

## FINANCIAL SECTOR ASSESSMENT PROGRAM

**INDIA**CPMI-IOSCO PRINCIPLES FOR FINANCIAL MARKET  
INFRASTRUCTURES**DETAILED ASSESSMENT OF OBSERVANCE  
OF CLEARING CORPORATION OF INDIA  
LIMITED (CCIL) CENTRAL  
COUNTERPARTY (CCP) AND TRADE  
REPOSITORY (TR)**

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This Detailed Assessment Report was prepared by Massimo Cirasino and Harish Natarajan in the context of a joint World Bank-IMF Financial Sector Assessment Program mission in India during June 2017 led by Aurora Ferrari, World Bank, and Marina Moretti, IMF, and overseen by Finance & Markets Global Practice, World Bank and the Monetary and Capital Markets Department, IMF. Further information on the FSAP program can be found at [www.worldbank.org/fsap](http://www.worldbank.org/fsap).



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## ABBREVIATIONS

AMFI	Association of Mutual Funds of India
BCP	Business Continuity Planning
BOD	Board of Directors
BOISL	Bank of India Shareholding Limited
BOLT	BSE Online Trading System
BRR	Byelaws, Rules and Regulations
BSE	Bombay Stock Exchange
CA	Contract Act
CBLO	Collateralized Borrowing and Lending Obligation
CCIL	Clearing Corporation of India Limited
CCP	Central Counterparty
CDSL	Central Depository Services Limited
CEO	Chief Executive Officer
CFSA	Committee on Financial Sector Assessment
CLDSL	Clearcorp Dealing Solutions Limited
CODRM	Committee of Directors on Risk Management
CPMI	Committee on Payments and Market Infrastructures
CROMS	Clearcorp Repo Order Matching System
CSD	Central Securities Depository
CSGL	Constituent Securities General Ledger Account
DR	Disaster Recovery
DvP	Delivery versus Payment
EOMS	Electronic Order Matching System
ETF	Exchange Traded Fund
FEDAI	Foreign Exchange Dealers' Association of India
FIMMDA	Fixed Income Money Market & Derivatives Association of India
FMC	Forward Markets Commission
FOP	Free of Payment
FSAP	Financial Sector Assessment Program
FSDC	Financial Stability and Development Council
FTE	Full Time Employee
GDP	Gross Domestic Product
GOI	Government of India
GSA	Government Securities Act
GSR	Government Securities Regulation
ICCL	Indian Clearing Corporation Limited
ICEX	Indian Commodity Exchange Limited
IIM	Indian Institute of Management
IMF	International Monetary Fund

INFINET	Indian Financial Network
INR	Indian Rupees
IOSCO	International Organization of Securities Commissions
IRDA	Insurance Regulatory and Development Authority
IRIS	Integrated Risk Information System
IRMS	Integrated Risk Management System
IRS	Interest Rate Swap
ISIN	International Securities Identification Number
IST	Indian Standard Time
IT	Information Technology
LOC	Lines of Credit
MCX	Multi Commodity Exchange
MCCIL	Metropolitan Clearing Corporation of India Ltd.
MIBOR	Mumbai Inter Bank Offered Rate
MOF	Ministry of Finance
MoU	Memorandum of Understanding
MSEI	Metropolitan Stock Exchange of India Ltd.
MTM	Mark To Market
NBFI	Non-Bank Financial Institution
NCDEX	National Commodity & Derivatives Exchange Limited
NDC	Net Debit Cap
NDS	Negotiated Dealing System
NDS-OM	Negotiated Dealing System – Order Matching
NEAT	National Exchange for Automated Trading
NMCE	National Multi Commodity Exchange of India Limited
NPC	National Payments Council
NSCCL	National Securities Clearing Corporation Limited
NSDL	National Securities Depository Limited
NSE	National Stock Exchange
OTC	Over The Counter
PDAI	Primary Dealers Association of India
PDO	Public Debt Office
PFRDA	Pension Fund Regulatory and Development Authority
PSSA	Payment and Settlement Systems Act
PSSR	Payment and Settlement Systems Regulation
QCCP	Qualifying CCP
RBI	Reserve Bank of India
RCCP	Recommendations for Central Counterparties
RPO	Recovery Point Objective
Rs	Rupees
RSSS	Recommendations for Securities Settlement Systems

RTGS	Real Time Gross Settlement
RTO	Recovery Time Objective
SAN	Storage Area Network
SCB	Scheduled Commercial Banks
SCRA	Securities Contracts Regulation Act
SCRR	Securities Contracts Regulation Rules
SEBI	Securities and Exchange Board of India
SGF	Settlement Guarantee Fund
SGL	Securities General Ledger
SIPS	Systemically Important Payment System
SLB	Securities Lending and Borrowing
SPAN	Standard Portfolio Analysis of Risk
SRF	Settlement Reserve Fund
SRO	Self Regulatory Organization
SSS	Securities Settlement System
STP	Straight Through Processing
TAC	Technical Approval Committee
TGF	Trade Guarantee Fund
TID	Transaction Id
TM	Trading Member
TOR	Terms of Reference
TR	Trade Repository
USE	United Stock Exchange
VAR	Value At Risk

## EXECUTIVE SUMMARY

**The securities and derivatives clearing and settlement systems in India are organized around different types of products**, which are: (1) government securities, money market instruments, forex instruments and Rupee derivatives; (2) corporate securities and financial derivatives; and (3) commodity derivatives. The scope of this assessment is limited to the clearing and settlement systems for the first set of products, on account of their systemic importance for the functioning of the interbank money markets in India. The different sets of products are subject to different legal frameworks, different regulatory arrangements and a variety of clearing and settlement systems operated by different entities. Securities and derivatives clearing and settlement systems handle a large number of transactions and are as such of systemic importance. Volumes in the derivatives segments increased strongly during the last years. The National Payments System (NPS) in India has undergone a major reform over the last two decades, in particular the securities and derivatives clearing and settlement systems. These systems are comprehensive and designed to minimize risks in the rapidly developing securities and derivatives markets. In addition, the RTGS system, implemented in 2004 and upgraded in 2013 is a hybrid system and has multiple access channels, more flexibility by way of having multiple parameters as also has more liquidity management tools.

**Government securities are cleared by the Clearing Corporation of India Limited (CCIL) and settled in the books of the Public Debt Office (PDO) system of Reserve Bank of India (RBI).** Money market, forex instruments, Interest Rate Swaps (IRS) and Forward Rate Agreements (FRA) are also cleared by CCIL. Cash settlement takes place in the Real Time Gross Settlement (RTGS) system of the RBI and the securities leg where applicable is settled in the RBI PDO. All securities placed as collateral are held in the RBI PDO. The CCIL guarantees the settlement of the transactions and, as such, acts as a central counterparty (CCP). The RBI is the regulator and overseer, based on the Payment and Settlement Systems Act, 2007 (PSSA) and the amendment in 2015.

**Corporate securities and financial derivatives are traded on the National Stock Exchange (NSE), Bombay Stock Exchange (BSE), Metropolitan Stock Exchange of India (MSEI), and regional exchanges. Commodity Derivatives are traded on National Commodities and Derivatives Exchange of India (NCDEX), Multi Commodity Exchange of India (MCX), National Multi Commodity Exchange of India (NMCE).** Corporate securities and financial derivatives traded on the NSE are cleared by the National Securities Clearing Corporation Limited (NSCCL). Securities and derivatives on the BSE are cleared by Indian Clearing Corporation Limited (ICCL). The MSEI has an arrangement with MCCIL which clears the transactions executed on its trading platform. The MCX and NCDEX also have their own clearing houses. NSCCL, ICCL and MCX-SX CCL act as CCPs for corporate securities and derivatives. The securities leg of transactions is settled in the National Securities Depository Limited (NSDL) and Central Depository Services Limited (CDSL). The cash leg is settled in one of the commercial banks that act as clearing bank for the exchanges. The Securities and Exchange Board of India (SEBI) is the regulator and supervisor of these stock exchanges and clearing corporations.

**The CCIL CCP and TR services; and the responsibilities of the authorities has been assessed against the Principles for Financial Market Infrastructures (PFMIs) issued by the Committee for Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO).**

**The assessment of the CCIL CCP system against the PFMIs concludes that the systems observe or broadly observe 21 out of the 24 principles, with three being not applicable.** However, there are improvement opportunities in some areas:

- **Legal framework:** There is a provision in the CCIL bye-laws and specific market segment regulations to cancel or revoke admitted trades that are contested on the grounds of fraud, misrepresentation or material mistake. The CCIL should examine this in consultation with the regulator on the materiality of this.
- **Risk Management Framework:** CCIL should explicitly recognize the risks it is exposed to from the trading platforms operated by CCIL's subsidiary. The CCIL should also pursue the discussions on recovery plan and adopt a comprehensive recovery plan.
- **Credit Risk Management:** CCIL could consider enhancing its stress testing framework by excluding the MTM and volatility margin calls of the participant with the largest exposure from the assessment of adequacy of pre-funded resources.
- **Liquidity Risk Management:** CCIL should enhance the scenarios considered in the liquidity stress testing, to include peak values over a period of time; include failure of one or more settlement banks; failure of participant across market-segments; and finally take into account any potential liquidity needs to cover the settlement positions of the defaulting participant across days.
- **Default Management and Segregation and Portability:** CCIL needs to implement a framework for segregation and portability of customer funds and assets in the government securities market and any future market it introduces tiered participation arrangements. The framework should explicitly reference any applicable regulations of the RBI and other regulators and describe how the process for portability would be facilitated by CCIL. This could be addressed through explicitly requiring segregation in the CCIL Bye-laws, Rules, and Regulations (BRR) and validating as part of default drills.
- **Business Risk:** CCIL should pursue its efforts to develop and formalize the recovery plan and appropriately reflect these in its BRR.
- **Custody and Investment:** CCIL could consider seeking a formal written confirmation from the auditors of the two US settlement banks on their observance of segregation of client accounts.



- **Operational Risk:** CCIL could consider incorporating additional scenarios in the BCP to assess achievement of RTO and RPO objectives even in very adverse situations. The CCIL explicitly recognizes its FMI links with the RBI-operated RTGS and PDO, in the risk management framework. The CCIL should, in addition, explicitly recognize its FMI Links with the RBI-operated RTGS and PDO, with respect to the business continuity planning in its operational risk management framework.
- **Tiered Participation:** CCIL should study the prevalence of transactions on behalf of constituents in all the market segments and if it is significant, institute mechanisms to monitor the risks arising from tiered participation in the Government securities market and any other markets where this is allowed in the future. The mechanisms could be calibrated based on the scale of tiered participation – starting from periodic data collection on the top customers of each participant, to establishing a framework like the one for Government securities segment.
- **Efficiency and effectiveness:** CCIL could also consider introducing annual surveys of participants, to seek their feedback on existing products and services and demand for new products and services.

**The assessment of the CCIL TR systems against the PFMI concludes that the systems observe or broadly observe 11 principles, partially observes 1 and 12 are not applicable.** There are improvement opportunities in three areas:

- **Legal framework:** CCIL should put in place the specific operating regulations for the TR services and also amend the bye-laws and rules to reflect TR services.
- **Operational risk management:** The CCIL could consider incorporating TR services fully into the scope of BCP for CCIL services.
- **Efficiency:** As noted for the CCP services, the CCIL could conduct a survey to assess user satisfaction with CCIL TR services and also seek inputs for enhancing CCILs products and services in its role as a TR.

**The assessment of the responsibilities of the authorities, had 4 of the 5 responsibilities assessed as Observed; and one broadly observed. A set of areas for further improvement are noted:**

- **Regulatory, supervisory and oversight powers and resources:** The SEBI should assess if they currently have the human and organizational capacity to fully meet their current and expanding oversight responsibilities, in particular arising from the commodity derivatives market FMIs coming under their purview.
- **Application of PFMI to FMIs:** The RBI and SEBI should progress their plans to assess all the FMIs under their respective purview. In the case of the RBI, the RBI

PDO needs to be assessed; and in the case of the SEBI the commodities market FMIs need to be assessed and the CSDs need to publish their disclosure framework.

- **Co-operation with other authorities:** The various committees under the FSDC provide for structured co-operation between the RBI and the SEBI, with respect to the FMIs. The RBI and SEBI should evaluate the need for strengthening the co-operation framework with respect to establishing protocols for sharing data and information related to FMIs in both normal and crisis situations.

## I. INTRODUCTION

1. **The present document is the assessment of two Financial Market Infrastructures (FMI) operated by the Clearing Corporation of India (CCIL) in India – the Central Counter Party (CCP) and Trade Repository (TR); and the responsibilities of the authorities - against the Committee on Payments and Market Infrastructures (CPMI) and International Organization of Securities Commissions (IOSCO) Principles for Financial Market Infrastructures (PFMIs).** The assessment<sup>1</sup> was conducted through a country visit in the context of the India Financial Sector Assessment Program (FSAP) in March 2017.

2. **The information used in the assessment includes relevant laws, bye-laws, regulations, rules and procedures governing the systems, and other available material.**<sup>2</sup> In addition, extensive discussions were held with the Reserve Bank of India (RBI), the Securities and Exchange Board of India (SEBI), CCIL and its participants. The reports produced as part of the CPMI-IOSCO Level 1 and Level 2 implementation monitoring exercises were used for the assessment of the responsibilities of the authorities. This assessment uses the methodology presented in the CPMI-IOSCO publication – “Principles for financial market infrastructures: Disclosure Framework and Assessment Methodology (December, 2012)”.

## II. OVERVIEW OF THE INFRASTRUCTURE FOR SECURITIES AND DERIVATIVES CLEARING AND SETTLEMENT SYSTEMS

3. **The securities and derivatives clearing and settlement systems in India are organized around different types of products, which are:** (1) government securities, money market instruments, forex instruments and derivatives, and Indian Rupee (INR) derivatives; (2) corporate securities and financial derivatives; and (3) commodity derivatives. These products are subject to different legal frameworks, different regulators and a variety of clearing and settlement systems operated by different entities. Figure 1 illustrates the securities and derivatives clearing and settlement systems for the first two sets of products.

