or their agents). The clearing process can be centralised in a payment clearing house where participants exchange payment instructions amongst themselves on a multilateral basis or where the originating and receiving banks deal directly with each other on a bilateral basis, giving the respective gross bilateral exposures.

3.3.1 Nature of the clearing process

[161] The nature of the clearing process will be determined by the nature of the settlement required:

- Payment instructions of a low-risk and/or a low-value nature will be cleared in bulk, through a PCH, either on a bilateral or multilateral basis.
- Payment instructions requiring immediate payment finality will be cleared bilaterally, as individual payment instructions.

3.3.2 The bulk clearing process (clearing of multiple payment instructions) (Figure 9)

[162] Bulk clearing of payment instructions will take place in a PCH. The bulk clearing process will receive payment instructions routed to the PCH by either the collecting or the paying bank. Both credit-push and debit-pull-based instruments will be processed. If the item value exceeds the payment-instrument value limit of the particular PCH, the payment will be designated to be a high-value payment and could be rerouted to be settled by means of a more appropriate settlement option.

[163] As a first step, the payment instruction will be verified for validity and registered. Paper-based payment instructions will be converted to a standard electronic format. From this point onwards, the process will be generic, and the infrastructure could to a large extent be duplicated in the different PCHs.

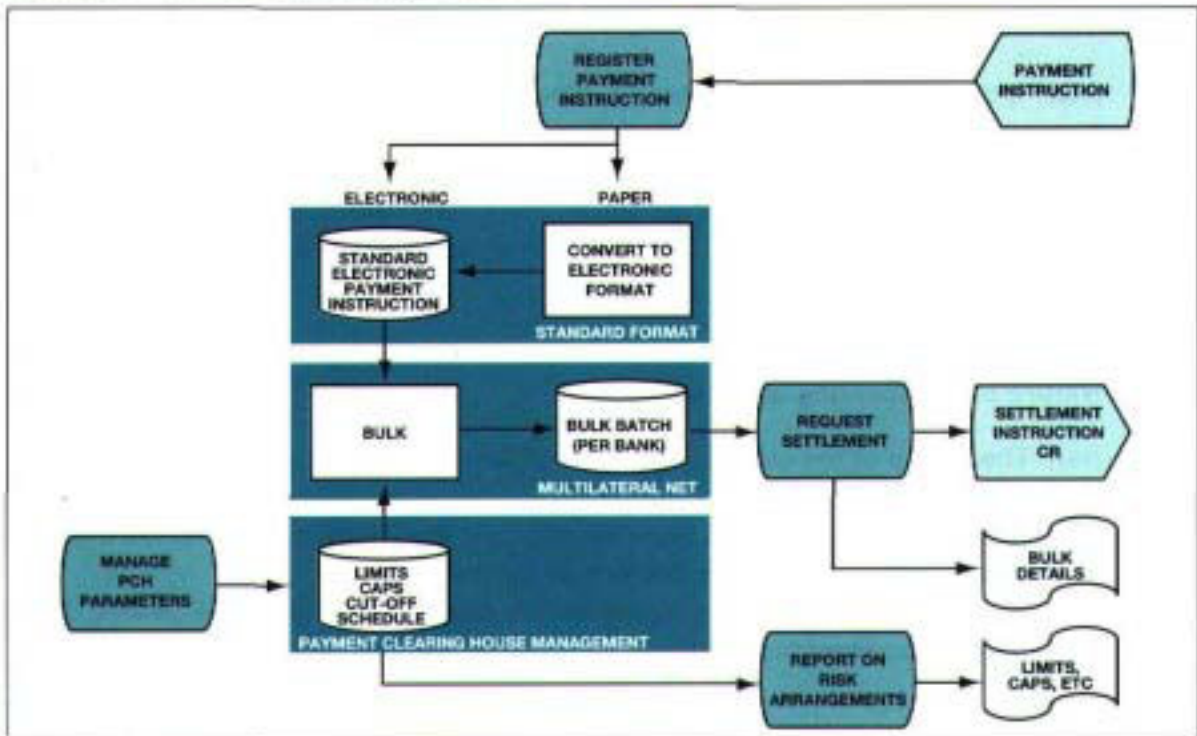
[164] Payment instructions will be sorted and bulked into batches, and the aggregate value will be determined. A settlement instruction reflecting the respective gross obligations of the banks will be generated, instructing the net transfer of funds from the paying bank to the collecting bank.

