مصرف الإمارات العربية المتحدة المركزي
CENTRAL BANK OF THE U.A.E.

PAYMENT SYSTEMS OVERSIGHT UNIT

PFMI
ASSESSMENT METHODOLOGY

PSOU/OPFW/003

Version 1.0

9 February 2014

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

1.1 POLICY

All payment systems in the UAE are subject to Central Bank oversight and regulation. The Central Bank oversees payment systems through its Payment Systems Oversight and IT Security Unit (PSOITSU). The PSOITSU assesses payment systems' compliance with, in particular, the Bank for International Settlement's Principles for Financial Market Infrastructure (PFMI) but may also refer to other criteria including, for example, Central Bank policy.

1.2 BACKGROUND

This document updates the PSOITSU's earlier *Assessment Criteria* (Doc. Ref. *PSOU/OPFW/002*). The update is motivated by:

- The release by the Bank for International Settlements (BIS) of the new PFMI for payment, clearing and settlement systems.
- The emergence of innovative payment systems, channels and instruments especially those derived from Internet and mobile technologies
- The Central Bank's commitment to ensuring a competitive, diverse and well-regulated payments' market in the UAE.

The PFMI supersede the BIS's previous Core Principles for Systemically Important Payments Systems (CPSIPS) and are more prescriptive and deeper and broader in scope than CPSIPS.

This assessment methodology is to a great extent derived from two documents published by the BIS: *Principles for Financial Market Infrastructures (PFMIs)* and *Disclosure Framework and Assessment Methodology*.

This assessment methodology shall be reviewed periodically by the Central Bank depending on changes in the payment landscape, practices, new regulatory developments or standards.

1.3 ASSESSMENT REPORT

The findings of the PSOITSU's assessment are included in a standard report which is made available to the management of the system assessed. A report is generated for each payment system assessed and includes the most important items that must be addressed by the payment system operator. Diagram 1 below illustrates the process:

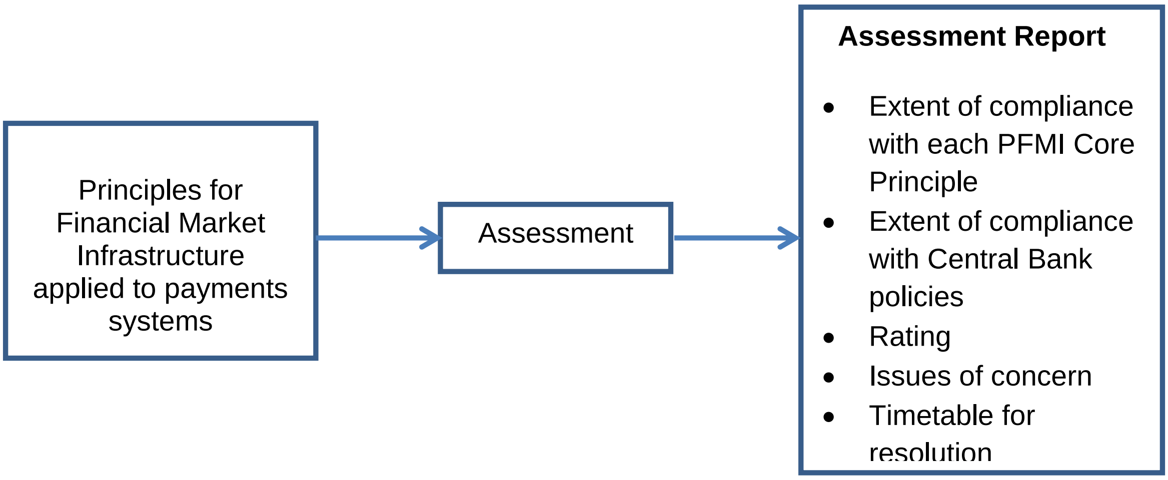


Diagram I: Overall Assessment Process

The payment system is assessed against each of the Principles described in this document plus any relevant Central Bank policy. Issues of concern are identified and ordered according to their priority. Finally, a schedule for resolving these issues is agreed with the system operator.

Note that the resolution schedules may be less pressing for ‘prominent’ systems than for ‘systemically important’ systems.

1.4 OBJECTIVES

The objectives of this assessment methodology are to assist the PSOITSU assess payment systems’ observance of the PFMI and to identify opportunities for improvement. In addition, the methodology aims to:

- Describe the assessment criteria used by the PSOITSU
- Incentivize and guide operators to improve their payment systems.by:
    - Adhering to the Principles in the daily management of operations
    - Providing new services

  - o Assessing existing or future risks and other factors

- Allow payments systems' operators and/or other stakeholder to formulate strategic/operational plans (short, medium and long term) to address the *issues of concern* found and to continuously assess any potential for improvements for Principles already observed

- Monitor the resolution of *issues of concern* as agreed with the PSOITSU and the payment operator

- Assist the CBUAE in policy, decision making and assess the trends in the payment landscape in the UAE.

1.5 SCOPE

The assessment is executed against both 'systemically important' and prominent' payment systems. Note that the latter may include, at the discretion of the Central Bank, operators of payment schemes and third-party service providers.

The Central Bank is the sole determinant of 'systemically important' and 'Prominent' systems.

'Prominent' payment systems, whether privately or publicly owned, are also assessed using PFMIs but with less rigour than 'systemically important' systems. "Less rigour", however, does not necessarily mean less thorough; rather, that certain Principles may not be entirely applicable including their Key Considerations.

The PSOITSU is aware that some systems may be regulated by other regulatory bodies and as such, the PSOITSU may confer with other authorities to either gauge a particular Principle or to share assessment findings.

1.6 TERMINOLOGY

The following terminology is used throughout this document:

- *Key Considerations (KCs)* are building blocks that make up a given Principle. The PSOITSU collects facts and information of KCs and other artefacts for assessment purposes.

- *Issue of Concern* is a risk management flaw, deficiency, or a lack of transparency or effectiveness that must be addressed in a payment system.

- *Key Conclusion* is the overall assessment of issues *of concern* for a given Principle that leads to the final rating of a Principle.

- *Financial Market Infrastructure (FMI)* is a multilateral system among participating institutions (tiered or not), including the operator of the system, used for the purposes of clearing, settling, or recording payments, securities, or other financial transactions according to the BIS. FMIs are of systemically importance for the financial stability of the UAE. In this document, the term ‘payment system’ or FMI is used interchangeably since both systems are subject to the PFMIs.