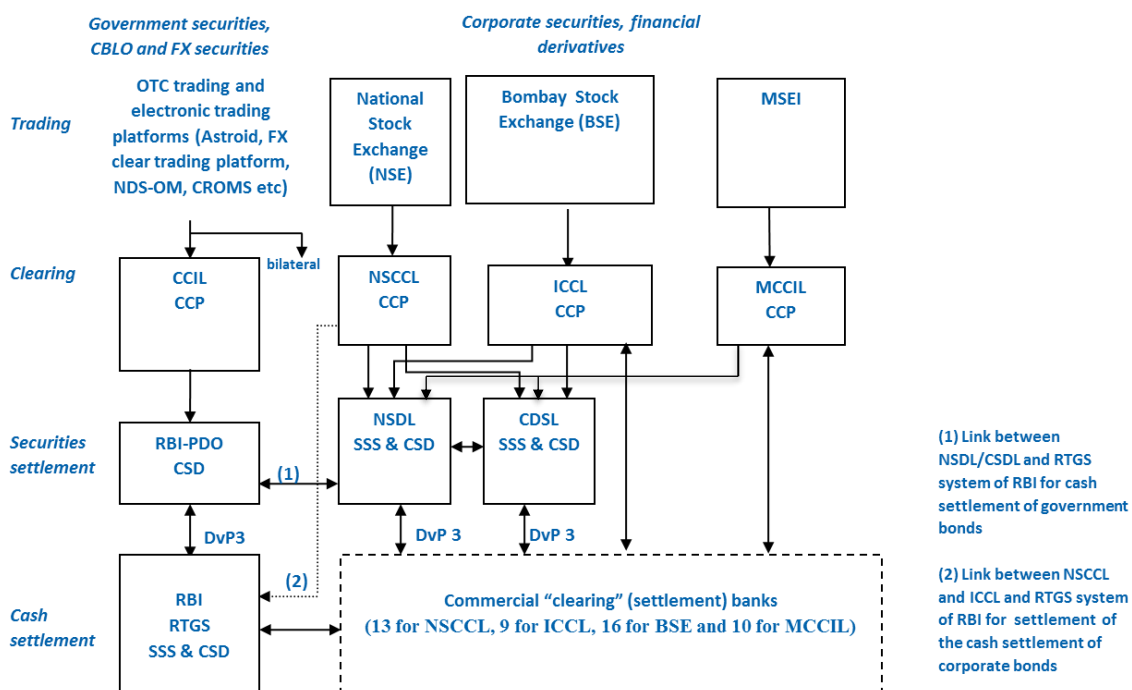
4. **Government securities are cleared by CCIL and settled in the books of the PDO system of the RBI.** Money market and forex instruments are also cleared by CCIL. Cash settlement takes place in the Real Time Gross Settlement (RTGS) system of the RBI. CCIL guarantees the settlement of the transactions and as such acts as the CCP. The RBI is the regulator and overseer, based on the Payment and Settlement Systems Act (PSSA).

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<sup>1</sup> Massimo Cirasino and Harish Natarajan (both World Bank) were the assessors.

<sup>2</sup> Other available material included annual reports, the CCIL self-assessment against the PFMIs; websites of the regulators, overseers, supervisors, operators and stakeholders, and other relevant documents.

**Figure 1: Infrastructure of securities market in India**



5. **Corporate securities and financial derivatives are traded on the NSE, BSE, and MSEI and several regional exchanges.** Corporate securities and financial derivatives traded on the NSE are cleared by the NSCCL. Corporate securities and equity derivatives traded on the BSE are cleared by the ICCL. The MSEI has an arrangement with MCCIL which clears the transactions executed on the trading platform of MSEI. NSCCL, MCCIL and ICCL act as the CCP for corporate securities and derivatives. The securities leg of transactions is settled in the NSDL and CDSL. The cash leg is settled in one of the commercial banks that act as clearing bank for the exchanges. The SEBI is the regulator and supervisor of these stock exchanges and clearing corporations.

6. **Commodity derivatives are traded on three active national commodity exchanges and one active regional exchange.** The four national commodity exchanges are the National Multi Commodity Exchange of India Limited (NMCE), the Multi Commodity Exchange of India Limited (MCX), the National Commodity & Derivatives Exchange Limited (NCDEX) and the Indian Commodity Exchange Limited (ICEX), ICEX currently does not have active trading but it is soon going to re-launch trading of commodity derivatives contracts.. Commodity derivatives are traded on bullion, base metals, energy products and agricultural commodities. The commodity derivatives exchanges provide a trading platform for these securities as well as CCP facilities. Cash settlement takes place in the books of a number of clearing banks, many of which are the same clearing banks as for the corporate securities. The commodity derivatives market used to be regulated and supervised by the FMC acting under a different Ministry, the Ministry of Consumer Affairs, Food and Public Distribution. Recently in September 2015, the commodity derivatives market also came under the regulation and supervision of the SEBI.

**Table 1: Legal status and ownership structure of CCPs and CSDs India**

<b>Name</b>	<b>Type</b>	<b>Legal status</b>	<b>Ownership structure</b>
<b>PDO system</b>	CSD/SSS	No independent legal status	Fully owned by RBI
<b>NSDL</b>	CSD/SSS	Public Limited Company under the Companies Act 1956; sponsors are required to collectively hold at least a 51% stake in the CSD. The legal framework specifies the types of entities that can be sponsors - primarily banks or securities market players. The maximum ownership of a non-sponsor entity is set at 5%.	The NSDL is promoted by the NSE, IDBI and UTI; the NSE is the largest share-holder with a 25% stake. The other shareholders are commercial banks.
<b>CDSL</b>	CSD/SSS	Public Limited Company under the Companies Act 1956; sponsors are required to collectively hold at least a 51% stake in the CSD. The legal framework specifies the types of entities that can be sponsors - primarily banks or securities market players. The maximum ownership of a non-sponsor entity is set at 5%.	The promoter is the BSE with a 54.2% stake. The other shareholders are commercial banks.
<b>CCIL</b>	CCP	Public Limited Company under the Companies Act 1956.	Banks (62.50%), financial institutions (20.50%) and primary dealers (17.00%). Promoters have been State Bank of India, IDBI Bank Limited (formerly Industrial Development Bank of India), ICICI Bank Ltd, Life Insurance Corporation of India, Bank of Baroda and HDFC Bank Limited.
<b>NSCCL</b>	CCP	Clearing corporation under the SCRA; NSE is a Public Limited Company under the Companies Act 1956.	NSCCL is a 100% subsidiary of NSE. NSE is owned by a range of banks, insurance companies and other financial institutions, with a maximum share of 15% each.
<b>ICCL</b>	CCP	Clearing corporation under the Securities Law	ICCL is 100% subsidiary of BSE.
<b>MCCIL</b>	CCP	Clearing corporation under the Securities Law	MCCIL is 100% subsidiary of MSEIL

### III. OVERVIEW OF CCIL

7. **CCIL was set up in April 2001 to provide clearing and settlement for transactions in the debt, money, forex and derivative markets in India.** The prime objective of the company is to improve efficiencies in the settlement process and to de-risk the markets. The Company started operations in February 2002. The Company offers CCP clearing in the Over the Counter (OTC) markets for various money market instruments.

8. **CCIL operates payment systems authorized under the Payment and Settlement Systems Act (PSSA), 2007 and regulations there under by the RBI. CCIL is authorized to operate the following payment systems:**

- a) Securities Segment – Outright & Repo trades in Government Securities.
- b) Collateralized Borrowing and Lending Obligations (CBLO), a repo variant which is traded anonymously on a trading platform provided by a subsidiary of CCIL.
- c) Forex Settlement Segment, comprising the following sub-segments:
  - (i) **USD-INR Settlement** (Cash, TOM & Spot trades including Forward trades when these enter Spot Window)
  - (ii) **Forex Forward Segment** (CCP Clearing of USD/INR Forward trades)
  - (iii) **CLS Segment** Continuous Linked Settlement (Settlement of cross currency trades of members through CLS Bank).
- d) Rupee Derivatives Segment: Rupee denominated IRS & FRA trades.

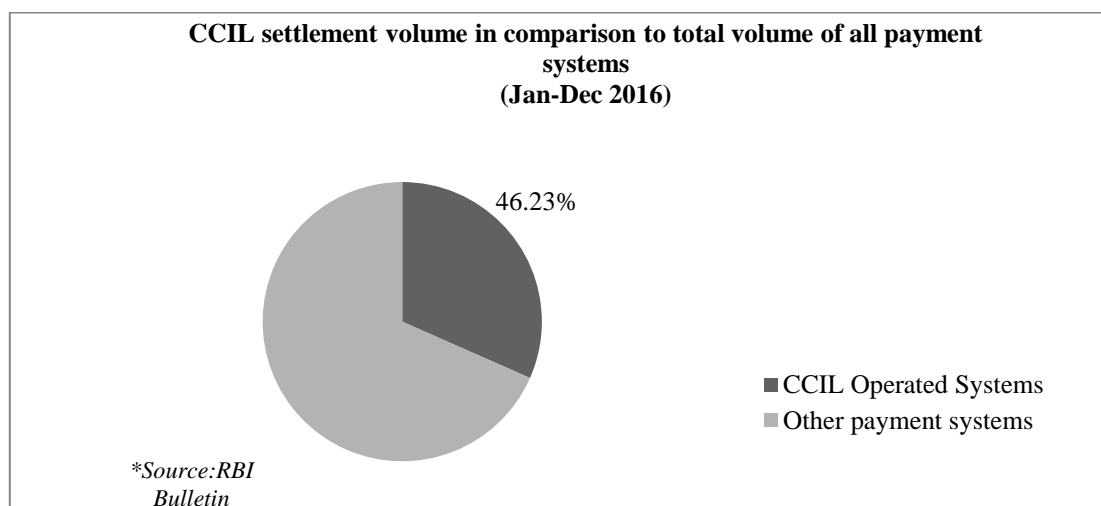
While CCIL offers CCP clearing in respect of a, b, c (i), c (ii), and (d), transactions in the CLS segment are settled on a non-guaranteed basis. The CCIL is also notified as a Qualified CCP (QCCP).

9. **CCIL provides Trade Repository (TR) services for INR IRS & FRA; and all OTC derivatives trades in credit, interest and foreign exchange markets, following the 2015 amendment to the PSSA, CCIL is now licensed as a TR under the PSSA.** CCIL has been providing TR services to the wholesale market players who are authorized by RBI to trade and take position in the IRS market since August 2007. Until the PSSA amendment in 2015, the RBI had under the RBI Act, given directions to all members to report trades to CCIL. The PSSA amendment in 2015, brings the TRs under the provisions of the PSSAs. CCIL now also operates trade repositories for all OTC Derivative trades in credit, interest and foreign exchange markets (including for client trades).

10. **Clearcorp Dealing System (India) Limited (CLDSL), a 100% owned subsidiary of CCIL, provides several trading platforms to its members for dealing in Government Securities, Forex and CBLO.** The CLDSL also operates an anonymous order matching electronic trading platform for Interest Rate Swaps (IRS) referenced to overnight MIBOR benchmark. The trading system functions in co-ordination with CCP Clearing as mentioned in above. The trades from trading system are automatically processed for CCP clearing.

11. **The CCIL members are banks and financial institutions operating in India.** In addition to banks domiciled in India, Indian branches of American as well as European Banks are active players in the CCIL. These entities are members of CCIL in Securities, CBLO, Forex and rupee derivatives segments. CCIL's clearing and settlement cover trade settlements for wholesale market entities i.e. for banks, institutions, mutual funds, insurance companies etc. in the OTC market. CCIL settlement volume in the context of total volume of all payment systems can be seen in Figure 2 below and the transactions settled in the various systems operated by CCIL for the period Jan16-Dec 2016 are in Table 2.

**Figure 2: CCIL settlement volume**



**Table 2: Daily average value of transactions settled in CCIL**  
(For the period Jan–Dec 2016)

Sr.No.	Systems	Value in USD billion
1	Forex clearing	27.01
	Average month end	99.56
2	G-Sec	22.06
3	CBLO	10.88
4	CLS	5.24
5	Derivatives	3.56

*Source: RBI Bulletin*

## System Design and Operations

12. The system design and processes vary by market-segment. In all the segments where CCIL offers CCP clearing service, a process is in place to collect intra-day marked to market (MTM) margin and volatility margin and there is an established default handling waterfall in place. Securities and cash collaterals are collected towards for specific market segments and are held as one pool in the Settlement Guarantee Fund (SGF). The participants are also required to contribute to the Default Fund (DF) by market segment, pro-rated based on their exposure and system throughput. The default fund is sized to cover the stress tested credit exposures for the participant with the largest position and the five weakest participants. The securities and cash collateral are held as one pool. In addition, CCIL has established a Settlement Reserve Fund (SRF) as its skin-in-the-game, which can also be used to cover any credit losses and for meeting any liquidity needs. The details of the design and operations for specific market-segments are presented below and summarized in Table 3 below. For all market-segments except the CLS Bank settlements, the CCIL functions as a CCP.

**Table 3: CCIL market-segment wise settlement mode and key statistics**

Market Segment	Trading Platform	Types of Participants	Settlement mode	Settlement Value (in INR Billion, 2016)	YoY Growth in settlement value (in percentage)	Daily Average Settlement/notional outstanding (in INR Billion)
Government securities - outright	NDS-OM and OTC	Banks, Co-operatives, NBFIs, PDs, institutional investors	DVP III	163,169	66.61	677
Government securities - Repo	CROMS and OTC	Banks, Co-operatives, NBFIs, PDs, institutional investors	DVP III	111,401	33.19	411
Collateralized Borrowing and Lending Operations	CBLO	Banks, Co-operatives, NBFIs, PDs, institutional investors	DVP III	200,942	7.79	741
Forex: Cash, Tom, Spot, Forward	Fx Clear and OTC	Banks and ADs	PVP	419,917	19.99	1,750
Forex Swap: Cash, Tom, Spot, Forward	Fx Swap and OTC	Banks and ADs	PVP			
Forex Forward (%%)	Fx Swap and OTC	Banks and ADs	PVP	72,202.88 (##)	17.05	29,330.90 (*)
Derivatives : Interest rate Swaps (IRS) and Forward Rate Agreements (FRA)	ASTROID	Banks and ADs		711.95 (@)		2.96 (@)
	ASTROID and OTC	Banks and ADs		7248.88 (@)		30.20 (@)
CLS Bank	OTC	Banks	PVP	40,993	5.88	161

(##) Forex Forward positions settled in Spot

(\*) Outstanding as on 31st December, 2016.

(@) Traded Volumes

All figures in Column 7 are daily average settlement amounts except for the ones marked with (\*),( @)

(%%) Including Forward leg of the swap



- a. **Govt. Securities Segment:** Secondary market transactions (settlement on T+0 and up to T+2 basis) in Government securities flow to CCIL in two modes. Outright and repo trades concluded on anonymous order matching platforms i.e., NDS-OM and CROMS respectively flow for clearing and settlement through a straight through process. OTC outright and repo trades concluded by the members are reported on NDS-OM and CROMS respectively. These trades are accepted for clearing and settlement by CCIL. In the process, CCIL is subjected to market risk which is covered through collection of initial margin and mark to market margin. The trades received as above are subjected to on-line exposure check. Post such exposure checks these trades are novated whereby CCIL becomes counterparty to those trades. These trades are then settled on DVP III basis on their respective settlement dates.
- b. **CBLO Segment:** Collateralized Borrowing and Lending Obligations (CBLO) facilitates borrowing/lending money on a collateralized basis. It is issued for a maximum tenor of one year and traded on yield time priority on CBLO anonymous order matching platform managed by CLDSL. Most of the transactions in CBLO however are on overnight basis. Members can borrow against the eligible collaterals deposited by them with CCIL, and recorded under the CSGL account of CCIL with the RBI PDO. Transactions concluded on the trading platform are subject to margin check and are then accepted for guaranteed settlement. Settlement is carried out on DVP III basis as in the case of securities segment. As the repayment of borrowing against CBLO is guaranteed by CCIL, it should have enough collateral to meet any eventuality of a default by the borrower. To take care of this risk, all borrowings are fully collateralized through setting up of borrowing limits for the members against their collateral deposits in eligible Government Securities. These collaterals are subjected to hair-cuts and are revalued at least on a daily basis. Any shortfall in the value of collaterals (to cover outstanding borrowings) is collected through margin calls.