44. Eskom, as an example, has expressed a need to receive payment from its customers, together with information on applicable Eskom customers' account details.

[165] The settlement instructions will be linked and routed to the central bank settlement system, together with an indication of the settlement option⁴⁵ required. The settlement system will facilitate the concurrent settlement of these settlement instructions.

[166] The PCH will provide operational information regarding the bulked payment instructions to the banks, as well as statistics to the SA Reserve Bank, for example, on the daily turnover.

Figure 9: The bulk clearing process



3.3.3 Single clearing process (the interbank fund-transfer process)

[167] Payment instructions not processed through the bulk clearing process will be mainly of a high-risk, high-value and/or urgent nature. They will be based on electronic credit-push principles. The paying bank will utilise its interbank fund-transfer facility to transform the payment instruction into a settlement instruction, with an indicator set by the paying bank as to whether immediate, delayed or scheduled settlement is required.

[168] This implies that settlement instructions will be routed via the SA Reserve Bank. In other words, the paying bank will instruct a credit transfer from its account to the beneficiary bank in the books of the SA Reserve Bank. Upon successful completion, a settlement-confirmation message will be forwarded to both the paying and the beneficiary bank.

3.4 THE SETTLEMENT PROCESS (Figure 10)

[169] Final settlement in central bank money will be achieved only through entries across the accounts of the banks held at the SA Reserve Bank or in cash.

45. This will be predetermined and agreed by the participants of the PCH.

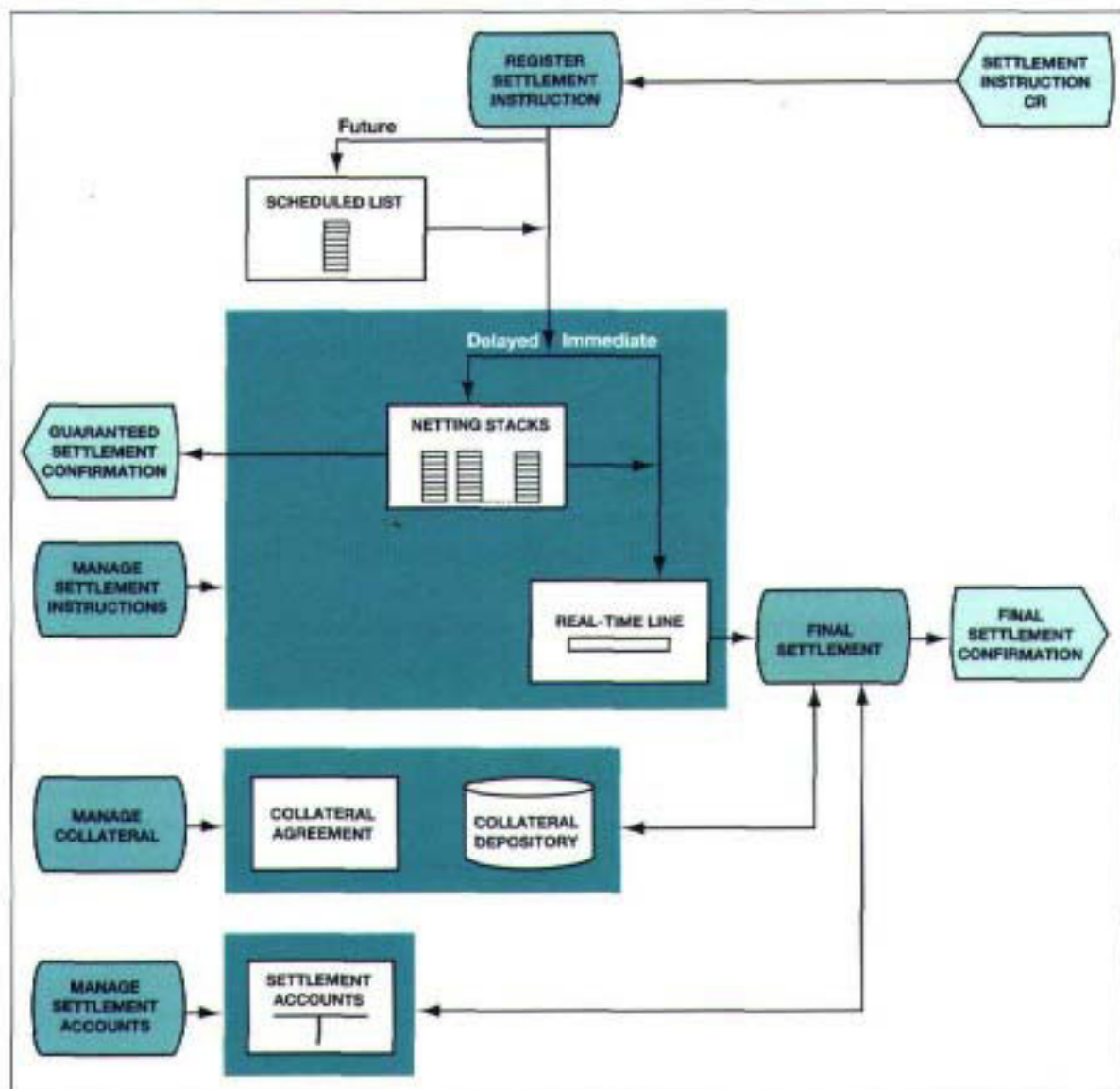
[170] The settlement system will provide a range of alternative settlement options (refer to strategy 1), including:

- immediate settlement, that is, settled in real time, on a gross basis, upon receipt of the settlement instruction; and
- delayed settlement, that is, for settlement instructions due but placed on hold and accumulated for either bilateral or multilateral net settlement. These settlement instructions will be processed conditionally, that is, settlement at, *inter alia*, a specific time.

[171] The immediate settlement component will be the core of the settlement system and will be based on the principles of what is internationally referred to as a real-time gross settlement system (RTGS).

[172] The settlement system will also provide options to effect delayed settlement of payments for which settlement will be triggered on reaching specified conditions⁴⁶ or through manual intervention by the central bank.

Figure 10: The settlement process



46. Delayed settlement will be triggered either when an agreed upon limit is reached, or at a scheduled time, but always by the end of the day, at the latest.

[173] The settlement of multiple settlement instructions in the netting stack will be effected concurrently. The cost of funding these types of obligation is to be minimised by enabling settlement banks to manage their exposures within either a bilateral or a multilateral net. Appropriate risk-reduction measures need to be agreed with the SA Reserve Bank, and will be a prerequisite for participation in the particular netting arrangement.

[174] The settlement system encompasses the following:

- A settlement instruction;
- a settlement-instruction registration process;
- a real-time line, a number of netting stacks, and a process to manage them;
- a scheduled list;
- a collateral and a dynamic collateral-management process;
- a set of settlement accounts and an account-management process;
- a settlement process to effect final settlement, both intraday and at the end of the day; and
- various confirmations.

3.4.1 Settlement instruction

[175] Input to the settlement system will be a settlement instruction for a credit transfer⁴⁷ across the settlement accounts of the banks held at the SA Reserve Bank. Only a bank, or a recognised PCH on behalf of a bank, will be able to issue a settlement instruction.

[176] The scheduled list will provide a facility to register instructions for settlement at a future time and/or date, or upon a predefined condition being met. When due, these instructions will automatically be transferred to the netting stacks or real-time line as designated.

[177] The incoming settlement instructions may be:

- a single settlement instruction;
- a number of linked settlement instructions, to ensure concurrent settlement. Concurrent settlement of a number of settlement instructions implies that these settlement instructions will not be processed individually, but as a unit; or
- a settlement instruction generated from the scheduled list.

3.4.2 Settlement registration process

[178] The 'Register Settlement-instruction Process' will time stamp and allocate a unique sequence number, to ensure that each settlement instruction is successfully logged and acknowledged. This process will validate the incoming settlement instruction, to reduce the likelihood of fraudulent instructions entering the system. A valid settlement instruction will be routed to the designated settlement option.

47. Two entries, to adhere to the double-entry accounting discipline (debit and credit), will be generated from the settlement instruction by the settlement process to effect final settlement.