1.7 DOCUMENT STRUCTURE

This document is organised as follows:

- This first chapter provides an introduction to the methodology
- Chapter 2 describes the assessment framework, the Principles and Key Considerations
- Chapter 3 describes the assessment process
- Chapter 4 describes the standard assessment report
- Chapter 5 provides a worked example of an assessment
- Appendix A discusses the FMI Principles proper to payment systems

1.8 REFERENCES

This document should be read in conjunction with the following BIS publications:

Principles for financial market infrastructure
Bank for International Settlements, April 2012

Assessment methodology for the Principles for FMIs and the responsibilities of authorities
Bank for International Settlements, April 2012

Disclosure framework for financial market infrastructures, consultative report
Bank for International Settlements, April 2012

CHAPTER 2: ASSESSMENT FRAMEWORK

2.1 INTRODUCTION

The assessment framework is focused on the extent of compliance with the PFMI Principles and other relevant considerations and policies. The assessment results will be included in the payment system assessment report, culminating in the final rating of the system.

The assessment is conducted by PSOITSU with the support of the payment system stakeholders and may rely on the expertise of subject matter experts, use of methodologies or any reports or tools it deems necessary to help in the assessment of each Principle.

2.2 PFMI PRINCIPLES and SCOPE

The following PFMI Principles apply to payment systems in the UAE:

1. Legal Basis	9. Money settlements	19. Tiered participation arrangements
2. Governance	12. Exchange of value settlement systems	20. FMI Links
3. Framework for the Management of risks	13. Participant default rules & procedures	21. Efficiency and effectiveness
4. Credit Risk	15. General business risk	22. Communication, procedures and Standards
5. Collateral	16. Custody and Investment Risks	
7. Liquidity risk	17. Operational Risk	23 Disclosure of rules, key procedures & market data
8. Settlement finality	18. Access and Participation Requirements	

Table 1: PFMI Principles Applicable to Payment Systems.

The Principles listed above have been identified by the PSOITSU as applicable to most payment systems in the UAE. These Principles and their respective Key Considerations are applied, according to the system's context, as a set and not on a standalone basis.

Principle 19, for instance, does not apply currently to the UAE Funds Transfer System (UAEFTS). However, this Principle 19 would become relevant if the system operator were to adopt tiered participation in order to improve efficiency and effectiveness (see Principle 21).

Principle 15 (general business risk) would not normally apply to non-commercial systems such as those operated by the Central Bank. Conversely, the Central Bank should avoid 'predatory pricing' which would undermine commercial competitors or inhibit new market entrants.

Principle 20 (FMI links) is another example: It would apply to the UAESWITCH on account of its links to other payment systems via GCCNET but might only apply to UAEFTS if the Central Bank were to become the settlement agent for, say, a stock exchange.

2.3 KEY CONSIDERATIONS

One major difference between the Core Principles for Systemically Important Payment Systems and the PFMIs is the Key Considerations within each Principle that, together, underpin each Principle. Principles and their Key Considerations are of equal importance and are more prescriptive and standardised.

The PFMI approach is focussed upon the Key Considerations but not in isolation one from another. Thus, for example, it may be that a combination of minor issues specific to one Principle - or even across related Principles - may affect a system's level of compliance with one or more Principles.

The methodology is concerned with the *issues of concern* found and their resolution. Therefore, the assessor will assign priorities to the resolution of *issues of concern depending on the context of the payment system.*

Payments operators and stakeholders are advised to observe the Principles and their respective Key Considerations when developing new services in order to address the concerns of those on the design phase and thus meet observance requirements prior to launching a new service.

Please refer to Appendix A for a description of the Principles and the respective Key Considerations making up each Principle.

2.4 ASSESSMENT SOURCES

The PSOITSU relies on the following to assess a payment system:

- Operational Framework (Doc. Ref. *PSOU/GEN/001*)
- Principles for Financial Market Infrastructures (PFMIs) document
- Disclosure Framework and Assessment Methodology document
- Payment System Assessment & Rating Methodology document
- The actual practice and enforcement of the Principles by payment operators as to ensure safety and soundness of payment systems
- Access to information (e.g. policies, procedures and organisation charts) and premises.
- Supporting evidence for the observance of Principles.

2.5 CONCLUSION

The assessment ratings are based on the state of the payment system existing at the time of the assessment i.e. current functionality, policies, processes, procedures and controls. This means that any improvements or remedies planned or under development shall be discounted.

If the PSOITSU cannot assess adequately compliance with any Principle due to lack of information or cooperation on the part of system operators then such occurrences will be noted in the assessment report. The PSOITSU will treat such occurrences as information gaps or *issue of concern* which will result in a lower compliance rating.

Failure to address the *issues of concerns* may result in the Central Bank imposing sanctions that include the levying of non-compliance fees, suspension and termination of licence to operate.

CHAPTER 3: ASSESSMENT PROCESS

3.1 INTRODUCTION

The assessment process involves the following steps:

- Fact gathering for each *Key Consideration*
- Identifying any *issues of concern*
- Assessing the risk of an *issue of concern* (high, medium or low)
- Drawing *key conclusions* for each PFMI Principle
- Assigning an overall compliance rating

3.2 FACT GATHERING

All relevant information is gathered in order that the PSOITSU might reach a *key conclusion* regarding the extent of compliance with each Principle. In line with BIS recommendations the PSOITSU seeks information regarding:

- The system's method or approach to observing a Principle
- The rationale, analysis and processes used by the system to identify, develop and ensure the effectiveness of its compliance with a Principle
- The tools used by the system operator to monitor and measure its continuing observance of a Principle
- Other evidence (e.g. other assessments performed by external parties or audit reports) of the system's on-going performance in observing a Principle.

3.3 ISSUES OF CONCERN

There are three categories of *issues of concern*:

High Importance
The imminence of damage is high.

Guidance
The failure to comply in total or to a great extent with a given Key Consideration is a high risk or one that is inadequately controlled.

Medium Importance
These issues could become serious if not addressed promptly.

Guidance
The Key Consideration is partially addressed but the exposure to risk is not acceptable.
Low Importance

These issues should be addressed in a defined timeline in the course of normal operations of the payment system.

Guidance
The Key Consideration is not fully addressed but the exposure to risk is not unacceptable.

The PSOITSU determines the importance of an issue of concern by taking into account:

- Evidence of compliance with the Key Consideration
- A risk analysis to include any mitigation or control factors
- Any other relevant consideration

The most important *issues of concern* should be addressed as a priority. Table 2 below illustrates the relationship between 'urgency' and 'gravity'.