CCIL is also exposed to the risks due to a member not honoring its obligation to lend or borrow at the time of settlement. To ensure that this risk is adequately taken care of, CCIL collects Initial Margin and MTM Margin from the members in respect of their deals for lending and borrowing.

- c. **Forex Segment:** CCIL settles all inter-bank Cash, Tom, Spot and Forward USD/INR transactions on guaranteed basis. All inter-bank transactions concluded bilaterally by its clearing participants (members) through various dealing platforms are reported to CCIL. Trades done on FX-Clear and Fx-Swap trading platforms run by CLDSL directly flow to CCIL's settlement system.

Details of trades concluded bilaterally by the members are reported to CCIL in a specified format. These trades are validated and matched in CCIL's clearing system. Matched trades are subjected to exposure check on an on-line basis and trades that pass such exposure check are accepted for clearing and settlement. The matched cleared forward trades are accepted for clearing and settlement on their entering spot window. Exposure check is carried out on-line, both for trades from Fx Clear and Fx Swaps trading systems and for reported trades. CCIL becomes the central counterparty to every accepted trade through the process of novation.

CCIL settles the net positions of the members on a payment versus payment (PVP) basis. The Rupee leg is settled through the members' current accounts with RBI and the USD leg through CCIL's account with its settlement banks at New York.

For effective risk management, Net Debit Cap (NDC) is set in both currencies for each member in this segment. The limit is in terms of maximum sell position permitted in the currency per settlement date. Margin is collected to cover the market risk based on value at Risk based Margin Factor. For entities with lower short term credit ratings, additional margin is collected. Margin contribution of a member to avail the limit is in US Dollar funds.

Members with higher ratings are allowed to avail higher limits for TOM and SPOT settlement dates. CCIL covers the risk arising out of such higher exposures by collecting Additional Initial Margin (AIM).

For covering the liquidity risk in US Dollar, CCIL has collateralized Lines of Credit (LOC) in place from its overseas settlement bank. Collaterals for availing of such credit facilities are furnished out of USD Treasury bill purchased by CCIL out of the margin contributions made by the members to the SGF for this segment.

For covering the liquidity risk in Indian Rupee, Lines of credit in Rupee have been arranged from the banks. Such Lines of credit are available at Reserve Bank of India at the time of settlement.

- d. **Forex Forward Segment:** CCIL extends clearing and settlement of USD/INR forward trades with residual maturity up to 13 months. Forward trades concluded on FX-swap trading platform run by CLDSL and OTC trades reported by the members are subjected to on-line exposure check. Trades which pass the exposure check are novated by CCIL and accepted for clearing and settlement in this Segment.

Settlement of the trades happens through the USD/INR settlement segment. On S-2 day, the net position of each member is computed. Such net positions are subjected to exposure check for limit adequacy in the USD-INR settlement segment before acceptance.

The risk associated with the process is the pre-settlement risk which is equivalent to market risk on forward positions. The risk is managed through collection of margins in the form of initial margin, mark to market margin, volatility margin (imposed during high volatile periods), etc. from the members. Margins collected from the members are based on assessment of exposures on their outstanding trade positions also carried out on an on-line basis.

- e. **Rupee Derivatives (IRS) Segment:** CCP clearing of Rupee denominated Interest Rate Swap trades was launched by CCIL in March 2014. CCP Clearing of Rupee swaps and FRAs along with the anonymous trading platform commenced from 3<sup>rd</sup> August 2015.

The risk management relating to Rupee derivatives segment provides for collection of margins based on the outstanding trade portfolios of the members. CCIL seeks to cover the risk through prescription of Initial margin (including spread margin), mark to market margin etc.

CCIL also provides central trade processing services in INR IRS and FRAs. The instruments covered are IRS - Fixed Float and Basis Swaps with maximum maturity of 10 years and FRAs with maximum maturity of 10 years. CCIL extends post-trade processing services like Interest Rate Reset, tracking payment obligation of members on their outstanding contracts etc. and settlement of daily cash flows on Non - Guaranteed basis.

- f. **CLS Settlement:** CCIL also offers settlement of transactions in various currencies through CLS bank on non-guaranteed basis. The trades reported by the members are subjected to clearing based on the base exposure limit set for each member. Settlement at CLS bank happens on PVP basis through UBS, Switzerland.

### **Regulation, supervision and oversight of CCIL**

13. **CCIL has been authorized by RBI as a “Payment System” under the Payment and Settlement Systems Act, 2007 (PSS Act) for undertaking Clearing and Settlement of transactions in Government Securities, CBLO, Foreign exchange and Rupee Derivatives.** CCIL’s Bye-Laws, Rules and Regulations (BRR) that are also included under schedule to Regulations 5 of the Payment and Settlement Regulations (PSSR) 2008 provides required legal basis on its various material aspects such as netting, finality of settlement, default procedures etc. In July 2013, RBI designated CCIL as a critical Financial Market Infrastructure (FMI). RBI also announced that the oversight framework of CCIL shall be based on the PFMI. The policy document on Regulation and Supervision of Financial Market Infrastructures regulated by RBI is available at [https://www.rbi.org.in/scripts/bs\\_viewcontent.aspx?Id=2705](https://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2705). CCIL is regulated and overseen as per the framework by the RBI. CCIL is subjected to off-site supervision as also on-site inspection.

### **IV. GENERAL ORGANIZATION OF THE FMI**

14. **CCIL is a public limited company registered under the Indian Companies Act, 1956. The oversight of the governance of CCIL is vested in the Board of Directors.** The roles and responsibilities of the Directors are clearly set out in the Companies Act, 2013 and also in a separate governance policy put in place by the Company. The overall functions of the company are supervised and managed by the Board whereas specific interest areas have been delegated to the Committees of the Board. The Managing Director looks into the day to day functioning of the Company assisted by a very strong group of senior officials who are professionals and market experts and function as Line Officials. Line Officials are supported by middle management and supervisory grade officials. CCIL has a sound structure of corporate governance. CCIL has put in place a policy on Director’s appointment, remuneration including the criteria for determining qualifications, independence, evaluation of Directors performance etc. in terms of the requirements under the Companies Act, 2013. The Board of Directors presently comprises of fifteen (15) Directors, consisting of nominees of Shareholders, Independent Directors, Managing Director and a Non-Executive Chairperson.

### **Recent changes and planned reforms**

15. **CCIL has introduced several new products and services to meet the evolving needs of market players, the key developments are listed below:**

- i. Portfolio compression exercise for forex forward segment introduced;
- ii. An anonymous order matching platform (ASTROID) for trading in Rupee Derivatives segment introduced;
- iii. Default Fund introduced in all clearing segments;
- iv. The quantum of default fund for a month is now based on the highest stress losses observed during the preceding six months period instead of the earlier practice of taking into account the highest loss observed during the preceding one month period only. Also, provision to call for additional default fund if stress loss exceeds prefunded default resources introduced;
- v. Incremental MTM margin is debited at the end of the day instead of the earlier practice of debiting the same next day morning;
- vi. On line monitoring of exposure introduced for all Settlement Banks;
- vii. Pre-order exposure check introduced for all members of the CBLO segment;
- viii. Floor incorporated in Initial Margin model for all clearing segments to mitigate pro-cyclicality;
- ix. Increase in hair cut rates of collateral on imposition of Volatility Margin introduced;
- x. Introduction of Retail Participation by Demat Account Holders in the Government Securities Market;
- xi. Risk Advisory Group comprising of members which are participants, was formed to discuss risk related issues and make suitable suggestions/recommendations to the Risk Management Committee; and
- xii. A comprehensive risk management framework has been formulated which narrates various types of risks faced by CCIL and the measures in place to handle those risks.

## V. SUMMARY ASSESSMENT

**Table 4: Ratings Summary for the CCIL CCP system**

<b>Table: Ratings Summary of the Principles</b>	
<b>Assessment category</b>	<b>Principle</b>
Observed	Principles 1,2,3,4,5,6,7,8,9,12,13,15,16,17,18,20,21,22,23
Broadly observed	Principles 14, 19
Partly observed	Principles -
Not observed	Principles -
Not applicable	Principles 10,11,24

**Table 5: Ratings Summary for the CCIL TR**

<b>Table: Ratings Summary of the Principles</b>	
<b>Assessment category</b>	<b>Principle</b>
Observed	Principles 2,3, 15, 17,18,19,20,21,22,23,24
Broadly observed	Principles -
Partly observed	Principles 1
Not observed	Principles -
Not applicable	Principles 4,5,6,7,8,9,10,11,12,13,14,16

**Table 6: List of prioritized recommendations**

<b>List of Prioritized Recommendations for Principles</b>				
<b>Principle</b>	<b>Issues of Concern and Other Gaps or Shortcomings</b>	<b>Recommended Action</b>	<b>Relevant Parties</b>	<b>Comments and Priority</b>
<b>1</b>	CCIL bye-laws and operating regulations for specific market segments are not aligned on the point of irrevocability and finality, with respect to admitted trades that are contested on grounds of fraud, misrepresentation or material errors.	CCIL should examine the materiality of this, in consultation with the RBI.	CCIL, RBI	Medium Term
<b>1</b>	CCIL has not yet received regulatory approval on the operating regulations for the TR services.	CCIL should co-ordinate with the RBI to put the rules for the TR segment in place in an expeditious manner.	CCIL, RBI	Short Term
<b>3</b>	Risk management framework does not explicitly cover risks associated arising from trading platforms which originate trades settled by CCIL.	CCIL should explicitly recognize the risks it is exposed to from the trading platforms operated by the CCIL's subsidiary.	CCIL, RBI	Short Term
<b>4</b>	CCIL's credit risk stress testing assumes a participant in stress will cover its MTM and volatility margin calls.  Though CCIL does not provide CCP / guaranteed services in the CLS bank segment, but is exposed to market risk for which it collects margins from members. CCIL credit risk management framework does not explicitly seek to cover	CCIL could consider enhancing its stress testing framework by excluding the MTM and volatility margin calls of the participant with the largest exposure from the assessment of adequacy of pre-funded resources.  CCIL should consider having resources to address market risk for two largest participants given the PVP settlement arrangement.	CCIL	Short Term  Medium Term

**List of Prioritized Recommendations for Principles**

<b>Principle</b>	<b>Issues of Concern and Other Gaps or Shortcomings</b>	<b>Recommended Action</b>	<b>Relevant Parties</b>	<b>Comments and Priority</b>
	the largest exposures in the PVP settlement in CLS segment.			
<b>7</b>	CCIL should enhance the scenarios considered in the liquidity stress testing .	CCIL liquidity risk stress test scenarios needs to explicitly include additional scenarios related to historical peaks, stress events across markets segments and multi-day exposures. In addition, the CCIL should consider including reverse stress testing.	CCIL	Short term
<b>13 and 14</b>	The segregation and portability framework is not complete.	CCIL needs to implement a framework for segregation and portability of customer funds and assets in the G-Sec segment where to an extent tiered participation exists. The framework, should explicitly reference any applicable regulations of the RBI and other regulators and describe how the process for portability would be facilitated by CCIL. This could be addressed through explicitly requiring segregation in the CCIL BRR and validating as part of default drills.	CCIL, RBI	Medium term
<b>15</b>	The CCIL is in the process of enhancing its recovery plan.	CCIL has all the tools in place for timely recovery. CCIL should however, pursue its efforts to further develop and formalize the recovery plan and appropriately reflect these in its BRR.	CCIL, RBI	Medium Term

**List of Prioritized Recommendations for Principles**

<b>Principle</b>	<b>Issues of Concern and Other Gaps or Shortcomings</b>	<b>Recommended Action</b>	<b>Relevant Parties</b>	<b>Comments and Priority</b>
<b>17</b>	CCIL could enhance its BCP test scenarios to simulate ability to invoke BCP during periods of market stress.	<p>CCIL could consider incorporating additional scenarios in the BCP to assess achievement of RTO and RPO objectives even in very adverse situations:</p> <ul style="list-style-type: none"> <li>• operational risk event at critical times during the business day – say 3 hours before close of business day or beginning of business day;</li> <li>• Accessing LOC when the LOC providers are working from their back-up sites; and</li> <li>• Functioning of settlement banks from their back-up sites.</li> </ul> <p>The CCIL explicitly recognizes its FMI links with the RBI-operated RTGS and PDO in the risk management framework. The CCIL should, in addition, explicitly recognize its FMI Links with the RBI-operated RTGS and PDO, with respect to the business continuity planning in its operational risk management framework. The CCIL should explicitly include TR</p>	CCIL	Medium term

**List of Prioritized Recommendations for Principles**

<b>Principle</b>	<b>Issues of Concern and Other Gaps or Shortcomings</b>	<b>Recommended Action</b>	<b>Relevant Parties</b>	<b>Comments and Priority</b>
		services in the scope of its BCP exercise.		
<b>19</b>	The CCIL bye-laws, rules and regulations do not recognize tiered participation arrangements.	Currently, there is no tiered participation in any segment except in Government securities segment under an RBI approved scheme. In the Government securities segment constituent positions are tracked. CCIL could consider having a reporting requirements from the direct members through whom the constituents participate on the delay in giving margin, etc. by the constituents.	CCIL	Medium Term
<b>21</b>	Participants in some segments of the market served by CCIL expressed need for additional services and features – for CCP services.	CCIL could consider studying the feasibility of introducing the below features highlighted by the participants the mission team met: <ul style="list-style-type: none"> <li>• Ability to flag shortage of securities when placing a repo or an outright sale through CROMS and NDS-OM;</li> <li>• Introduce tiered participation in the CBLO segment, along the lines of the arrangements in the Government securities market.</li> </ul>	CCIL, RBI	Long term



<b>List of Prioritized Recommendations for Principles</b>				
<b>Principle</b>	<b>Issues of Concern and Other Gaps or Shortcomings</b>	<b>Recommended Action</b>	<b>Relevant Parties</b>	<b>Comments and Priority</b>
	There is a need for a structured approach to gather feedback and inputs from participants in the CCIL CCP and TR services.	CCIL could also consider introducing annual surveys of participants to seek their feedback on existing products and services; and demand for new products and services.	CCIL	Short term

**Table 7: Ratings Summary for the Responsibilities**

<b>Table: Ratings Summary for the Responsibilities</b>	
<b>Assessment category</b>	<b>Responsibility</b>
Observed	Responsibility A, B,C and E
Broadly observed	Responsibility D
Partly observed	-
Not observed	-
Not applicable	-