3.4.3 Real-time line and netting stacks

[179] A settlement instruction could be registered on the real-time line for immediate settlement, for delayed settlement on one of the netting stacks, or for future settlement on the scheduled list.

[180] The real-time line will provide for immediate final settlement. A settlement instruction will be processed only if sufficient funds are available in the particular account. A group of linked settlement instructions will be transferred only if all the settlement accounts can accommodate the effect of the settlement instructions concerned.

[181] The real-time line will serve as a direct access into the final settlement process. In the normal course of settlement, there should be no build-up of unprocessed settlement instructions in this line. This will be achieved by ensuring that sufficient funds are available through proper management⁴⁸ of the settlement account and collateral.

[182] The netting stacks will provide for delayed settlement, that is, settlement instructions that are already due for settlement, but are delayed and accumulated in a net to achieve off-setting with other settlement instructions to minimise liquidity requirements.

[183] When the netting stack is able to accept the settlement instruction, it will issue a 'guaranteed settlement confirmation'. This implies that the netting stack will be able to settle and that settlement finality will be attained. When an incoming settlement instruction will lead to the exceeding of the limit of the netting stack, the netting stack will first have to be settled before this settlement instruction will be accepted in the netting stack.

[184] The netting stack will be settled by the calculation of aggregated settlement instructions, which will be transferred for immediate concurrent settlement. Once these settlement instructions have been successfully processed, the netting stack will reopen.

[185] Banks, in consultation with the SA Reserve Bank, as settlement bank, will be able to establish any number of bilateral or multilateral netting stacks. A bank will be able to participate in more than one netting stack.

[186] The 'Settlement-instruction Management Process' will, *inter alia*, enable a bank to monitor and manage its own incoming and outgoing settlement instructions.

3.4.4 Collateral Management

[187] The collateral management component of the settlement system will form part of the normal process of intraday and interday accommodation:

- Participants in the settlement process and the SA Reserve Bank will agree beforehand on the terms and conditions of this accommodation process, as well as on the nature of the collateral acceptable to the SA Reserve Bank.
- A depository of collateral, subject to the above-mentioned agreement, will function within the settlement system to facilitate the settlement process. If sufficient securities are available in the collateral depository, they will be utilised to make funds available in the settlement accounts.

48. This is the function of the bank concerned.

[188] As part of the process of managing its collateral, every bank will be able to:

- monitor the utilisation of securities in the collateral depository;
- add suitable securities to the collateral depository;
- prioritise the securities available for collateralisation within the agreed parameters;
- and
- withdraw unutilised securities from the collateral depository.

3.4.5 Settlement accounts

[189] The 'Management of Settlement Accounts Process' will allow for monitoring of the settlement accounts. An online facility will be available for a bank to monitor its own account only. A bank will be able to view individual entries in full detail, and the balance will be available at all times. This facility will enable each bank to determine its funding requirements and manage the provision of collateral.

3.4.6 Final settlement

[190] The settlement process will be performed whenever settlement instructions are received through the real-time line to give final and irrevocable settlement. This process will determine whether sufficient funds are available in the settlement account.

[191] The funding of the settlement account is the responsibility of the particular bank. Agreement on the terms and conditions of credit extension will be reached between the bank concerned and the SA Reserve Bank, as part of the banker-customer relationship.

[192] Once sufficient funds are available, the appropriate debit and credit entries will be generated, to conform to standard accounting principles, and the accounts will be updated accordingly.

[193] Messages to confirm that final settlement has taken place will be generated to the paying and beneficiary banks and, where applicable, to the system that facilitates DVP and PVP.

[194] End-of-day processing will be accomplished by means of two cut-off processes. This will necessitate the closing of the netting stacks and the real-time line and the switching of any further incoming settlement instructions to pending queues for the next value date, facilitating a 24-hour service on all business days.

[195] The first cut-off will initiate the settlement of all netting stacks. Participants will be required to settle all outstanding settlement instructions and manage their end-of-day liquidity positions. This will be done by raising funds in the market and processing these fund transfers across the settlement accounts. If a bank is unable to raise the necessary funds in the market, it will have to seek interday accommodation at the central bank.