<table>
<tr><td colspan="2" rowspan="2">Issues of concern</td><td colspan="3">GRAVITY</td></tr>
<tr><td>High</td><td>Medium</td><td>Low</td></tr>
<tr><td rowspan="3">URGENCY</td><td>High</td><td>High
Priority</td><td>High or Medium
Priority</td><td>High or Medium
or Low
Priority</td></tr>
<tr><td>Medium</td><td>High or Medium
Priority</td><td>High or Medium
Priority</td><td>Medium or Low
Priority</td></tr>
<tr><td>Low</td><td>High or Medium or Low
Priority</td><td>Medium or Low
Priority</td><td>Medium or Low
Priority</td></tr>
</table>

Table 2: Priority Classification

The PSOITSU expects the payment operator to propose an action plan to resolve the *issues of concern.* There may be cases where several *issues of concern* are of equal importance. All things being equal, the PSOITSU might recommend addressing the issue which is faster / easier to resolve. In this scenario the assessor is expected to use judgement, experience and common sense when assigning priorities.

3.4 KEY CONCLUSION

The Key Conclusion refers to overall compliance with a Principle and is based on:

- System practices and achievements, where relevant
- Any gaps or shortcomings identified
- The risks and implications arising from the gaps

The extent of compliance with a Principle is reported in accordance with Table 3 below:

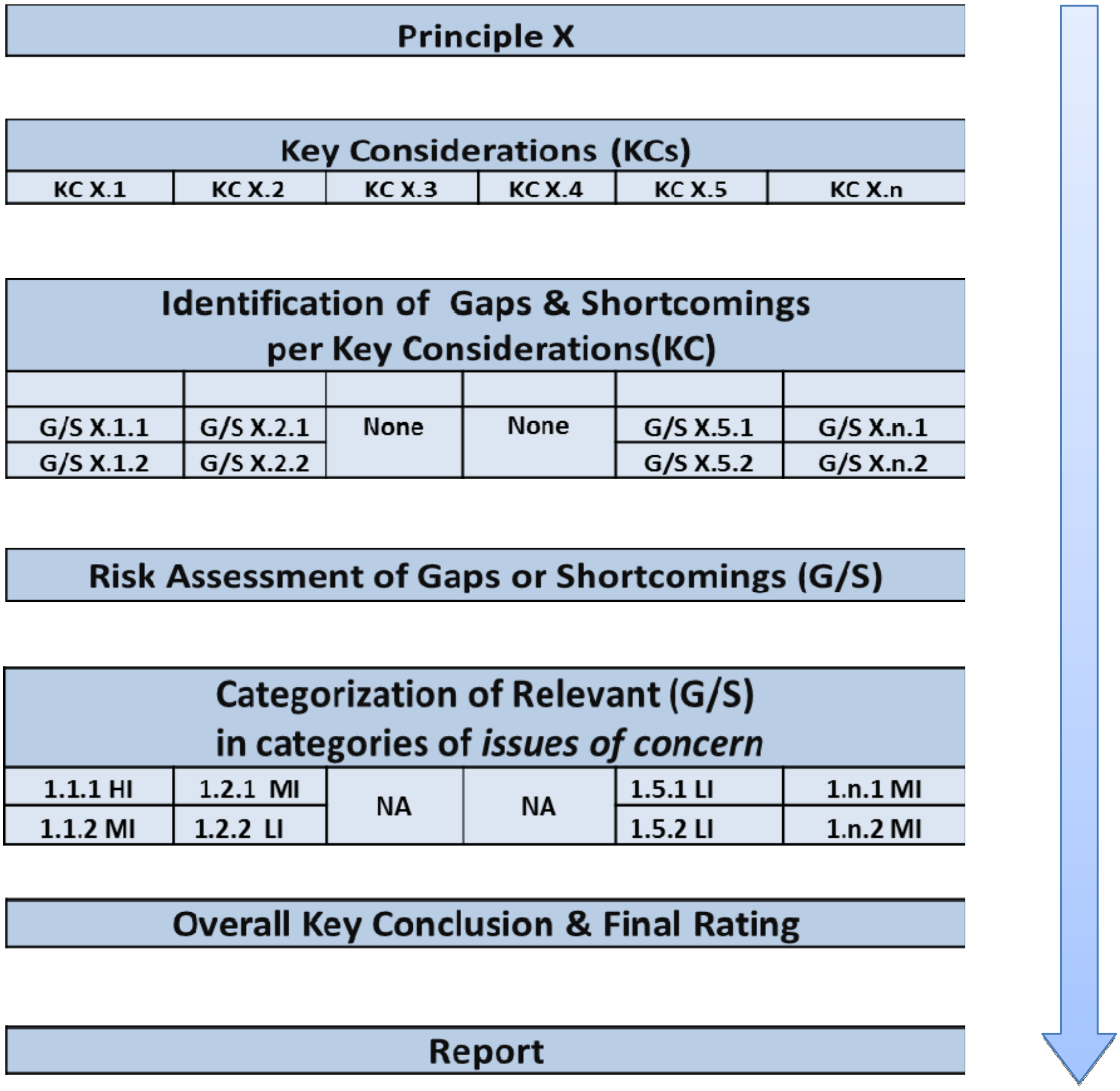
Rating	Comments
1. Observed	The payment system observes the Principle. Any identified gaps and shortcomings are not *issues of concern* and are minor, manageable and of a nature that the payment system could consider taking them up in the normal conduct of their activities
2. Broadly Observed	The payment system broadly fulfils the Principle. The assessment has identified one or more *issues of concern* of lower importance that the payment system should address and follow up on in a defined timeline
3. Partly Observed	The payment system partly fulfils the Principle. The assessment has identified one or more *issues of concern* of moderate importance that could become serious if not addressed promptly. The payment system should accord a high priority to addressing these issues.
4. Not Observed	The payment system does not fulfil the Principle. The assessment has identified one or more *issues of concern* of high importance that warrant immediate action. Therefore, the payment system should apply the highest priority in addressing these issues.

Table 3: Key Conclusions

NB The ratings referenced in Table 3 fully accord with BIS guidelines.

3.5 SUMMARY

The following diagram illustrates and summarises the above steps:



CHAPTER 4: ASSESSMENT REPORT

4.1 INTRODUCTION

This Chapter provides a template for the assessment report. The report discloses the results of the assessment and represents the formal opinion of the PSOITSU as to the soundness and efficiency of the payment system. The report elucidates which Principles are applicable, which are not observed and the *issues of concern* that require attention.

The report also clarifies which *issues of concerns* have high priority and provides a resolution schedule. This schedule is agreed with the payment operator.

4.2 REPORT TEMPLATE

I. Executive summary

This section should highlight the key findings of the assessment.

II. Introduction

This section should introduce the report and include the following key information regarding the assessment:

- *Assessor:* Identify the entity and assessors conducting the assessment.
- *Objective of the assessment*: Identify the objective and context of the assessment.
- *Scope of the assessment*: Identify the Payment System, the set of operations and services, and the set of Principles assessed.
- *Methodology of the assessment*: Identify the process followed in conducting the assessment. If not all Principles for payment systems were assessed, an explanation is provided.
- *Sources of information in the assessment*: Identify the main sources of information, including public and non-public sources, used in conducting the assessment. These sources may include written documentation (such as other assessments, surveys, questionnaires, reports, studies, relevant laws and regulations, and regulatory and industry guidance) and

conversations with the payment system operations, and relevant industry stakeholders (such as participants, and end user associations).