**Table 8: List of prioritized recommendations for responsibilities**

<b>List of Prioritized Recommendations for Responsibilities</b>				
<b>Responsibility</b>	<b>Issues of Concern and Other Gaps or Shortcomings</b>	<b>Recommended Action</b>	<b>Relevant Parties</b>	<b>Comments and Priority</b>
<b>B</b>	Capacity to conduct regular assessments of the relevant FMIs with the PFMI	The SEBI should assess if they currently have the human and organizational capacity to fully meet their current and expanding oversight responsibilities, in particular arising from the commodities market FMIs coming under their purview.	SEBI	Short
<b>D</b>	Regular application of PFMI	The RBI and SEBI should progress their plans to assess all the FMIs under their respective purview. In the case of the RBI, the RBI PDO needs to be assessed; and in the case of the SEBI the commodity derivatives market FMIs need to be assessed and the CSDs need to publish their disclosure framework.	RBI, SEBI	Short
<b>E</b>	Cooperation among authorities	The various committees under the FSDC provide for structured co-operation between the RBI and the SEBI, with respect to the FMIs. The RBI and SEBI should evaluate the need for strengthening the co-operation framework with respect to establishing protocols for sharing data and information for e.g. a framework / formal arrangement for sharing of corporate bonds data with regulator or other FMIs could be considered.	RBI, SEBI	Medium

## VI. DETAILED ASSESSMENT REPORT –CCIL CCP

PS	CSD	SSS	CCP	TR
●	●	●	●	●

<p><b>Principle 1: Legal basis</b></p> <p>An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.</p>	
<b>Key consideration 1</b>	<b>The legal basis should provide a high degree of certainty for each material aspect of an FMI’s activities in all relevant jurisdictions.</b>
Description	<p><i><b>Material aspects and relevant jurisdictions</b></i></p> <p><b>Material aspects of the CCIL’s activity requiring legal certainty are:</b></p> <ul style="list-style-type: none"> <li>● Functioning as a CCP and its operating rules and procedures;</li> <li>● Protection for collateral held by CCP;</li> <li>● Settlement finality;</li> <li>● Legal certainty for specific operational procedures: multilateral netting, close-out, default handling and dispute resolution; and</li> <li>● CCP resolution.</li> </ul> <p><b>The relevant jurisdictions are:</b></p> <ul style="list-style-type: none"> <li>● India for all market segments;</li> <li>● United States (for Settlement of USD funds) in Rupee/ USD Settlement segment;</li> <li>● Switzerland (For settlement of cross currency transactions through CLS Bank).</li> </ul> <p><i><b>Legal basis for each material aspect</b></i></p> <p>The legal framework in India for the clearing and settlement of government securities consists of statutory laws, regulations and rules. The laws, bylaws, rules and regulations governing the CCIL are clearly stated (in English) and are accessible to system participants. The laws, bylaws, rules and regulations are available on the Internet.</p> <p>The critical elements for securities clearing and settlement are covered by the PSSA, the Contract Act (CA; 1872) and the bylaws, rules and regulations. The bylaws (amended June 2016), rules and regulations for specific market segments, of the CCIL have legal recognition under the PSSA (art. 20-24). The CCIL has concluded an agreement with its participant. The rules and regulations are part of the terms and conditions of that agreement. No court in India has failed to uphold this legal basis.</p> <p><u><i><b>Assurance of high degree of legal certainty as a CCP and enforceability of its rules and regulations:</b></i></u></p> <p>The legal framework covers the CCP to act as counterparty, including the legal basis for novation (PSSA, Section 23; Bylaws Chapter VII.2), netting (PSSA, Section 23), collateral (PSSA, Section 23), default procedures (bylaws Ch VIII), and finality (PSSA, Section 23).</p> <p>The PSSA (art 10 (1)) authorize the RBI to issue regulations covering the design, rules, operating procedures and other aspects governing payments systems in India. The RBI accordingly issued the PSSR (2008, subsequently amended in 2011). The Regulation (5) of the PSSR, specifies a schedule which elaborate the provisions related to art 10(1) of the PSSA. The specified schedule lists regulations, guidelines or instructions including the by-laws, rules and regulations of CCIL. Bye laws and Regulations of CCIL are accordingly subordinate legislations.</p>

CCIL has been granted certificate of authorization to operate “Payment Systems” under the Payment and Settlement Systems Act, 2007 (PSSA) for undertaking Clearing and Settlement of transactions in Government Securities, Money Market, Foreign exchange and Rupee Derivatives.

CCIL’s Bye-Laws, Rules and Regulations that are also included under schedule to Regulations 5 of the Payment and Settlement Regulations 2008 provides required legal basis on its various material aspects such as multilateral netting, finality of settlement, default handling procedures and rights on collateral etc.

CCIL bye-laws in Chapter 2 define all relevant terms pertinent to its functioning as a CCP: CCP (art 14), collateral (art 20), default (art 31), default obligation (art 33), margin (art 54), multilateral netting (art 63), netting (art 65), novation (art 72) and various terms related to its functioning as a CCP. These terms are further elaborated in Chapter VII of the bye-laws, notably procedures for close-out netting (art 8), default handling (art 9), irrevocability (art 12), finality (art 13), right to set-off (art 15.).

The bye-laws empower the board of the CCIL (Ch. V) to issue binding regulations covering the operations, pricing, penalties, fees, risk management, dispute resolution processes and overall functioning of the various market segments which are required to be approved by RBI under the PSS Act.

#### *Rights of CCIL on collateral*

The PSSA (art 23), provides for protecting the rights of a licensed payment system over the collateral collected from its participants and to use them to settle any dues of the participant to the payment system or to any other participant, in line with the rules and byelaws of the operator of the payment system.

CCIL bye-laws (Ch VI, art 2.) further elaborate on the right of lien of the CCIL on any funds of a participant (referred to as a member), to settle any dues and obligations of the participant to CCIL arising out of a trade or any related activities conducted under the provisions of the bye-laws. Chapter (ix) of the CCIL bye-laws cover the administration of the SGF and give full rights to CCIL to use the SGF to meet CCIL’s obligations as a CCP. Chapter (x) of the CCIL bye-laws cover margin and again provide full rights to CCIL to appropriate and use the margin to cover any settlement and other dues of the participant to CCIL; the bye-laws, further recognize the participants contribution to SGF to be treated as margin. The Chapter (xii) of the bye-laws deals with member default and here again the right of CCIL over collateral is re-iterated. CCIL has the absolute right to set off the liability of a defaulting participant in one segment against its receivables in any other segment of CCIL (bylaws VII.15).

The participants further provide CCIL with a Power of Attorney to effectuate its rights with regard to the securities of the participants, which are deposited as collateral.

#### *Settlement finality*

The PSSA (art 23.) protects any transaction settled under the provisions of the bye-laws, rules and regulations of an authorized payment system from any direction to reverse the transaction from other court or a resolution agency (referred to as a liquidator, receiver, assignee or called by any other name) deriving powers from any other law. The amendment to the PSSA in 2015 (amended art 23.), also expressly also protects irrevocability and settlement finality from directions of any authority established to function as a resolution agency for CCPs.

CCIL bye-laws (Ch. VII) bind the members to an admitted trade, making the transaction irrevocable (art 12(1) and 13) and all settled transactions as final and irrevocable. The bye-laws however allow, CCIL (Ch.VII art 12.2) to reject a trade admitted for settlement, after due-process, if one of the parties of the transaction makes a claim of the underlying transaction being fraudulent or arising from misrepresentation or a material mistake. The

	<p>market segment specific regulations, specify the point after which the transaction is deemed final and irrevocable. All the regulations specify this as the point when net settlement positions have been computed – for example, CBLO segment (Ch VII, 2.A.v(d)); and derivatives (Ch V,B.7.(d)). There is a possibility of ambiguity between the provisions in the bye-laws with respect to art 12(2) and the provisions in the market segment regulations.</p> <p><u><i>Legal certainty for critical operational procedures</i></u></p> <p>CCIL in its role as a CCP, extensively uses multilateral netting and to support handling of member defaults has procedures for close-out netting and default handling. The procedures are recognized under the PSSA. The Chapter III of the PSSA, recognize that the RBI as part of its authorizing a payment system will consider the design of the system, its operating procedures, settlement process, netting procedures and the terms and conditions governing the relationship between the system operator and its participants. The PSSA (art 23), further recognizes the primacy of the procedures for default handling as specified in the operating rules and procedures of the authorized payment system.</p> <p>CCIL bye-laws, as noted above clearly define the terms multilateral netting, close-out and default handling procedures in its regulations. The bye-laws, rules and regulations have been approved by the RBI and are included in the schedule of the PSSR, according it statutory status.</p> <p><u><i>CCP resolution</i></u></p> <p>The PSSA (Amendment) Act 2015 (art 23.) provides for a clear legal framework for CCP resolution, protecting the primacy of the CCP rules and procedures. The proposed Financial Resolution and Deposit Insurance Bill (FRDI Bill), further preserves the RBI's powers to oversee the process in the event of any recovery, resolution or cessation of functioning of an authorized CCP.</p> <p><u><i>Other jurisdictions</i></u></p> <p>CCIL is not involved in any cross border participation agreement with regard to clearing and settlement. System participants are required to be located in India.</p> <p>CCIL has a tiered participation with UBS bank for facilitating CLS bank settlements, for CCIL participants. CCIL also maintains correspondent accounts in the USA for INR-USD forex market transactions. CCIL has sought legal opinion and has addressed potential conflict-of-law issues in its respective contracts with UBS bank for CLS bank settlements and with the USA correspondent banks.</p>
<p><b>Key consideration 2</b></p>	<p><b>An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.</b></p>
<p>Description</p>	<p>The Bye-laws, Rules &amp; Regulations of CCIL approved under PSSA are in use for many years and have been found by members to be clear and understandable.</p> <p>The Company has put in place an internal committee comprising senior officials to formulate, review and update the rules and regulations of the FMI. Upon such review, the rules and regulations as formulated or amended along with an independent review by external legal experts. The reviewed rules and regulations are placed before the Board's committee on Bye-laws, Rules and Regulations for recommendation to the Board for its approval. The Board deliberates and accords its approval subject to changes if any.</p> <p>There is a process for biennial review of CCIL Bye-laws, Rules &amp; Regulations or as and when needed. There is review currently underway.</p>

	<p>Any change to Bye-laws, Rules and Regulations requires approval of the authority i.e., the Board of Directors of CCIL. Further, any change to the Bye-laws, Rules and Regulations is also required to be approved by Reserve Bank of India (RBI) as Regulator.</p> <p>In regard to its contracts, legal department of CCIL validates these and subsequently external legal vetting is undertaken.</p>
<b>Key consideration 3</b>	<b>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.</b>
Description	<p>CCIL's Bye-laws, Rules and Regulations govern the legal relationship between CCIL and its participants.</p> <p>The legal basis for activities of CCIL, derive from the PSSA (art 20) and further strengthened by inclusion of CCIL bye-laws, rules and operating regulations in the schedule of the PSSR. This confers CCIL bye-laws, rules and operating regulations a statutory basis.</p> <p>CCIL's bye-laws, rules and operating regulations are available to all its participants and to the general public at <a href="https://www.ccilindia.com/Membership/Pages/ByeLaws,RulesRegulations.aspx">https://www.ccilindia.com/Membership/Pages/ByeLaws,RulesRegulations.aspx</a></p>
<b>Key consideration 4</b>	<b>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.</b>
Description	<p><b><i>Enforceability of rules, procedures and contracts</i></b></p> <p>As required under the PSSA and PSSR, CCIL rules, procedures and contracts are reviewed and approved by the RBI, including for any subsequent changes.</p> <p>CCIL also has an internal committee and a board committee to review and approve any new rules, procedures or contracts, before sending it to the RBI for approval. CCIL also as a process seeks external opinion from renowned legal experts with strong domain knowledge and for specific cases also the opinion of eminent jurists. Further, CCIL also seeks feedback from its members for any changes to existing product structure or before proposing any new product structure.</p> <p><b><i>Degree of certainty for rules and procedures</i></b></p> <p>CCIL is authorized by the RBI under the provisions of the PSSA to function as a CCP. The PSSA requires (art 10) all authorized payments system to develop bye-laws, operating rules and procedures (by whichever name called) to govern its operations and set out the overall processes and procedures and rights and responsibilities of the payment system provider (including CCIL) and the participants. The PSSA further requires the bye-laws, rules and regulations to be approved by the RBI at the time of commencing operations and as and when any changes or new rules are developed. This review by the regulator and inclusion in the schedule of the PSSR provides high degree of certainty on the enforceability of rules, procedures and contracts.</p> <p>Further, CCIL has a membership agreement with the participants developed in line with the Contract Act, the membership agreement further binds the participants to the bye-laws, rules and procedures set out by CCIL.</p>
<b>Key consideration 5</b>	<b>An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.</b>
Description	<p>All the operations of the CCP are within Indian jurisdiction except where it has Settlement bank arrangements in other jurisdictions for the purposes of settlement of trades in other currencies and to that extent, it subjects itself for that limited purpose to those jurisdictional rules. CCP has obtained wherever required, legal opinions on conflict of laws.</p>

<p><b><i>Key conclusions</i></b></p>	<p>The PSSA, PSSR and Indian Contract Act, provide a strong statutory legal basis for the functioning of CCP's and provide for legal certainty for all the operational processes and procedures of a CCP notably novation, netting, close-out, protection of collateral, finality and default handling procedures. The 2015 amendment to the PSSA introduced protection of settled transactions and accepted trades, from any disruption arising from insolvency of a CCP, by according primacy to the rules and procedures of the CCP to be applied for winding down the operations of the CCP.</p> <p>CCIL, has further developed a comprehensive bye-law and specific rules and regulations for each market segment, which as required under the PSSA are approved by the RBI and also included in the schedule of the PSSR.</p> <p>The bye-laws allow the CCIL to revoke admitted trades in the event of a determination by CCIL, based on a representation by one of the counterparties, of a fraud, misrepresentation or a material mistake. The point up to which this can be done is not expressly mentioned in the bye-laws. The segment specific regulations specify the point of irrevocability and finality as when the final net positions are arrived at by the CCIL. This could raise the possibility of an ambiguity in the event of a representation on fraud, misrepresentation or a material risk with respect to an admitted trade.</p> <p>CCIL has an internal process in place to thoroughly review any new rules or proposed changes by external legal experts and also its internal committee and a board level committee.</p> <p>CCIL's operations fall under the jurisdiction of India, except for the limited purpose of settlement of forex transfers on a PVP basis which is subject to laws of USA and for settlement of CLS bank transactions which is subject to laws of Switzerland. These are structured in line with international practices of similar systems and the rights and responsibilities of CCIL and its counterparties in USA and Switzerland are duly covered in an agreement.</p>
<p><b><i>Assessment of Principle 1</i></b></p>	<p><b>Observed</b></p>
<p><b><i>Recommendations and comments</i></b></p>	<p>There is a provision in the CCIL bye-laws and specific market segment regulations to cancel or revoke admitted trades with respect to trades that are contested on the grounds of fraud, misrepresentation or material mistake. The CCIL should examine this in consultation with the regulator on the materiality of this.</p>

PS	CSD	SSS	CCP	TR
●	●	●	●	●

<b>Principle 2: Governance</b>	
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.	
<b>Key consideration 1</b>	<b>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</b>
Description	<p>The CCIL’s mission statement<sup>3</sup> reads as:</p> <p>““1. To promote safety, efficiency and systemic stability through agile technology and risk management processes and practices matching or exceeding global standards 2. To encourage research and collaborative thinking for shaping the future of financial markets through innovation.”</p> <p>The mission statement clearly prioritizes safety, efficiency and financial stability.</p> <p>CCIL’s objective is to provide risk mitigated Clearing &amp; Settlement services as a Central Counterparty of institutional trades in OTC financial markets (Securities, Money market transactions, Forex, and Derivatives etc.).</p> <p>Non-CCP clearing and trade processing is also offered for Interest Rate Swap trades and trades eligible for settlement through CLS Bank. CCIL also runs a Trade Repository.</p> <p>An annual assessment of the risk processes of CCIL is conducted by independent external experts<sup>4</sup> from India, who review all risk models and stress test results. The last review for example led to shifting to segment-wise reverse stress testing and new approaches for portfolio compression. Further all the processes of CCIL are also internally assessed by internal and operational auditors of CCIL who place their report before the Audit Committee of the Company for its monitoring. There exists a separate Committee of Directors for risk management to address the issues relating to risk management. This ensures tracking of CCIL’s performance in meeting its objectives.</p> <p>As one of the objectives in the Mission statement, safety gets top-most priority. Processes are automated wherever feasible bringing in huge efficiency. Safety is also achieved through well laid IT infrastructure with adequate redundancy. CCIL has obtained an enterprise level ISO certificate and is also compliant with ISO-27001standards.</p> <p>Secure CCP Clearing facilitates Financial Stability. Independent experts in CCIL Board of directors help to keep adequate focus on relevant public interest considerations. Apart from this, regular interactions, at least once a year, with market bodies like FIMMDA (Fixed Income Money Market Derivatives Association) , FEDAI (Foreign Exchange Dealers Association of India) etc. and with User groups help CCIL identify relevant public interest considerations and include those in its objectives.</p>

<sup>3</sup> <https://www.ccilindia.com/AboutUs/Pages/VisionAndMission.aspx>

<sup>4</sup> The external reviewers for the last review were Prof Apte and M.R.Rao.