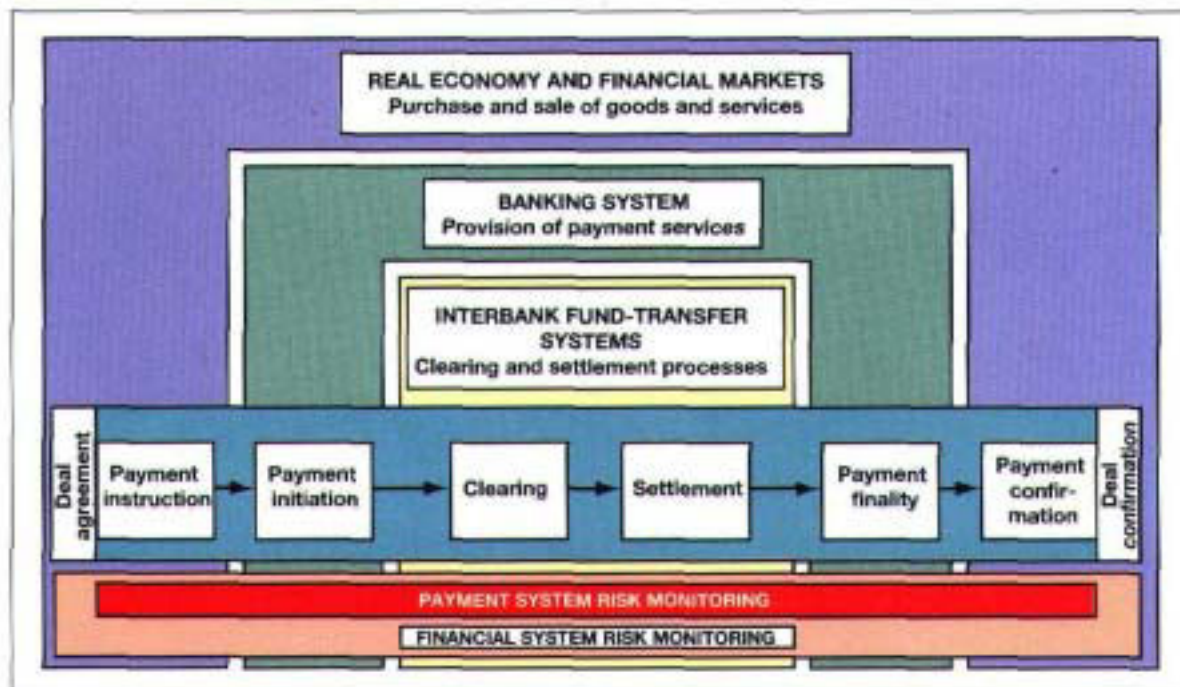
[196] The system will issue a second cut-off after a predetermined period. It is expected that all settlement instructions will have been effected at this time. Should any settlement instructions remain, it will imply that no further collateral can be provided by the payer, who is thus experiencing liquidity problems. In such a case, the SA Reserve Bank will exercise its discretion and take whatever action is deemed in the best interests of the financial system.

[197] At this stage, final statements will be produced, and the system will be reopened for settlement for the next value date.

3.5 RISK MONITORING (Figure 11)

[198] Deal agreements initiated in the trading system are a source of payment risk. Risks build up in the trading system and can spill over to the payment system. Monitoring should start as early as possible in the trading cycle, preferably when a deal agreement is reached. Risk monitoring of the NPS should therefore harmonise with risk monitoring of the broader financial system.

Figure 11: Risk monitoring



[199] Risk monitoring for the NPS focuses primarily on the payment risks and exposures of banks. The NPS should therefore provide integrated information, to compile a holistic payment-risk profile of a bank.

[200] Every bank should be able to access all information pertaining to itself, to build a dynamic risk profile comprising, *inter alia*, the following:

- The bilateral and multilateral exposure limits for delayed settlement. This should include the limits for bulk clearing processes as well as the settlement system;
- the settlement instructions in the real-time line, netting stacks and scheduled list in the settlement system, which will include an indication of the credit transfers it can expect from other banks where appropriate;
- the balance on its settlement account;
- the status regarding the utilisation of securities it has provided as collateral; and
- the status of all other relevant accounts.

[201] As overseer of the NPS, the SA Reserve Bank will have access to the same information as mentioned in the previous paragraph, for every bank. This information will be utilised to provide a risk profile of the NPS in total.