In addition, this section mentions any difficulties in conducting the assessment, such as lack of information or cooperation and any factors limiting the assessment process or its scope. Further, an account of any information requested but not obtained should be given.

III. Overview of the payment, clearing and settlement landscape

This section should provide a general description of the role of the payment system in the overall payment, clearing and settlement landscape; a general description of its operations and services; and summary statistics to help understand the scope of its activities. The general description and summary statistics should help to facilitate comparisons with other payment system, as appropriate.

This section also provides a general description of the regulatory, supervisory or oversight framework relating to the payment system; a brief description of the relevant authorities; and a summary of the major changes and reforms implemented in the recent past or scheduled for the near future.

IV. Summary assessment

Summary assessment of observance of the Principles

This section should summarise the key findings of the detailed assessment of the Principles. For each Principle, the assessment should:

- Highlight the payment systems key practices and achievements;
- List identified issues of concern; and
- Comment on each Principle that is not fully observed and provide the main reasons for assigning a rating of “broadly observed”, “partly observed” or “not observed”. Indicate the risk factors that might influence the degree of non-observance; and indicate whether the issues of concern are being addressed, as well as the degree of observance that will be achieved if current efforts proceed as envisaged.
- The overall assessment result of the payment system
- The final score of the payment system

This section should conclude with a summary of the assessment results:

Table 1 **Ratings Summary**	
Assessment category	**Principle**
Observed	e.g. 1,3, 6 and 9
Broadly Observed	e.g. 2, 4 ,5
Partly Observed	
Not Observed	

Table 2 **Prioritized list of recommendations**			
Principle	**Issue of concern or other gap or shortcoming**	**Recommended Actions**	**Schedule for addressing recommended actions**
Serious and warranting immediate action			
To be addressed in a timely manner			
To be addressed in a defined time-line			
For consideration in the normal course of business			

V. Detailed assessment report

The detailed assessment table should provide a description of the payment system with regard to applicable *Key Considerations*; *key conclusions* and the assessment rating for each applicable Principle.

Table 3 **Detailed assessment of observance of the Principles**	
Principle X – Text of the Principle	
Key Consideration 1 (text of Key Consideration)	*This section provides information on the practices of the payment system as they relate to the Key Consideration* *Information provided by operators should reflect the actual practices followed by the payment system and its participants.*
Key conclusion for Principle and comments	*This section provides a narrative summary of information collected by the assessors, viz. system practices and achievements, describe the seriousness of any issues of concern, and identify any other gaps or shortcomings.*
Assessment of Principle	*This section states whether the Principle is "observed", "broadly observed", "partly observed", "not observed" or "not applicable". This section should also give the rationale for the assigned rating.*
Recommendations and comments	*This section provides recommended actions and other comments for each identified issue of concern and any other gaps or shortcomings.*

4.3 CONFIDENTIALITY

Operators of assessed payment systems are expressly forbidden from advertising, reproducing or in any other way sharing the assessment report with third-parties without the prior written consent of the Central Bank.

CHAPTER 5: SAMPLE ASSESSMENT

5.1 INTRODUCTION

The example below illustrates the way in which the PSOITSU uses a qualitative risk analysis approach to assess compliance with a Principle and its Key considerations. The following example assesses one of the key relevant aspects in the operation of an FMI under Key consideration 1 for Principle 1.

Note that other tools and methods are also available to the PSOUITSU.

5.2 ASSESSMENT

Scenario

Compliance with Principle 1 (legal risk) is to be assessed in an FMI against five Key Considerations.

The Key Consideration 1 states: "*the legal basis should provide a high degree of certainty for each relevant aspect of an FMI's activities in all relevant jurisdictions*".

One relevant aspect among many treated by Key Consideration 1 for an FMI is payment finality.

Key Consideration Guidance

According to BIS, payment finality occurs when the account of the receiver within the payment system has been credited and settlement is unconditional and irrevocable.

The BIS states "*There should be a clear legal basis regarding when settlement finality occurs in an FMI in order to define when key financial risks are transferred in the system, including the point at which transactions are irrevocable"*

In this sense, payment finality legal certainty is achieved in the form of law or by any type of regulations (notices, circulars, directives and etc…) supported by law that incorporate the guidance provided by the BIS.

Inherent Risk

Without a clear definition of payment finality there is a risk that payments made in the FMI may be challenged in courts and be unwound by court ruling.

Acceptability of Risk

This risk is not acceptable because an unfavourable court ruling may affect the financial stability of the UAE and undermine confidence in the FMI's service.

Preventive Factors

In order to avoid the inherent risk a clear definition of payment finality including the point at which transactions are irrevocable is required.

Control Factors

Are there any controls to reduce loss should the event be triggered?

Context

It is assumed that the FMI can issue any type of regulations supported by law. The rulebook has a provision for payment finality for which all participants must abide.

Facts Gathering

At this point, despite the definition of payment finality is covered in the rulebook according to BIS guidance, the lack of an explicit legal provision may allow participants to seek the court. The assessor will request a formal legal opinion for further assessment.

Legal Opinion

The assessor will seek a formal legal opinion to determine the FMI's exposure to legal risk.

If the legal opinion reveals that participants may seek the court and there is a high probability of courts overturning the FMI's rulebook then the assessor will raise an issue of concern and categorise it as being of "high importance".

Suppose, however, that the legal opinion was that the court would most likely reject the participant's lawsuit because the UAE courts have interpreted in previous rulings that matters related to payment finality are covered by FMI rules and are supported by law.

In this case, the assessor may categorise the issue of concern as being of "low importance" because participants could still seek the court or even consider that there is no risk given the UAE jurisprudence about the matter.

Note that only a clear definition in the law would eliminate the risk of the ‘loss event’ (i.e. payments being unwound).

The lack of explicit legal provisions will most likely affect the compliance of the remaining Key Considerations in Principle 1.