Current review is being carried out by Mr. Rajeeva Karandikar - Director and head of Chennai Mathematical Institute (CMI), Head of Algolabs a consulting division affiliate of CMI and Mr. Viswanathan Raghu - Consultant for Algolabs



<b>Key consideration 2</b>	<b>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.</b>
Description	<p><i>Governance arrangements</i></p> <p>CCIL is a public limited company under the Indian Companies Act, 1956 [replaced by Companies Act 2013]. The CCIL is owned by banks (70%), financial institutions (14%) and primary dealers / other corporate bodies (16%).</p> <p>The oversight of the overall governance of CCIL is vested in the Board of Directors, currently there are 15 directors including a non-executive chairperson. It has a number of committees of the board and external committees which oversee various functions of CCIL under the overall supervision of the Board.</p> <p>Under the overall supervision and control of the Board of Directors of CCIL a Managing Director has been appointed who is entrusted with the day to day functions of CCIL. The Managing Director is assisted by a team of senior officials who function as Line Officials. Line Officials are supported by middle management and supervisory officials.</p> <p>CCIL conducts annual general meetings and if needed additional general meetings for transacting special business. During the annual general meetings, CCIL reports to owners the developments in respect of CCIL’s functioning and take their approvals wherever required under the Companies Act, 2013 or under any other requirements.</p> <p>The Companies Act, 2013 and PSSA provide the framework for the governance arrangements at CCIL.</p> <p>CCIL conducts User Group meetings periodically on critical issues touching upon the functioning of CCIL and take their feedback. For major changes, Consultation Papers are also issued for feedback from all relevant stakeholders, recently there have been a series of consultations pertaining to risk management framework changes – skin in the game, default fund structure and loss mutualization arrangements. As required by the PSSA, the bye-laws of the CCIL provide for the accountability of CCIL to its members and regulator. Further, adequate and timely disclosure of the information is made to the shareholders from time to time in terms of the requirements under the Companies Act, 2013.</p> <p><b><i>Disclosure of governance arrangements</i></b></p> <p>The governance arrangements and changes, reviews are communicated to the owners, relevant authorities, participants and general public through the Annual Report / Return which is mandatory under the Companies Act or through necessary disclosures on the website of the Company. The recent Companies Act, 2013 has made the annual report to be prepared by the Companies to be more detailed and extensive in terms of information and disclosures. The annual report is also submitted to the RBI. The audited financial statements are displayed on the website<sup>5</sup> as required under the Payment and Settlement Systems Act 2007. In addition a separate Code of Conduct for Directors has also been put in place by the Company.</p> <p>The composition of the board and the board committees are also made available at the CCIL website<sup>6</sup>.</p>

<sup>5</sup> <https://www.ccilindia.com/AboutUs/Pages/Financial.aspx>

<sup>6</sup> <https://www.ccilindia.com/AboutUs/BrdDirectors/Documents/Committees.pdf>

<b>Key consideration 3</b>	<b>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.</b>						
Description	<p><b><i>Roles and responsibilities of the board</i></b></p> <p>The overall functioning of CCIL is overseen by the board of directors. The roles and responsibilities of the directors as set out in the Companies Act, 2013 are adhered to.</p> <p>A separate Governance policy has been put in place by CCIL covering the following areas: board’s responsibilities, powers, organization structure and functioning, board composition and appointment, board committees, avoidance of conflict of interest, evaluation of board, code of conduct and accountability to stakeholders.</p> <p>The provisions of the Companies Act, 2013 contain detailed disclosure requirements especially those relating to disclosures by Directors of their general and specific interests which the Directors have to furnish from time to time which are broadly as follows :-</p> <p>a) The Directors are required to furnish disclosure of interest / concern at the time of their appointment at the first meeting of the Board in which he/she participates as a Director.</p> <p style="padding-left: 40px;">At the time of appointment, a self-declaration in the format prescribed by RBI filled by the director and duly authenticated by CCIL is submitted to RBI to assess the fit and proper criteria of the director.</p> <p>b) Further, the Directors are required to furnish yearly disclosure at the first meeting of the Board in every financial year.</p> <p>c) The Directors are also required to disclose to the Company of any change in their status / interest on an ongoing basis, mainly at the first Board Meeting after such change / becoming interested.</p> <p>The Disclosures, Registers of contracts (as per provisions of Companies Act) in which Directors are interested are also audited by the Internal Auditors and Secretarial Auditors.</p> <p>The composite and overall Policy level decisions of CCIL are undertaken by the Board whereas specific interest areas have been delegated to the Committees of the Board.</p> <p>The Committees undertake specific areas of activity entrusted to them and take all decisions connected with it and oversee implementation of the same by close monitoring through periodic meetings. The Committees consist of Directors who are professionally qualified with rich experience to discharge the responsibilities entrusted to them. The various Committees of the Board along with their scope are as under:</p> <p>1. Audit Committee</p> <table border="1" data-bbox="491 1798 1385 2009"> <thead> <tr> <th colspan="2">Scope</th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>To recommend the appointment, remuneration and terms of appointment of auditors of the Company;</td> </tr> <tr> <td>(ii)</td> <td>To review and monitor the auditor’s independence and performance, and effectiveness of audit process;</td> </tr> </tbody> </table>	Scope		(i)	To recommend the appointment, remuneration and terms of appointment of auditors of the Company;	(ii)	To review and monitor the auditor’s independence and performance, and effectiveness of audit process;
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	<ul style="list-style-type: none"> <li>(iii) Examination of the financial statement and the auditors' report thereon,</li> <li>(iv) Approval or any subsequent modification of transactions of the Company with related parties;</li> <li>(v) Scrutiny of inter-corporate loans and investments;</li> <li>(vi) Valuation of undertakings or assets of the Company, wherever it is necessary;</li> <li>(vii) Evaluation of internal financial controls and risk management systems;</li> <li>(viii) Monitoring the end use of funds raised through public offers and related matters</li> <li>(ix) Oversee the vigil mechanism i.e. Whistle blower policy of the Company.</li> <li>(x) To review the periodic unaudited financial statements and internal and operational audit reports;</li> <li>(xi) Review of compliances of Corporate Laws and under The Payment and Settlement (Systems) Act, 2007.</li> <li>(xii) Such other matters as may be referred to by the Board or as required under the Companies Act, 2013 as amended from time to time.</li> </ul>		
	<p><b>2. Committee of Directors for Bye-Laws, Rules and Regulations (BRR)</b></p> <table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">Scope</td> <td>To recommend to the Board such changes /modifications in the Bye-laws, Rules, Regulations, undertakings, other documents etc. of the Company as required.</td> </tr> </table>	Scope	To recommend to the Board such changes /modifications in the Bye-laws, Rules, Regulations, undertakings, other documents etc. of the Company as required.
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	<p><b>4. Committee of Directors on Human Resource Development, Personnel and organizational structure</b></p> <table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">Scope</td> <td> <ul style="list-style-type: none"> <li>(a) To review the current organizational structure of the Company and compensation package for the staff</li> <li>(b) To recommend and review recruitment, succession, retirement plan and other HR policy issues.</li> <li>(c) such other matters as may be referred to by the Board from time to time.</li> </ul> </td> </tr> </table>	Scope	<ul style="list-style-type: none"> <li>(a) To review the current organizational structure of the Company and compensation package for the staff</li> <li>(b) To recommend and review recruitment, succession, retirement plan and other HR policy issues.</li> <li>(c) such other matters as may be referred to by the Board from time to time.</li> </ul>
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## 5. Committee of Directors on Risk Management

### Scope

- (d) To address and decide on all issues relating to the Risk management of the Company and report the same to the Board at their subsequent meetings.
- (e) To lay down criteria/policy for membership relating to admissions, continuation, suspension etc. of various business segments from time to time.
- (f) To approve the first time membership of the Company by a new entrant, membership screening and approval process, to call for such additional information and/or clarifications as it deems necessary to consider requests for grant of membership.
- (g) such other matters as may be referred to by the Board from time to time.
- (h) The Managing Director is authorized :
  1. To approve the inter se membership to the various segments of the Company of any member and implementation of the laid down criteria and other policy matters
  2. To carry out periodical reviews of the financial statements and reports required to be submitted by members to determine continuance of membership rights.
  3. And report the status to Committee of Directors for Risk Management.

## 6. Nomination and Remuneration Committee of Directors

### Scope

- a) To identify persons who are qualified to become directors and who may be appointed in senior management in accordance with the criteria laid down.
- b) To recommend to the Board their appointment and removal.
- c) To carry out evaluation of every director's performance.
- d) To formulate the criteria for determining qualifications, positive attributes and independence of a director.
- e) To recommend to the Board a policy, relating to the remuneration for the directors, key managerial personnel and other employees in terms of the provisions of section 178(4) of the Companies Act, 2013.
- f) To scrutinize the candidature of Directors to "fit and proper test" in terms of RBI guidelines and then recommend to the Board.

- g) To determine/recommend the terms and conditions of the appointment/reappointment, compensation of the Managing Director and Chairperson of the Company.
- h) To look into Governance issues of the Company.
- i) Such other activities as may be delegated by the Board or as required under the Companies Act, 2013 as amended from time to time.

**7. Corporate Social Responsibility Committee**

Scope

- a. To formulate and recommend to the Board, a Corporate Social Responsibility Policy which shall indicate the activities to be undertaken by the Company as specified in Schedule VII of the Companies Act, 2013, specifying modalities of execution of such project or programs and implementation schedule for the same and monitoring the progress of such projects or programs.
- b. To recommend the amount of expenditure to be incurred on the activities referred to in clause (i) in terms of the provisions of Section 135 of the Companies Act, 2013;
- c. To monitor the Corporate Social Responsibility Policy of the Company from time to time by instituting a transparent monitoring mechanism for implementation of the CSR projects or programs or activities undertaken by the Company.

Such other activities as may be delegated by the Board from time to time or as required under the Companies Act, 2013 as amended from time to time.

**8. Investment Committee of Directors**

Scope

To invest the funds of the Company, in terms of Section 292 (1) (d) of the Companies Act, 1956 (Section 179(3) of the Companies Act, 2013) and in accordance with the Investment norms approved by the Board, in the absence of the Managing Director.

**9. Premises Advisory Committee (External Committee)**

Scope

To advise the Company on its requirements of commercial / residential premises, acquiring of commercial/ residential premises on ownership / lease basis, floating a request for proposal (RFP), inviting proposals from architects for the construction of the proposed buildings, selection and appointment of Project Managers, consultants, contractors etc., to liaise with relevant agencies and other authorities for obtaining necessary permissions / approvals on behalf of the Company and to do all such incidental acts, deeds, matters and things which may be required in this regard or such other responsibilities as may be delegated to them by Board in respect of premises.

***Review of performance***

Board has delegated many of its core responsibilities to its Committees and decisions taken by the Committees are reviewed by the Board on a continuous basis. Moreover, RBI as Regulator reviews the performance of the Board at the time of its periodic inspections.

	<p>The board members are members of various board committees. Thus, their performance as members of such committees is reviewed by the Board.</p> <p>Further, the CCIL has also put in place an evaluation mechanism for the Board members, Board Committees and Board as a whole in terms of the requirements under the Companies Act, 2013.</p> <p>The evaluation mechanism involves Nomination and Remuneration Committee evaluating the performance of all the other board members and of the Board committees and the Board based on the feedback from the Independent Directors on their evaluation of the Non-independent Directors, Board committees as well as Board as a whole and Board's feedback on evaluation of Independent Directors at rating on a scale of 3 (good, satisfactory and needs improvement), across specific areas and based on identified parameters. The evaluation is conducted annually, the last evaluation was in May 2017.</p>
<b>Key consideration 4</b>	<b>The board should contain suitable members with the appropriate skills and incentives to fulfill its multiple roles. This typically requires the inclusion of non-executive board member(s).</b>
Description	<p>The Company has put in place policy on directors appointment and remuneration including the criteria for determining qualifications, positive attributes and independence of a Director, etc. of the Company.</p> <p>Skill sets necessary are in the areas of –</p> <ul style="list-style-type: none"> <li>a) Treasury</li> <li>b) Risk Management</li> <li>c) Information Technology</li> <li>d) Legal</li> <li>e) Management</li> <li>f) Accounts and Audit.</li> </ul> <p>Independent Directors with these skill sets have been inducted in CCIL Board. Further, the core promoters of the Company who are also the market participants are advised by RBI to nominate only serving officials as Nominee Directors of CCIL.</p> <p>The Board of Directors presently comprises of fifteen (15) Directors, consisting of nominees of Shareholders (6), Independent Directors (7), Managing Director and a Non-Executive Chairperson.</p> <p>The FMI adopts the definition of Independent Director as set out under the Companies Act 2013 (Ch XI art 149.6.). The FMI also categories the Directors into independent and non-independent Directors as per the requirement of the Companies Act as also stipulated by its regulator i.e. RBI and discloses the same accordingly on its web-site<sup>7</sup>.</p> <p>Some of the requirements for independent directors in the companies act include: independent director should not be a promoter of the company, its holding company or any subsidiaries; should not have had any pecuniary relationship with any of the promoters or the company for the last 3 years, including its holding company and subsidiaries; should not have been associated with the auditors of the firm; including with any relatives not hold more than 2% of shares in the company; and not be a CEO or director of a non-profit which receives more than 25% of its receipts from the firm, any of its directors, its holding company or any subsidiaries.</p> <p>The directors receive sitting fees of INR 50,000 and in view of the type and size of the Company, the Nomination and Remuneration Committee of the Company found it to be adequate.</p>

<sup>7</sup> <https://www.ccilindia.com/AboutUs/BrdDirectors/Pages/default.aspx>

<b>Key consideration 5</b>	<b>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.</b>
Description	<p><b><i>Roles and responsibilities of management</i></b></p> <p>The roles and responsibilities of the Senior management have been laid down by the Company duly approved by the Nomination and Remuneration committee of the Company. The responsibility of the management is to oversee the overall functioning of the Company and to conduct the affairs of the Company under the control and supervision of the Board. Senior Management is vested with the responsibility of the day to day functions of the Company. They act as line management.</p> <p>Board through periodic review of the functioning of CCIL in various areas, sets objectives and targets. Based on these, objectives and targets for senior management are fixed and monitored. A suitable framework for review of the performance of the senior management vis-à-vis these objectives and targets also exists.</p> <p><b><i>Experience, skills and integrity</i></b></p> <p>In terms of Company’s policy, senior management persons are to be identified based on their professional/ technical qualifications, wherever required, market / industry experience as also the knowledge, expertise in the relevant areas of operations. Internally laid down appropriate screening process is also in place. Senior level management performance is assessed by top management. There are necessary checks and balances built in the contract of employment including the process for removal of Senior Management, if necessary.</p>
<b>Key consideration 6</b>	<b>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.</b>
Description	<p><b><i>Risk management framework</i></b></p> <p>CCIL has a Board approved Risk Management Framework document detailing the various risks faced by CCIL and the measures in place to handle such risks. As per the authority specified in the framework document, the Committee of Directors on Risk Management (CODRM) identifies various risks of the company. The committee formulates, monitors and reviews the company’s risk management framework. The risks related to IT are monitored and reviewed by the Technical Approval Committee (TAC) of the Board. The Audit Committee is responsible for evaluating the risk management systems of the Company as required by the Companies Act, 2013. Various aspects of operational risk are monitored by the Audit Committee, the CODRM, and the TAC. Further, Regulatory and Compliance Risks are monitored by the Audit Committee.</p>

	<p>The CODRM is authorized to examine and approve risk tolerance policies. Some important areas like changes in exposure limits on Settlement Banks etc. are required to be approved by the Board.</p> <p>Review of risk policies by the CODRM is being done on annual basis. During the annual review the CODRM reviews the effectiveness of various critical control measures.</p> <p><b><i>Authority and independence of risk management and audit functions</i></b></p> <p>Risk Management Dept. headed by Chief Risk Officer is entrusted with the responsibility of designing and carrying out risk management processes for the CCP. Reporting lines of risk function is to MD who is an Executive Director with an additional line of reporting to the Chairman of the Committee of Directors on Risk Management, who is an independent Director. Audit of risk function is carried out by internal auditors as well as external professionals.</p> <p>The internal audit functions of CCIL is undertaken on a continuous basis throughout the year by outside independent auditors.</p> <p>The CODRM approves all risk models. These risk models are also validated by taking services of independent experts.</p>
<b>Key consideration 7</b>	<p><b>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.</b></p>
Description	<p><b><i>Identification and consideration of stakeholder interests</i></b></p> <p>CCIL meets with users in groups [user groups] of similar characteristics like foreign banks, primary dealers, non-bank players, Public sector banks and co-operative banks. User Groups are consulted on all important matters and any suggestion is considered carefully and transparently. For new products and services, such consultation starts at the design stage. Moreover, any change in an existing process is notified to the members (Clearing Participants) 30 days in advance. Market bodies such as FIMMDA and PDAI are consulted for fixed income products and Rupee Derivatives and FEDAI for Forex products.</p> <p>Participants meet at regular intervals to discuss about the clearing and settlement services. They provide feedback regarding their difficulties, if any and suggestions for improvements. There are detailed minutes maintained of these discussions. Apart from this, for specific areas taken up for development, users are consulted through specific user group meetings. Consultation Papers are issued to members and usually to general public as well when a major structural change is proposed and feedbacks are duly considered.</p> <p>Inputs received from members and other stakeholders are made available to the Board. Review of products and risk processes by external experts brings out views of the participants and of the market bodies.</p> <p>A Risk Advisory Group (RAG) has been constituted with representatives from the participants (members). The scope of the RAG is to advise CCIL on various risk related issues.</p>



	<p>The recommendations made by the RAG are submitted to the Board level Risk Management Committee. Views and suggestions of the RAG will be in the nature of recommendations only. Although the views of the RAG will be considered while making decisions, the risk committee has the authority to accept/reject one or more of these suggestions in the larger interest of the organisation.</p> <p><b><i>Disclosure</i></b></p> <p>Any change to processes, except otherwise indicated by RBI is notified to members at least 30 days in advance as required under PSS Act. All major decisions are disclosed to the relevant stakeholders where appropriate. CCIL's audited financial statements are published on the website. Major announcements and changes are also put on the website.</p>
<p><b><i>Key conclusion</i></b></p>	<p>The PSSA and the Companies Act 2013, provide for establishment of effective governance arrangements. CCIL, being subject to these statutory laws, has instituted governance arrangements in line with them, which also are in line with the requirements under the PFMI. The CCIL's vision statement and objectives prioritize safety, reliability, efficiency and stability of the financial system through providing effective risk management services for the financial markets it operates in. Some of the CCIL participants are also shareholders [all shareholders are participants], CCIL does not discriminate on pricing or quality of service to non-shareholder participants.</p> <p>CCIL functions through a management team overseen by a board of directors and the board committees. The board committees include specific committees focusing on risk management, IT aspects and operating rules and procedures.</p> <p>The appointment of board members satisfying the fit and proper criteria are taken on record by the RBI. The board includes an equal number of independent members ensuring prioritization of public interest.</p> <p>CCIL has a documented governance policy, code of conduct for directors, senior management and employees, and a whistle blower policy.</p> <p>CCIL also has a documented risk management framework, which is reviewed by the board committee on risk management, also responsible for overseeing its application.</p> <p>CCIL in addition has user groups with whom there is at least one interaction per year and there is an established mechanism for consultation on any new changes in processes of the product / procedures wherever required.</p> <p>CCIL publically discloses its governance arrangements on its website and also as part of the PFMI disclosure framework.</p>
<p><b><i>Assessment of Principle 2</i></b></p>	<p><b>Observed</b></p>
<p><b><i>Recommendations and comments</i></b></p>	<p>-</p>

PS	CSD	SSS	CCP	TR
•	•	•	•	•

<p><b>Principle 3: Framework for the comprehensive management of risks</b></p> <p>An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.</p>	
<p><b>Key consideration 1</b></p>	<p><b>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.</b></p>
<p>Description</p>	<p><b><i>Risks that arise in or are borne by the FMI</i></b></p> <p>CCIL has developed a risk management framework which identifies the following types of risks: Credit Risk, Market Risk, Liquidity Risk, Operational Risk, Business Risk, Investment Risk, Legal &amp; Compliance Risk and Reputational Risk. The risk management framework included cyber risk under operational risk. The risk management framework also takes into account interdependencies with the settlement banks and banks that provide lines of credit and hold CCIL’s fixed deposits and accounts.</p> <p><b><i>Risk management policies, procedures and systems</i></b></p> <p>Risk Management processes for all settlement segments and related activities are in place. These processes allow CCIL to identify, measure, monitor and manage the associated risks.</p> <p>Credit Risk exposures on members are reduced through, DVP/ PVP settlement and through collection of margins. Risk based margining models are used for all products. Back-testing of margining models and stress testing to assess adequacy of resources are carried out on a daily basis. Arrangements are in place to take care of settlement shortages. Stress tests are carried out on a daily basis and the results are monitored by the senior management. Procedures are in place to call for additional default fund contributions in response to adverse findings in stress test results. The stress testing results are reviewed six times a year by the board committee on risk management and on an annual basis by external experts.</p> <p>Policies are in place to select settlement banks, banks providing lines of credit and other banking services. The exposures to these banks are closely monitored and concentration limits are in place.</p> <p>Business risks are measured and monitored through ongoing market intelligence gathering by CCIL’s management team and are discussed at the level of the board. CCIL also prepares a market-segment wise revenue statement, allowing it full-visibility on segment wise business performance.</p> <p>An Integrated Risk Information System (IRIS), a web based Information dash board has been provided to the participants which provides a real time view of trade positions, status of trades accepted, margin utilization, settlement status, liquidity exposures, collateral related information, default fund details etc. This dashboard provides a comprehensive view of positions of the members on a real-time basis. Participants also receive alerts on a range of events requiring timely action, to name a few – shortfall in default funds, MTM margin calls, margin calls, and when settlement positions are available.</p> <p>Operational risk management measures are in place to ensure high level of operational reliability and cyber risk resilience.</p>

	<p><b><i>Review of risk management policies, procedures and systems</i></b></p> <p><u>New processes/ policies developed internally</u> are put up to the Board Committee on Risk Management for approval. Clearing participants are consulted, if required. Any change in process also requires RBI approval and at least 30 days’ advance notice to the participants before implementation.</p> <p>Board Committee on Risk Management reviews critical control aspects and all major risk related issues during their periodic meetings (average about six in a year). There is also an annual evaluation of risk processes by external experts.</p> <p>User group consultation, extensive back testing of margining model on daily basis and periodic review by external experts ensures due coverage of the changing environment and market practices.</p> <p>All the risk management policies and the procedures are reviewed and updated as and when the models throw exceptions owing to changes in the market conditions. All risk processes for each business segment are reviewed annually by the Board Risk Committee. Further, all the risk processes are periodically reviewed (annually) also by external experts. Extensive back testing of margining model on a daily basis ensures due coverage of the changing environment and market practices.</p>
<b>Key consideration 2</b>	<b>An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.</b>
Description	<p>Clearing participants have full access to their own trade data, margin requirements on their trades accepted for clearing and collaterals placed towards margins on an on-line basis through newly developed Integrated Risk Information System (IRIS) and through reports. They also get timely information in regard to their daily settlement obligations with individual trade details etc. Moreover, any limits set on the clearing participants and the processes employed for setting limits etc. is also provided to them. The participants also receive alerts through various channels – email, SMS and on IRIS, in addition CCIL staff also call the contacts at participants in case of any matter needing immediate attention.</p> <p>In case of margin inadequacy, clearing participants are required to deposit such margin differential and also to pay an applicable penalty on margin shortfall. Multilateral netting and margin offsets provided by CCIL lead to substantial savings in liquidity and margin costs which provides significant incentives for the participants.</p> <p>Margins are risk based. Clearing participants have on-line access to their trade data, margin requirements, settlement status, collateral position, default fund contribution and liquidity exposures for all segments. Clearing Participants have access to adequate information through periodic reports which assist them to manage and contain their risks. Stringent penalties are levied as deterrents to defaults.</p> <p>CCIL also uses factors like internal risk rating of participants to set specific limits for participants in specific segments.</p>
<b>Key consideration 3</b>	<b>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.</b>
Description	<p><b><i>Material risks</i></b></p> <p>CCIL, to perform its CCP responsibilities, is dependent on several institutions and FMIs. CCIL has identified the following sources of material risks: settlement banks, banks which provide lines of credit, the RBI for RTGS, Core Banking System (CBS), and banks where the CCIL maintains its own resources.</p>

As a CCP, CCIL is dependent on Settlement Banks (commercial banks) and RTGS operated by RBI and also on its member banks which provide Lines of Credit (LOC).

CCIL explicitly recognizes the critical dependency its members have on CCIL and implicitly recognizes that this dependency can have an impact on other FMIs (RBI PDO and RTGS) and broader financial markets. To mitigate the risks it poses to other FMIs and markets, CCIL has adopted a robust risk management framework for the financial risks it faces as a CCP and also operational risks.

***Measurement and monitoring:***

CCIL has established criteria for selection of settlement banks, LOC providers, banks where it maintains its resources and overseas custodians where it maintains its foreign securities. The criteria include a combination of financial, technical and operational aspects. The criteria established for the various institutions are monitored by the board committee on risk management, including an annual review. CCIL also has exposure limits for settlement banks, which are monitored on a daily basis. CCIL also requires the participation of these institutions in its business continuity planning exercises. The alternative to the RBI RTGS for settlement in central bank money is the RBI core banking, CCIL adheres to the prescribed business continuity arrangements of RTGS and also using the backup solution using RBI core banking solution.

***Risk management tools***

**Settlement Banks:**

Exposures on all seven domestic Settlement banks are monitored on line. Similar process has also been started for monitoring exposures on two banks for USD settlement and one bank for CLS settlements. Exposures are monitored closely for risk control.

Process of real-time monitoring and follow up measure to handle exceptions ensures that the risk management tasks continue to remain efficient. Board Risk Committee also closely supervises the outcome of risk management processes and activities. External reviews of risk processes are also carried out on an annual basis.

**LOC, investments and custody providers:**

CCIL has established relationships with several institutions for the LOC, investment and custody services. This provides alternatives in case of operational issues in one or more of them. As noted above CCIL has established criteria for selecting institutions providing these services and the criteria are reviewed annually and the continued observance of the criteria on an ongoing basis.

**Other tools**

CCIL has tools for measuring risks, based on the type of risk. The Integrated Risk Management System (IRMS), provides a real-time dashboard of the overall exposures and the coverage of the exposures through the margin and default fund contributions of members. This dashboard provides a view across market-segments, with ability to drill-down to specific market segments.

Business risks are measured and monitored through ongoing market intelligence gathering by CCIL's management team and are discussed at the level of the board. CCIL also prepares a market-segment wise revenue statement, allowing it full-visibility on segment wise business performance.