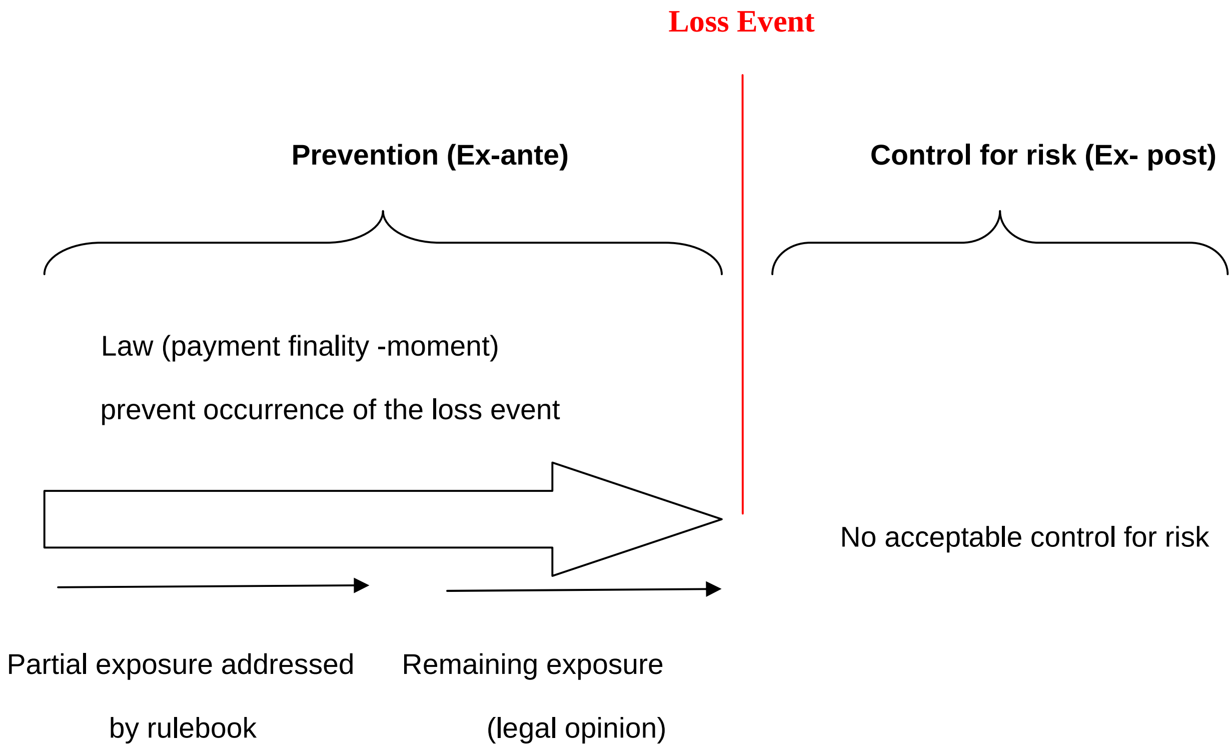


Diagram 3: Analysis of ex-ante and ex-post

APPENDIX A: PFMI PRINCIPLES FOR PAYMENT SYSTEMS

Each Principle is first described according to the BIS. The PSOITSU has added some notes by way of explanation.

Each Principle comprises *Key Considerations*. Note that not all Principles or Key Considerations listed may be applicable to all payment systems (publicly or privately operated) at all times.

Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Key Consideration 1: The legal basis should provide a high degree of certainty for each relevant aspect of an FMI's activities in all relevant jurisdictions.

Key Consideration 2: An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

Key Consideration 3: An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

Key Consideration 4: An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.

Key Consideration 5: An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

Explanation

The legal basis includes law, regulation, rules, contracts and procedures. A clear and well substantiated legal basis allows operators to define rights and responsibilities and, more importantly, to guarantee the enforcement of rights and responsibilities by, for example, applying penalties for breach of the system's rules.
Laws relevant to payment systems might include settlement finality, netting, protection of collateral and consumer protection (fairness of contracts). An example of an unfair contract is one in which the operator transfers risk to participants rather than implement proper risk management procedures. This would be considered an *issue of concern.* Payment operators should be able to explain the legal basis of their services to the PSOITSU at the time of assessment.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Key Consideration 1: An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.

Key Consideration 2: An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.

Key Consideration 3: The roles and responsibilities of an FMI’s board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.

Key Consideration 4: The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

Key Consideration 5: The roles and responsibilities of management should be clearly specified. An FMI’s management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.

Key Consideration 6: The board should establish a clear, documented risk-management framework that includes the FMI’s risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.

Key Consideration 7: The board should ensure that the FMI’s design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

Explanation

Governance involves strategic direction, management and oversight. It aims to ensure that the system meets business requirements and other obligations and that it continues to do so even if these requirements change.

Governance is represented in practice through formal and disclosed relationships between the payment system operators, their management, the system's participants and, depending upon the system, the participants' customers. These arrangements may be expressed in the form of policies, rules, reporting lines and procedures which ensure accountability.

The set of relationships must be consistent with the importance of the payment system. Systemically important systems provide critical services to the public and, therefore, it is incumbent upon operators to include safety and efficiency among their objectives.

There are various methods of measuring efficiency and so governance arrangements might include matching performance to business requirements / objectives, service level agreements, monitoring of system availability, timeliness of settlement, timeliness of funds transfer to beneficiaries, frequency of reporting to management board, channels / forums available to participants and user satisfaction surveys.

The governance arrangements determine the structure in which management operates the payment system. The structure requires clear and formal paths for service definition, operations, continuity, oversight, complaints, and feedback from participants. This list is not exhaustive.

The arrangements should be composed of the following, at least:

1) Board members responsible for payment systems
2) Management structure with formal reporting lines to board-level
3) Internal governance policies such as formal committees with minutes taken
4) Risk management governance (how risks are managed, reported and escalated)
5) Processes ensuring performance and accountability
6) Processes dealing with conflict and change
7) Audit and assessment of controls

Payment systems operators must describe their governance arrangements and how they fulfil the requirements of this Principle at the time of assessment.

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Key Consideration 1: An FMI should have risk- management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.

Key Consideration 2: An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.

Key Consideration 3: An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.

Key Consideration 4: An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.

Explanation

Payment system operators should have a risk management framework embedded in their on-going operations. The management of risks should be comprehensive, spanning legal, credit, liquidity, operational and business risks (for private operators) and must be reviewed on a periodical basis.

Operators must have processes that identify, measure, monitor and treat risks they impose on participants and vice-versa. The treatment of risks should be consistent with the impact they cause to stakeholders and, more importantly, to those the services are provisioned for i.e. the market.

Operators should have contingency plans in place to enable them to respond to known risks. This planning is usually achieved by performing a business impact analysis of the potential failures, especially those involving operational and liquidity risks.

Payment operators are also expected to incentivize participants to reduce risks they may introduce in the system. For example, settlement risk can be reduced if participants settle the bulk of their obligations early in the day. Conversely, the operator may apply fines if participants do not settle in a timely manner according to the rules of the system or even apply different pricing depending upon when payment instructions enter the system.

With regard to continuity this is more relevant to private payment systems. When considering applications to provide payment services the Central Bank is especially concerned that the operator commits long-term to the market and that he has the means to do so.