<b>Key consideration 4</b>	<b>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.</b>
Description	<p><i>Scenarios that may prevent an FMI from providing critical operations and services</i></p> <p>CCIL recognizes the financial risks that it is exposed to and that unmitigated financial risks can hamper CCIL’s ability to function as a going concern. CCIL has also identified reputation and strategic business risks – which can impair CCIL’s ability to function as a going concern.</p> <p><b><i>Recovery or orderly wind-down plans</i></b></p> <p>It has accordingly adopted a framework for managing its credit, liquidity, custody and investment risks. This framework also requires prompt replenishment of any resources used to meet occurrence of any risks. CCIL has established a Settlement Reserve Fund (SRF) from its free reserves, which can be used in the event of any losses and there is a board approval in place to replenish incase this fund is utilized.</p> <p>The detailed default handling procedures are outlined in CCIL’s Byelaws, Rules and Regulations (BRR).</p> <p>Specific Default Waterfall has also been outlined in CCIL’s BRR clarifying the order in which pre-funded default resources such as margins, member contributed Default Funds and SRF will be used to meet default losses.</p> <p>CCIL is in the process of developing a Recovery Plan – which involves in the case of derivatives market a combination of auctioning of defaulting participants positions, tear-up of contracts and loss mutualization. In the case of cash market – the recovery plan includes replenishment of SRF and members contribution to default fund.</p>
<b>Key conclusions</b>	<p>CCIL has developed a risk management framework, covering various risks it faces and poses to other FMIs. These risks include financial risks, operational risks, reputation and strategic risk. Cyber security risk is included in the operational risk and there is a comprehensive cyber risk management framework as part of the operational risk management framework.</p> <p>CCIL has developed a comprehensive risk management dashboard for its own use and for participants. This dashboard provides a comprehensive view of the exposure of specific participants, exposure to settlement banks, and CCIL’s collateral holdings. A similar dashboard is also available to participants for their respective positions.</p> <p>CCIL has also identified specific risks it is exposed to on account of it dependencies on settlement banks, LOC providers, and investment and custody banks.</p> <p>CCIL recognizes the risks it is exposed to from the RBI PDO system, which maintains all the collateral holdings of CCIL and also the participant’s securities holdings and monitors it closely for early warning and to take appropriate action. The CCIL does not explicitly recognize its exposure to risks from RBI owned trading platform - NDS-OM and CROMS operated by its subsidiary. These trading platforms however have redundancy arrangements and have a functioning business continuity plan.</p>

	<p>The CSD is operated by the RBI which is a critical infrastructure for conduct of its function. Given the criticality, there is enough redundancy built to ensure that the same is functional at all times.</p> <p>There is possibility of occurrence of operational errors from Trading platforms and the same are mitigated by the following measures CCIL has put in place:</p> <ol style="list-style-type: none"> <li>1. Necessary reports and utilities have been provided to members so as to avoid any security shortfall.</li> <li>2. There are provisions made in the trading systems for members to specify price/ rate bands so as to avoid fat finger mistakes etc.</li> <li>3. A pre order confirmation screen displays all attributes of an order input for the user to verify and confirm that the same is correct.</li> </ol> <p>CCIL is in the process of enhancing its recovery plan and has started consultation with its participants, post which it will be submitted to the RBI for approval.</p> <p>Currently CCIL has put in place some elements of the recovery plan:</p> <ol style="list-style-type: none"> <li>1. The positions / trades of the participant in default are closed out with its bilateral counterparties at the latest MTM prices. Such close out ensures that CCIL has a matched book post default of any participant. CCIL has been given approval by the RBI for Auction mode of default handling and the same is expected to be implemented soon.</li> <li>2. If pre funded default fund resources are exhausted, CCIL has the right to call for additional contributions from non-defaulting members to replenish the default fund and also contribute towards the uncovered residual loss if any.</li> <li>3. CCIL has its Board approval to replenish CCIL's Skin in the Game (SIG) from Reserves and Surplus if the same has been depleted.</li> </ol> <p>CCIL has proposed additional recovery tools, viz. forced allocation and selective tear up of contracts which will be employed if there is a residual portfolio of the defaulter post auctions. The proposal is being consulted with members.</p>
<b><i>Assessment of Principle 3</i></b>	<b>Observed</b>
<b><i>Recommendations and comments</i></b>	CCIL should explicitly recognize the risks it is exposed to from the trading platforms operated by CCIL's subsidiary. CCIL should also pursue the ongoing discussions on enhancing the recovery plan.

PS	CSD	SSS	CCP	TR
●		●	●	

#### 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.

<b>Key consideration 1</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">The following key consideration applies to</td> <td style="width: 10%;">PS</td> <td style="width: 10%;">CSD</td> <td style="width: 10%;">SSS</td> <td style="width: 10%;">CCP</td> <td style="width: 10%;">TR</td> </tr> <tr> <td></td> <td style="text-align: center;">●</td> <td></td> <td style="text-align: center;">●</td> <td style="text-align: center;">●</td> <td></td> </tr> </table> <p><b>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.</b></p>	The following key consideration applies to	PS	CSD	SSS	CCP	TR		●		●	●	
The following key consideration applies to	PS	CSD	SSS	CCP	TR								
	●		●	●									
Description	<p>CCIL has established a well-defined framework for identifying, measuring and managing credit risks and a well-defined waterfall for handling any credit losses.</p> <p>While credit risk is mitigated owing to the DVP/PVP mode of settlement, CCIL is exposed to market risk arising from its role as a CCP manifesting into credit risk. These exposures are managed by collecting risk-based margins (initial, MTM margins and also additional margin in case of increased volatility in the markets) from participants to cover both current and future credit exposures. In addition, CCIL requires the participants to contribute to a DF, which provides another additional source of funds to handle credit losses and finally the SRF established by CCIL from its own resources.</p> <p>The margining and SGF contribution are structured to be market-segment wise and there is no offsetting across different market-segments. Within a market-segment, CCIL uses a portfolio Value At Risk (VAR) with a target of 99% loss coverage, to determine initial margins.</p> <p>There is a well-established waterfall: (i) defaulting member’s margins; (ii) defaulting member’s contribution to the default fund; (iii) a pre-defined portion of CCILs SRF; and (iv) DF contribution of other participants. There is a proposal to link CCILs contribution in the waterfall to the DF contribution of participants.</p> <p>There is a daily stress testing to determine adequacy of resources to cover credit exposures. The stress testing results are reviewed at each meeting of the board committee on risk management – which usually meets six times a year. The</p>												

	<p>minutes of the committee meeting are placed before the board. In addition, there is a comprehensive annual review including of the stress test model by the board committee and also by external experts. The board also reviews annually the risk management framework, which contains the details of the stress testing model.</p> <p>CCIL is also exposed to other sources of credit risks – loss of funds of CCIL and participants, held with settlement banks; and loss of own funds, assets and collaterals held with banks and custodians.</p> <p>There is an established framework for selecting settlement banks, banks where CCIL places its funds and also custodians. This framework is reviewed annually and there are limits against which exposures and concentration limits established, which are monitored on a real-time basis using IRMS and other systems.</p>																	
<b>Key consideration 2</b>	<b>An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.</b>																	
Description	<table border="1" data-bbox="523 723 1401 808"> <tr> <td data-bbox="523 723 1002 808">The following key consideration applies to</td> <td data-bbox="1002 723 1066 808">PS</td> <td data-bbox="1066 723 1161 808">CSD</td> <td data-bbox="1161 723 1241 808">SSS</td> <td data-bbox="1241 723 1321 808">CCP</td> <td data-bbox="1321 723 1401 808">TR</td> </tr> <tr> <td data-bbox="523 808 1002 853"></td> <td data-bbox="1002 808 1066 853">●</td> <td data-bbox="1066 808 1161 853"></td> <td data-bbox="1161 808 1241 853">●</td> <td data-bbox="1241 808 1321 853">●</td> <td data-bbox="1321 808 1401 853"></td> </tr> </table> <p><u>Sources of credit risks:</u></p> <p>CCIL as part of its risk management framework, has identified credit risks as one of the risks it is exposed as a CCP and also what it could pose to participants and other FMIs. The sources of credit risk identified by CCIL in the risk management framework are:</p> <p>i) Exposures on members clearing transactions through CCIL, across market-segments.</p> <p>ii) Exposures to Settlement banks and banks where investments are made and custodians where securities holdings and participant collaterals are held.</p> <p><b><u>Exposure Management:</u></b></p> <p>i. In case of exposures to clearing participants, margining process allows measuring credit exposures. Initial Margin, MTM margin and volatility margins are collected in all market-segments. Initial margin is used to cover future exposures, intra-day MTM margining covers current exposures and volatility margin is used to provide an additional layer of protection when market volatility is high.</p> <p>ii. Exposures on Settlement Banks are controlled through setting of exposure limits (intra-day, end of the day and monitoring them on real-time basis).</p> <p>iii. Exposures on banks, where investments are made, are monitored through setting of maximum limits for such investments</p> <p>iv. In Forex (INR/USD) Settlement, Net debit cap is used</p> <p>CCIL uses DVP settlement mode for the Government securities, CBLO and derivative segment; and the PVP mode for forex cash market and CLS bank settlements. This eliminates principal risk and minimizes the credit exposure to the market risk component.</p>						The following key consideration applies to	PS	CSD	SSS	CCP	TR		●		●	●	
The following key consideration applies to	PS	CSD	SSS	CCP	TR													
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<b>Key consideration 3</b>	<table border="1" data-bbox="523 1910 1401 1995"> <tr> <td data-bbox="523 1910 1002 1995">The following key consideration applies to</td> <td data-bbox="1002 1910 1066 1995">PS</td> <td data-bbox="1066 1910 1161 1995">CSD</td> <td data-bbox="1161 1910 1241 1995">SSS</td> <td data-bbox="1241 1910 1321 1995">CCP</td> <td data-bbox="1321 1910 1401 1995">TR</td> </tr> <tr> <td data-bbox="523 1995 1002 2040"></td> <td data-bbox="1002 1995 1066 2040">●</td> <td data-bbox="1066 1995 1161 2040"></td> <td data-bbox="1161 1995 1241 2040">●</td> <td data-bbox="1241 1995 1321 2040"></td> <td data-bbox="1321 1995 1401 2040"></td> </tr> </table>						The following key consideration applies to	PS	CSD	SSS	CCP	TR		●		●		
The following key consideration applies to	PS	CSD	SSS	CCP	TR													
	●		●															



	<p><b>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.</b></p>
<p>Description</p>	<p><b><i>Coverage of exposures to each participant</i></b></p> <p>CCIL functions as a PS in the CLS-Segment and in the processing of payouts in the IRS segment. Both these segments are non-guaranteed. Hence, CCIL as such is not exposed to any credit risk. However the participants could be exposed to credit risk.</p> <p>In the CLS bank segment, CCIL collects collateral from the participants to cover any potential credit loss exposed to the counterparts of CCIL participants. It also uses PVP settlement mode to eliminate principal risk. The credit risk exposure hence is reduced to the market risk.</p> <p>In the case of IRS, the role of CCIL is to transmit periodic payments as per the IRS terms. A failure of one participant to pay does not translate into a credit exposure for CCIL.</p> <p><b><i>For DNS payment systems and DNS SSSs in which there is no settlement guarantee</i></b></p> <p><u>CLS:</u></p> <p>CCIL offers its members the ability to settle their cross currency transactions through the CLS Bank under a Third party arrangement with UBS. Under the arrangement, payments in all CLS eligible currencies are settled on a net basis by members paying into and receiving from CCIL's accounts held with the Settlement Bank. Occasionally, credit exposures could arise when a member bank pays in its obligation in one currency and is awaiting pay out in the counter-value currency. This could be due to funding or time zone constraints. CCIL closely monitors all such exposures and ensures that pay-outs are made as soon as possible after the counter-value obligation is met by the bank under all circumstances.</p> <p>In all cases, however, the resultant credit exposure is far less than the member would have, under bilateral settlement, as the exposure amount is reduced by over 90% due to multilateral netting, and the duration of exposure is reduced.</p> <p>The credit exposures of CCIL is also mitigated by the PVP arrangement. The residual credit exposures that CCIL has on its market participants are fully collateralized.</p> <p>Settlement defaults are covered through the collaterals placed by the defaulting member and the member's contribution to the SGF.</p>

	<p><u>IRS:</u></p> <p>CCIL offers to its members the facility to settle cash flows arising on account of their IRS trades on a multi-laterally netted but non-guaranteed basis. IRS netted cash flow settlements are either for payouts to or pay-ins from the member– there is no credit exposure to CCIL created during the process. The members however continue to run a bilateral counterparty credit exposure for the IRS trades during the life of such transactions.</p> <p>In case of non-guaranteed IRS settlement, the settlement file is processed twice and if the shortage noticed in the first time is not replenished even in the second attempt, the settlement process is abandoned.</p> <p>CCIL since August 2015 also provides guaranteed settlement for IRS which has a more elaborate and comprehensive framework for managing settlement failures. The choice of becoming a member of this guaranteed segment is optional.</p>					
<p><b>Key consideration 4</b></p>	<p>The following key consideration applies to</p>	PS	CSD	SSS	CCP	TR
	<p><b>A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). 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 to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs 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 participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.</b></p>					
<p>Description</p>	<p><i>Coverage of current and potential future exposures to each participant</i></p> <p>Current and potential future exposures on each participant are covered through margins collected from the members, member contributed DF and its own resources in the SRF. These financial resources are in the form of Government of India Securities and cash primarily INR and some in USD. Hence, these are easily accessible.</p> <p>Margins are collected at 99% Confidence level and include initial margin, MTM margin and additional margin when markets are volatile.</p>					

Sufficiency of financial assets is assessed through stress test on a daily basis.

### ***Risk profile and systemic importance in multiple jurisdictions***

CCIL does not clear any instrument with “jump- to-default price change” risk. It is also not a CCP which is systemically important in multiple jurisdictions. Hence, CCIL is required to maintain Cover 1 resources.

### ***Additional financial resources***

A member contributed SGF is in place for all the segments separately. Apart from this, CCIL has arranged for lines of credit in both funds and securities to take care of immediate liquidity shortfall while meeting an event of a settlement shortage.

The DF is currently constituted separately for each market-segment and the contribution is based on the results of the stress test. The size of the DF is pegged to the large credit exposure result from the daily stress test results for the last six months and the credit exposure of the five weakest members on the day with the largest exposure. Participant contribution is based on the total outstanding positions and the value of initial margins, with equal weights to both. There is also a minimum contribution, which varies from segment to segment. The size of the default fund as on 30<sup>th</sup> June 2016, was around INR 15.4 billion – INR 1.96 Billion for forex settlement, INR 11.04 Billion for forex forward; INR 2.43 Billion for rupee derivatives. Post June 2016, DF has been setup for CBLO and securities segment as well. There is no DF for CLS segment and non-guaranteed IRS.

The CCP has its own SRF of around INR 10 billion as on 31<sup>st</sup> March’16. In case of default by a participant, 25% of the balance in the fund is contributed as CCIL’s skin in the game for forex forward and Rupee Derivatives segments while in case of forex settlement, 15% of the balance of SRF would be contributed. In case of Securities segment and CBLO, 10% and 5% of the balance of SRF respectively would be contributed. There is a proposal in discussion, which seeks to benchmark the SRF to be at least as much as the largest contribution by a member to the segment wise DF and would be set at 25% of the DF.

Risk profile for the CCP clearing offered by CCIL has been taken into consideration while assessing resource requirement.

### ***Supporting rationale and governance arrangements***

CCIL has documented its credit risk management framework as part of the overall risk management framework document, including the waterfall model, the margining model, stress testing framework and review process. The Board Committee on Risk Management reviews the overall risk management framework including the credit risk management framework and the stress test results at all its meetings, around six times a year. Stress test results are compared as against the total resources available. There is also a mechanism in place for an annual external review by independent experts. The overall risk management framework is also subject to review as part of internal audit and is also closely overseen by the RBI.