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposure to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two largest participants and their affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions. All other CCPs should maintain, at a minimum, total financial resources sufficient to cover the default of the one participant and its affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions.

Key Consideration 1: An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.

Key Consideration 2: An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

Key Consideration 3: A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

Key Consideration 7: An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.

Explanation

Credit risk is the risk that a counterparty will not be able to meet its financial obligation when due or any time in future. The concern about credit risk in a payment system is the impact of default on other participants.

The exposure usually arises in the form of current and/or future exposures. Current exposure is the loss that a payment system or its participants are subjected immediately to a participant default. FMIs and payment operators extending intraday credit lines to participants are subject to current credit exposure.

In this sense, payment operators offering intraday facilities should strive to minimize current exposures by demanding participants repay any credit extensions granted in a given day. See Principles 3, 5, 9 and 16 for devising credit risk policies in payment systems.

Payment operators are expected to have a credit risk management framework that timely information allowing the proper monitoring of credit risks arising from participants and settlement operations.

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Key Consideration 1: An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

Key Consideration 2: An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

Key Consideration 3: In order to reduce the need for pro-cyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

Key Consideration 4: An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

Key Consideration 5: An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

Key Consideration 6: An FMI should use a collateral management system that is well-designed and operationally flexible.

Explanation

The quality of assets accepted should carry minimum liquidity, credit and market risk. However, operators may accept other types of assets with higher risks provided that appropriate haircuts and concentration limits are used to manage these assets.

Collateral pledged in the system must be readily available for use by the operator. Note that a guarantee is not accepted as collateral and may be only accepted if the guarantee is backed up by collateral that is realizable on the same day.

Operators should monitor and review collateral acceptance in accordance with the underlying risks of these instruments. For example, the deterioration of the creditworthiness of an issuer may increase the underlying risk of a previously accepted instrument. Moreover, operators should not accept participant specific issued securities as collateral for itself.

The value of the collateral pledged should be, at minimum, marked to market on a daily basis. The Operators' haircut procedures should be independently validated at least annually and must take into account stressed market conditions.

Finally, payment operators should have a collateral management system that is flexible and provides real time monitoring of collateral pledged by participants, haircuts and revaluation. It should also allow functionality for a timely deposit, pledge, substitution and retirement of collateral pledged.

Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same -day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Key Consideration 1: An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.

Key Consideration 2: An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an on-going and timely basis, including its use of intraday liquidity.

Key Consideration 3: A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

Key Consideration 5: For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

Key Consideration 6: An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.

Key Consideration 7: An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.

Key Consideration 8: An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.

Key Consideration 9: An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

Key Consideration 10: An FMI should establish explicit rules and procedures that enable the FMI to effect same- day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

Explanation

Liquidity risk arises when participants cannot meet their settlement obligations at the time expected. As the operator may have to draw on own funds to complete daily settlement a comprehensive liquidity risk policy and related procedures should be established.

Liquidity risks are usually linked to timely access of funds at short notice; this is a typical concern of RTGS systems. However, liquidity problems may also arise in deferred net settlement systems requiring the operator to implement procedures for unwinding transactions and adjusting settlement figures.

Operators of (especially) RTGS systems should have real-time tools to help monitor:

- Funding flows
- Settlement positions
- Value of assets held
- Liquidity of collateral
- Participants' funding requirements

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

Key Consideration 1: An FMI's rules and procedures should clearly define the point at which settlement is final.

Key Consideration 2: An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.

Key Consideration 3: An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

Explanation

Settlement with finality is the irrevocable and unconditional transfer of funds or other assets between participants by the system operator. The moment of finality may be defined in law (see Principle 1) but should in any case be included in the system's rules.

In order to mitigate settlement risk it is advised to settle in real-time or, failing that, more than once during the business day. In any case, settlement should normally take place on the specified value date. Operational rules and procedures should address failure to settle due to delay or system failure.

Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Key Consideration 1: An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

Key Consideration 2: If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.

Key Consideration 3: If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.

Key Consideration 4: If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.

Key Consideration 5: An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.

Explanation

The Key Considerations are largely self-explanatory: Settling in Central Bank money bears little or no credit or liquidity risks. However, participants and operators of systems settling in commercial bank money should take account of the associated risks.

Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Key Consideration 1: An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.

Explanation

The risk mostly faced by exchange of value settlement systems is principal risk. A financial transaction may involve the settlement of two financial instruments; for example, in securities' trading of securities where final settlement is achieved by delivery against payment.

Operators granting intraday facilities and providing collateral management services should eliminate principal risks by adopting mechanisms such as delivery versus payment (DVP), payment versus payment (PVP) or delivery versus delivery (DVD).

Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Key Consideration 1: An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.

Key Consideration 2: An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

Key Consideration 3: An FMI should publicly disclose key aspects of its default rules and procedures.

Key Consideration 4: An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.

Explanation

The need for default procedures and rules in the event of a participant default guarantees that the payment system or FMI will continue to provide services in an orderly fashion minimizing market disruption.

The default procedures and rules should be consulted with all stakeholders making up the payment system or FMI (see Principle 2 on governance), disclosed, reviewed and practised. The default procedures and rules should:

1. Ensure completion of settlement.
2. Minimize losses.
3. Explain how default is identified from financial and operational perspectives and how it is declared i.e. discretionary or automatic.
4. Include proper procedures to re-compute clearing and settlement positions from operational perspective including changes in normal settlement operations.
5. Define roles and obligations of operator and participants when a default arises.
6. Identify the sources of funds and their use e.g. collateral pledged and shared loss mechanisms.

The use of collateral should not find legal impediment and must be addressed in the legal basis. For example, participants of a payment system should abide by rules where the operator has prior claims to securities pledged to effect final settlement.

Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Key Consideration 1: An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.

Key Consideration 2: An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

Key Consideration 3: An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources Principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

Key Consideration 4: Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.

Key Consideration 5: An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

Explanation

This Principle is concerned mostly with private payment systems and their operators' ability to manage risk of business failure.

Private systems operate in a competitive environment and, therefore, the PSOITU will not assess their business decisions. Rather, the focus will be on the existence and adequacy of a framework for managing business risks.

Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

Key Consideration 1: An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

Key Consideration 2: An FMI should have prompt access to its assets and the assets provided by participants, when required.

Key Consideration 3: An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.

Key Consideration 4: An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.

Explanation

Custody risk is the loss of assets held in custody due to custodian's insolvency, negligence, poor record keeping or fraud.

Payment system operators that accept securities as part of their operations should mitigate custodian risk by using only regulated and supervised custodians that have robust risk management practices. It is important that assets held by an operator with a custodian be protected from custodian's creditors. The custodian operations should be supported by a strong legal basis.

The payment operator that holds assets belonging to participants as part of funding requirements should have prompt (timely) access and preferable claims to these securities in the advent of default by a participant even if such securities are held in different jurisdictions.

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

Key Consideration 1: An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.

Key Consideration 2: An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.

Key Consideration 3: An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

Key Consideration 4: An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

Key Consideration 5: An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Key Consideration 6: An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.

Key Consideration 7: An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.

Explanation

Operational risk arises from a deficiency in parts of the collection of processes, people, and information systems or anything needed to run efficiently payment, clearing and settlement systems. It can also arise from external events such as power outages or natural disaster. These deficiencies may exacerbate other types of risks such as settlement, credit and liquidity.

Framework

Since causes of operational risk may vary and are broaden in nature, payment system operators/ FMI are expected to have a holistic operational risk management framework covering how existing and potential deficiencies are treated. The framework should be commensurate to the criticality of services provided and must address:

1. Sources of operational risk
2. Risk tolerance i.e. acceptable thresholds
3. Controls (including review and appropriateness),
4. Mitigation policies and procedures
5. Change management
6. Incident management
7. Project management methodology

Operational risk awareness and management should be an essential component of day-to-day business operations. Newly-identified risks should be accommodated within processes and procedures.

Operational Reliability

Operators should establish reliability objectives and measure their compliance with these. The results should be made available to stakeholders. The reliability objectives must incorporate at a minimum:

1. Operational reliability (target and actual)
2. Network availability (target and actual)
3. Service level agreement (target and actual)
4. Customer service claims
5. Days of disruption
6. Number of transactions processed vs. capacity
7. Business continuity and disaster recovery
8. Disaster recovery testing

Operational events (incidents)

Operational events are a reality in business operations and can vary in nature. Usually anything that is not performing as expected in normal business operations can be considered an operational event. It can be reported by monitoring tools, alarms, reports arising from participants, internal network teams from information systems perspective, human errors in processing a transaction, security flaws or the wrong execution of procedures and etc...

Payment system operators and FMI must have proper policies and procedures in place to record; assess the urgency and gravity of incidents and escalation process to appropriately manage incidents for problem resolution in a timely manner.

Serious disruptions must be reviewed as part of post-mortem process involving all parties affected in the problem resolution process to fine tune procedures and processes.

Physical and information security

The physical and information security must be part of the operational risk management framework and consider the relevant and potential threats (e.g. man-made, natural causes & equipment failure) that could compromise the payment systems operations. By following the framework, these threats should be classified and have appropriate mitigation techniques with the goal to resume operations as soon as possible. The threats and effectiveness of these mitigating factors should be reviewed periodically by the payment system operator and adjustments performed to enhance deficiencies or close newly identified gaps.

It is important, however, to emphasize that insurance is not a substitute for proper controls to contain or impede risk events. The goal is to guarantee that there are controls and mitigating factors that will improve the likelihood of impeding disruption and resume operations.

For example, suppose a specific critical network component failed due to overheating. If proper risk assessment were performed, the following mitigating factors could be used: a) engage a backup contract to engage another telecommunications service provider; b) having specific network components spare parts on site; c) execute contractual arrangements with vendors where SLAs guarantee the delivery of parts in a timely manner; or any other contingency that would guarantee resumption. The use of each mitigating technique or response depends on the assessment of the event (urgency and gravity)

It is expected that payment operators/ FMI have policies defining:

Physical Security

- The physical perimeter & appropriate access controls to specific areas depending on their function or need (e.g. access to premises only to specific people to conduct operations or approval to access premises to fix a component and etc…)

- Protection of assets (e.g. theft, fire or other) in head office and alternate sites

Information Security

Information security is about protecting information from unauthorised access, misuse, modifications, disclosure and disruption. From a payment systems context, payment operators/ FMI are expected to devise and implement policies that safeguard information according to its level of importance in normal operations, review these arrangements time to time and make proper adjustments to fulfil the goals of information security.

For example, transactional data would be expected to be encrypted from modification or disclosure; Access to specific transaction, modification and subsequent approval would be performed by assigning proper rights to specific individuals that are tasked to do so. Access to specific network components would be granted to specific staff and protected by firewalls. Moreover, availability and integrity of data could be achieved by having appropriate backups and reconciliation with valid sources.

Business continuity management

Business continuity management (BCM) is an important operations reliability feature. The ability to recover services lost from business interruptions quickly and in an orderly fashion is fundamental for payment systems operators and FMIs.

For the purposes of the assessment, the BCP and the disaster recovery (DR) plan can be merged or treated separately. In this explanation, BCP-DR minimum requirements are bundled together.

Payment operators and FMI should a have business continuity plan (BCP-DR) that contains at minimum:

1. Objectives (purpose and targets).

2. The critical services and associated systems that must be restored in order of importance to support the resumption of critical services and the payment systems operator basic functions.

3. Identify risks (internal and external) that could pose significant disruptions by performing a business impact analysis (BIA). The analysis should be based on impact to business operations and identify associated infrastructure components.

4. Have a communication plan that informs participants, regulators and any other relevant authority. It has to include crisis and event management.

5. Essential staff and teams to expedite the BCP plan, the tasks from business lines and information technology

6. Policies and procedures detailing how rapid recovery is achieved including wide disruption from business lines and information technology. This includes the teams and people to perform BCP. It must also include recovery time and recovery point objectives per business line listed as critical.

7. How timely execution of transactions is achieved including operational exceptions (e.g. tentative delivery of service level agreements, extension for settlement among others)

8. Have an alternate site to recover with appropriate number of staff that would not be subject to wide disruptions as the head office i.e. distinctive risk profile.

9. Testing of BCP-DR arrangements and updates. In this case, all parties involved including participants must be involved and the results of the tests should be used to refine the BCP-DR arrangements and framework.

10. The BCP committee responsible to deliberate on the policies and recovery framework

For payment systems classified as FMI, the operator should strive to resume operations within 2 hours following disruptive events. The resumption of operations requires reconciliation of data before re-starting operations.

Infrastructure and contingencies

It is important that operators be cognizant of the importance of having a flexible design in their infrastructure and develop contingencies that allow the system to operate even if it compromises service level agreements or level of security.

Suppose for example that the network components that provide the link between the collateral management system and RTGS fail. Moreover, consider that the failure is such that no spare parts are available.

The operator could resume operations if there are existing arrangements that allow operators to manually override the collateral pool of participants. This requires a pre-approved contingency plan detailing the roles played by the collateral management team and operations team. This arrangement will affect existing SLA arrangements, but still allow the payment system to operate until other teams try to isolate the issue and restore the link from the alternate site. If the design of the infrastructure was active-active and redundant, the disruption of services would not have been perceived.

Payment operators and specially FMIs must have arrangements in infrastructure (resiliency & robustness) and contingencies that maximize a speedy recovery of services. They should be consistent with their operations and criticality of services provided.

Participants and external risks

In regards to external risks, operators are expected to have proper processes covering disruptions that may arise from direct participants and other parties that participate in the clearing and settlement services. Operators are also expected to define minimum operational and business continuity requirements to certain participants given their importance in the clearing and settlement services. Usually, key participants are determined by the volume and value of transactions they settle with the operator.

Operators should be aware of how utilities providers affect their business operations and have a plan to act accordingly should the utility providers fail in providing services.

Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Key Consideration 1: An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.

Key Consideration 2: An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.

Key Consideration 3: An FMI should monitor compliance with its participation requirements on an on-going basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

Explanation:

A payment operator or FMI should have publicly disclosed rules about participation requirements with the intent to promote fair access and transparency in the market.

The criteria should incorporate specifics to the payment operator/ FMI and include:

Risk related requirements:

1. Operational capacity to perform business operations and readiness to restore operations.
2. Financial resources. (e.g. capital requirements, pre-funded default arrangements and creditworthiness)
3. Risk management expertise to manage risk exposure to the payment operator or FMI and other participants.
4. Legal requirements. (e.g. licences, proper authorisation to conduct business, no conflict of laws impeding a foreign institution to fulfil its obligations including guarantees that a foreign institution who participate in multiples FMIs in other jurisdictions will not prioritize others jurisdictions to the detriment of the FMI in the UAE).

Safety and efficiency requirements

1. Linked to services provided to the public and how participation promotes efficiency in the market.
2. Secured channels and traceability.
3. Specific to market needs.
4. Participation of non-regulated entities must incorporate risk controls.

The operator is expected to review whether or not participants comply with the requirements on an on-going basis. The operators may accept and even limit scope of participation of participants provided they are commensurate to risk exposures participants may cause to other participants and the operator.

The operator may mandate participation depending on the importance of the institution in providing payment clearing settlement services to the market or even apply stringent restrictions of requirements if the operator determines that a participant imposes a considerable risk.

Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

Key Consideration 1: An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.

Key Consideration 2: An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.

Key Consideration 3: An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.

Key Consideration 4: An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

Explanation:

A tiered participation in a payment system is an arrangement where there are multiple levels of participation. Usually the participation structure is defined in two levels, but there can be other arrangements with more than two levels when other types of participants are involved like agents.

The first level is made of direct participants who are formally bound by the rules of the payment system/ FMI. The second (or other) level is made of firms that participate indirectly in the FMI or payment system and have their transactions cleared by a direct participant.

Tiered participation can bring considerable benefits in the management of the payment system provided that payment systems operators and FMI are cognizant of the risks that indirect participation may impose to the good functioning of the payment system and the market.

In this sense, indirect participants that settle large amounts compared to direct participants may impose pressure in the payment system should these participants face troubles. In fact, if the settlement amounts of indirect participants represent a considerable proportion of the overall settlement figures of the payment system then the risk becomes material and payment systems operators are expected to encourage direct participation.

It is expected, therefore, that payment systems operators and FMI take appropriate risk management steps by monitoring:

1. The transactions and volumes that indirect participants settle in the system
2. The overall proportion of indirect participation in settlement figures by each indirect participant and as a whole
3. The number of indirect participants by direct participants and settlement figures that direct participants are settling on behalf of each indirect participant compared to its own.
4. The effect of failures incurred by the payment system and participants when direct participant access to the payment system fails or is compromised.

The direct participants must assess the overall risks with rigor when offering tiered services to indirect participants. As such, direct participants are expected to identify, monitor and manage risks that indirect participation may impose to them and to the FMI.

For example, how indirect participation default is administered by the direct participant? Conversely, direct participants should also assess the risks they impose to the payment system, to indirect participants and mitigate these risks (e.g. direct participant failure in infrastructure)

Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

Key Consideration 1: Before entering into a link arrangement and on an on-going basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other Principles in this report.

Key Consideration 2: A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.

Key Consideration 3: Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.

Key Consideration 4: Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

Key Consideration 5: An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.

Key Consideration 6: An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.

Explanation:

These links mean setting up operational and contractual arrangements to connect payment systems or CSDs directly or through an intermediary as means to provide payments, clearing and settlement services.

The links among different payment systems or FMIS should have a well-founded legal basis and be enforceable by law. FMIs and payment operators should identify all major risks before entering into a link arrangement

The scope and design of systems to promote connectivity may give rise to other risks that should be addressed before the commencement of operations. For instance, operational, credit, market, liquidity risks arise when there are different operational procedures (e.g. timings) that are not harmonized.

Principle 21: Efficiency and effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Key Consideration 1: An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.

Key Consideration 2: An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.

Key Consideration 3: An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.

Explanation:

Payment systems and FMI should always strive for efficiency and effectiveness in providing services to the market when performing payment clearing and settlement operations.

Efficiency is about resources, capabilities and costs used to fulfil the payment system goals and objectives. It is related to how a payment operator chooses to design a system (e.g. gross settlement, technology used), the scope (e.g. services), how these are delivered (e.g. batch, real time processing, recoverability), structure (e.g. roles), people (e.g. how they communicate) and any other set of arrangements (e.g. procedures, rules).

In terms of costing structure, payment systems operators should account for costs (direct and indirect) arising from their operations and pricing structure.

Effectiveness is about meeting the objectives defined on the outset in a timely manner and should be measurable and attainable. For instance, defining the service level agreement in the processing of a transaction in a payment system is important because it brings certainty to stakeholders. If transactions that are processed in an FMI do not settle in a timely manner in the beneficiary's account then the payment system or FMI is not effective. FMI and payment system operators should gauge the performance and use tools that are enforceable to improve effectiveness.

Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Key Consideration 1: An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

Explanation:

This Principle is about the messaging system used by payment systems and FMI to communicate transactions and procedures used between operators, participants and among participants.

Payment systems operators providing services domestically are encouraged to adopt internationally accepted communication standards and procedures or use conversion mechanisms.

Operators, however, offering or participating in international clearing and settlement operations should strive in accommodating internationally messaging standards in reference to ISO (e.g. 200202) or rely on secure conversion mechanisms in order to improve interoperability.

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

Key Consideration 1: An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

Key Consideration 2: An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.

Key Consideration 3: An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.

Key Consideration 4: An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.

Key Consideration 5: An FMI should complete regularly and disclose publicly responses to the CPSS -IOSCO Disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.

Explanation:

Payment operators and FMI should publicly disclose the rules, relevant procedures, risks, pricing information, rights & obligations of parties, transaction value & amounts and any other relevant document allowing participants and prospective institutions to fully assess the risks, the operational and financial commitments prior to joining the payment system or FMI.