<b>Key consideration 5</b>	The following key consideration applies to	PS	CSD	SSS	CCP •	TR
<p><b>A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP’s required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP’s participant’s increases significantly. A full validation of a CCP’s risk-management model should be performed at least annually.</b></p>						
Description	<p><b><i>Stress testing</i></b></p> <p>Stress Test is carried out on a daily basis. Resource requirement is assessed based on the stress losses observed. The daily stress test results are communicated to the managing director.</p> <p>CCIL Bye-laws and the market-segment rules require additional contribution to the DF, when the daily stress test losses reaches 95% of the prefunded default resources (CCIL’s SIG and member contributed default fund). The additional contributions fall due at 9.00 a.m. on the next day.</p> <p>In normal course, the size of DF is reviewed every month and is set at the maximum credit loss for a single participant and its affiliates shown in the last six months stress testing and the exposures of the five weakest members [by CCIL’s internal risk rating] on the day of the highest loss.</p> <p><b><i>Review and validation</i></b></p> <p>There is an internal review on a monthly basis and parameters regarding rate scenarios are updated on monthly basis to capture the recent changes. The stress test results are also placed before Board Committee on Risk Management during their meetings (average about six meetings in a year).</p> <p>There is an annual external review for the stress testing model, which includes reviewing the entire credit risk management framework, the stress testing framework and includes a review of the stress test results.</p>					

	<p>External review of all risk management models carried out in the past was about once in 2 years – periodicity has now been increased to once a year. Margin models are validated through daily back-testing.</p> <p>During periods of high volatility, CCIL also collects additional volatility margins.</p>					
<b>Key consideration 6</b>	<p>The following key consideration applies to</p>	PS	CSD	SSS	CCP	TR
	<p><b>In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters’ positions and possible price changes in liquidation periods. 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.</b></p>					
Description	<p>CCIL has identified a set of parameters that have a determining role in the exposures in different market-segments. Depending on the market segment, the sub-set of parameters used vary.</p> <p>The steps in the stress testing framework are as follows:</p> <ul style="list-style-type: none"> <li>- The four highest movements (one day change in prices/rates) in absolute terms (2 positive and 2 negative) are taken from 2003 onwards. The highest shifts in risk factors are increased by 50%.</li> <li>- For each of these four values, the shift in values of other parameters on same day are taken as the reference resulting in a set of stress scenarios.</li> <li>- All members’ portfolios are valued under all the scenarios and the highest credit exposure of an entity and its affiliates is compared against the available resources.</li> </ul> <p>In addition, there is also a fortnightly reverse testing, which is used to identify possible shifts in the set of parameters that can cause a complete depletion of resources available to cover credit losses. Of the various scenarios, the most plausible ones are picked up and shared with management for advice. This is also included in the periodic reviews by the board committee on risk management and also the annual external reviews. Any changes to be made to the stress testing models and size of the DF and other resources are made based on these reviews.</p>					
<b>Key consideration 7</b>	<p>The following key consideration applies to</p>	PS	CSD	SSS	CCP	TR
	<p><b>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</b></p>					

	<p><b>event, so that the FMI can continue to operate in a safe and sound manner.</b></p>
Description	<p><b><i>Allocation of credit losses</i></b></p> <p>There is a well-established waterfall: (i) defaulting member’s margins; (ii) defaulting member’s contribution to the default fund; (iii) a pre-defined portion of CCILs SRF; and (iv) DF contribution of other participants.</p> <p>The portion of the SRF used for the different market segments are:</p> <ol style="list-style-type: none"> <li>i. 25% of the balance for forex forward and Rupee Derivatives segment</li> <li>ii. 15% of the balance for forex segment</li> <li>iii. 10% of the balance for Government securities segment</li> <li>iv. 5% of the balance for CBLO segment</li> </ol> <p><b><i>Replenishment of financial resources</i></b></p> <p>For member contributed DF, replenishment is required on the next working day. For CCIL’s own resources, capital and reserves will provide necessary cover.</p> <p>As regards replenishment of CCP’s own resources following a default, CCIL Board has approved a policy for transfer of funds from General Reserve to SRF to meet any shortfall. Provision has been made to opt for rights issue as well with general body approval, in case it is necessary.</p>
<b><i>Key conclusions</i></b>	<p>CCIL functions as a CCP for several market segments: Securities (secondary market and repo); CBLO; forex spot and forwards; interest rate swaps and forward rate agreements. CCIL also functions as a DNS payment system for the CLS bank segment and the non-guaranteed settlement for IRS.</p> <p>CCIL has established a well-defined waterfall comprising of initial margin, MTM margin, volatility margin, DF and SRF. There is a well-defined stress testing framework, which is used daily and the stress parameters are reviewed on a monthly basis by MD of the CCIL and annually by the risk committee. The review of the stress test results is carried out by the board risk committee about six times a year. There is also an annual review by external experts.</p> <p>The stress testing indicates adequate coverage of the largest exposure. The forex and forex forward segments however showed credit losses exceeding the DF and SRF on 1 day and 57 days respectively in the period July 2015 to June 2016, testing for cover 2. Even during this period the resources were adequate to meet cover 1 requirement. The profile of the products offered by the CCIL and it being systemically important only in India, a cover 1 objective is appropriate.</p> <p>CCIL bye-laws and market-segment rules, require members to replenish their contributions to the DF on the next business day and the CCIL also has the right to call for additional default fund contribution when stress test results indicate potential shortfalls going forward. CCIL also has a “skin-in-the-game” through the SRF and it has board approvals in place to replenish any usage of SRF from the CCIL’s general reserves and also through a rights issue if needed.</p> <p>CLS bank settlements and non-guaranteed IRS settlements are not covered by CCP services. In the case of non-guaranteed IRS, any losses are allocated to the remaining members.</p> <p>CCIL does not have an explicit objective of having adequate resources to cover the two largest exposures in these segments. CCIL is providing the capability which could shift IRS transactions to the CCP services, hence the lack of an explicit cover 2 objective is not an immediate issue of concern.</p>

<b>Assessment of Principle 4</b>	<b>Observed</b>
<b>Recommendations and comments</b>	<p>CCIL could consider enhancing its stress testing framework by excluding the MTM and volatility margin calls of the participant with the largest exposure from the assessment of adequacy of pre-funded resources.</p> <p>Though CCIL does not provide CCP / guaranteed services in the CLS bank segment, it is exposed to market risk for which it collects margins from members. CCIL should consider having resources to address market risk for two largest participants given the PVP settlement arrangement.</p>

PS	CSD	SSS	CCP	TR
●		●	●	

### 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.

<b>Key consideration 1</b>	<b>An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.</b>
Description	<p>CCIL accepts only Cash and Government of India (GOI) securities as collateral.</p> <p>Trading volume in the market (i.e. market liquidity) and low volatility are the only guiding factor for acceptance of Government Securities as collaterals in all segments. In CBLO segment, all GOI securities and some special securities (based on liquidity criteria) issued by Govt. of India are acceptable as collateral/ margin.</p> <p>Requirements for acceptable collateral are reviewed on monthly basis, by studying the volatility and liquidity of the securities based on market and trade data. Securities which show high liquidity or volatility are removed from the eligible list.</p> <p>Though CCIL has rights to accept any collateral subject to approval from the RBI. CCIL's current policy framework is to accept only Government of India securities and cash.</p> <p>The evaluation of the collateral is an automated process and the list of eligible collaterals is reviewed on a monthly basis to check the concentration levels and liquidity. Securities deposited towards DF contribution are also revalued on a daily basis at the end of the day.</p> <p>As only Govt. Securities and Cash are taken as collateral, no significant wrong-way risk exposure exist at present.</p>
<b>Key consideration 2</b>	<b>An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.</b>
Description	<p><b>Valuation practices</b></p> <p>Daily valuation happens as at the end of the day. Notional valuation of collateral is done twice intraday as part of intraday MTM margin assessment.</p>

	<p>As collaterals are usually liquid GOI Securities, model prices are very rarely used for such valuation – applicable only when a liquid security suddenly turns illiquid. In such a scenario such security becomes ineligible in the next month-end review.</p> <p>In CBLO segment where all types of GOI Securities are also taken as collaterals, valuation using model prices happen; but CCIL collects higher haircut to take care of any risk from valuation using model prices. Haircut ranges from 1% to 8% for dated Government of India securities. In case of Special Bonds issued by GOI, the haircut rate is set at 25%, owing to illiquidity and longer maturity.</p> <p><b>Haircut practices</b></p> <p>Haircuts are determined based on Value at Risk confidence level of 99%. Securities segment back testing process provides necessary validation of adequacy of haircut rates used.</p> <p>Adequacy of haircut is validated indirectly through daily back testing process, with a look back period of one year of back-testing data. The haircut rates are also increased when volatility margin is imposed. The haircut rates also assume a three day close-out period for all segments except CBLO for which a five day close-out is expected.</p>
<b>Key consideration 3</b>	<b>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.</b>
Description	<p>As the eligible collaterals are in Cash and Govt. Securities, potential pro-cyclicality impact are assessed to be low. Conservative close-out periods and haircut rates, further minimize need for frequent increases in hair-cut during stressed market conditions.</p> <p>Higher margin rates are charged for members assessed to be higher credit risk, and also volatility margin is assessed during periods of higher volatility, which also results in increasing hair-cut rates. This further reduces the need for frequent adjustment of haircut rates.</p> <p>Haircuts on Special Securities accepted as collateral in CBLO segment have been kept at very high level to take care of impact of stress.</p>
<b>Key consideration 4</b>	<b>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.</b>
Description	<p>Market liquidity and low volatility is the determining factor for assets to be considered as eligible.</p> <p>Concentration risk is evaluated through monthly review process. However, as collaterals accepted are GOI securities and cash, no concentration limit has been stipulated. Cash denominated in USD is accepted as collateral only for the forex segment.</p>
<b>Key consideration 5</b>	<b>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.</b>
Description	<p>Cross Border collateral is accepted in the form of USD funds. These funds are kept in US Government T-bills. Hence credit, market and operational risk exposures on this account are minimal.</p>



	<p>CCIL ensures that cross-border collaterals can be used in a timely manner. Funds are invested in US Government T-bills. USD LOCs are committed LOCs and are backed by USD T-bills as collaterals.</p> <p>Arrangements are periodically reviewed.</p> <p>Also collaterals maintained in the form of T Bills are liquid and can be sold easily to meet requirements. Such collateral is also maintained in the custody of the Settlement Bank itself- so there is no time lost in transmission.</p>
<b>Key consideration 6</b>	<b>An FMI should use a collateral management system that is well-designed and operationally flexible.</b>
Description	<p><b><i>Collateral management system design</i></b></p> <p>Collaterals are accepted in the form of cash or GOI securities. INR Cash collateral is placed in banks, selected based on an established criteria. USD cash collateral is placed in the USD settlement banks and converted into US Government T-bills held with the USD settlement bank. Committed lines of credit against the T-Bills are also arranged.</p> <p>GOI securities are held in the RBI PDO. The participants are required to transfer the securities from the Securities General Ledger (SGL) account at RBI PDO, to the Constituent Securities General Ledger Account of CCIL in the RBI PDO.</p> <p>Participants place the request for transfer in RBI's PDO system and receive a Transaction Id (TID). The TID is notified to CCIL through the eNotice system provided by the CCIL. CCIL also in parallel receives a confirmation from RBI PDO on the securities transferred to its CSDL account. The TID of the notification from RBI PDO and the eNotice system are matched, and then the securities recorded in the collateral monitoring system of CCIL.</p> <p>The securities collateral are then notionally assigned to specific collateral requirements in respective market-segments. The participants have full visibility on their collateral holdings through the IRIS system.</p> <p>Arrangements are in place for Clearing Participants to deposit/withdraw/ substitute collaterals within a very short time. Margin calls are also on-line.</p> <p>There is no process for re-use of collateral. However, due to the capability to move collaterals very quickly, clearing participants can use free collaterals effectively. CCIL can use the collateral to place a repo to meet any liquidity needs.</p> <p><b><i>Operational flexibility</i></b></p> <p>The participants have full access to information on their collateral holdings and can automate the process of placing, removing and substituting collateral.</p> <p>The IRIS system also allows for simulation to help assess impact of any removal or substitution of securities.</p> <p>The internal collateral management system of CCIL is regarded as a core system and is accorded high priority in terms of resources and also for business continuity planning.</p> <p>CCIL is dependent on the RBI PDO for the actual holding of securities and also for processes related to moving in collateral and removing collateral.</p>
<b><i>Key conclusions</i></b>	The collateral management system enables both CCIL and participants to have a real-time view of the collateral holdings and their valuation.

	<p>Collateral is accepted in the form of cash (INR and USD) and GOI securities.</p> <p>The process of placing collateral in the form of securities and removal are automated and mitigates operational errors.</p> <p>Securities collateral are held in a consolidated manner in the RBI PDO and in the internal systems of CCIL notionally allocated to specific market segments. The participants and CCIL have full visibility to these. The participants can easily move securities across segments, substitute encumbered securities and also remove unencumbered securities.</p> <p>CCIL accords high importance to the collateral management system and associated processes and this is reflected in this being recorded as a core process in the business continuity planning process.</p>
<b>Assessment of Principle 5</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

PS	CSD	SSS	CCP	TR
			●	

<b>Principle 6. Margin</b>	
A CCP should cover its exposure to its participants for all products through an effective margin system that is risk-based and regularly reviewed.	
<b>Key consideration 1</b>	<b>A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.</b>
Description	<p><b>Description of margin methodology</b></p> <p>CCIL collects initial margin to cover potential future exposures at the time of accepting a trade. On a daily basis, MTM margins are assessed to cover current exposures. In periods of volatility additional margin is called for. MTM margin calls are to be covered in 1 hour and volatility margin is collected immediately on imposition. MTM margin requirements are evaluated thrice a day (including at EOD).</p> <p>The CCIL market segment regulations and notifications issued there-under to members detail the margining methodology. These are made available to the participants and also the public in general at CCIL's web-site and also through the quantitative disclosures in line with the CPMI-IOSCO PFMI disclosure framework.</p> <p>Moreover, there are utilities given to members for verifying their margin requirement on an online basis.</p> <p><b>Credit exposures</b></p>

	<p>Higher Initial Margin is collected from weaker members in Forex, Forex forward and Derivatives segments. Provision exists to collect higher initial margin in Securities segment as well.</p> <p>Margining is VAR based. Hence, it reflects credit exposures adequately. Margin information is made available on-line to the clearing participants.</p> <p>Haircut are also applied in case securities are provided as collaterals.</p> <p>In segments like Forex Forwards and Rupee Derivatives, CCIL stops accepting new trades once margin utilization reaches 95% of collateral made available, thereby always keeping 5% buffer margin. Also, replenishment calls are made at 90% utilization level.</p> <p><b><i>Operational components</i></b></p> <p>All of CCIL participants are domiciled in India and participate in the system during operating hours specified by CCIL in Indian Standard Time (IST).</p> <p>Initial margin is to be placed before admitting trade, MTM margin calls are to be covered in one hour and volatility margin immediately on imposition.</p> <p>In case of a margin shortfall, no new trades are accepted. In case of derivative trades, there is margin buffer which ensures that no new trade is accepted after 95% margin utilization. In case margin shortfall continues, trades of defaulting member would be closed out.</p>
<b>Key consideration 2</b>	<p><b>A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.</b></p>
Description	<p><b><i>Sources of price data</i></b></p> <p>In some segments (Securities &amp; CBLO), CCIL uses trade data available with it. In case of Forex, it uses rates from Reuter Information System which is considered very reliable.</p> <p>There is a process to compare the change from previous day's rates which allows necessary control.</p> <p><b><i>Estimation of prices</i></b></p> <p>List of securities acceptable as collateral are reviewed monthly. Any securities having average daily trade of less than one, would be removed from eligible list. Hence securities which have relatively less liquidity would be accepted as collateral only in the transition period. When market prices are not available, there is provision to use Model Prices. However, these would be used only for a transitional period, as the underlying securities would no longer be accepted as collateral for any further transactions from the following month. The methodology for model prices are validated as part of the review of credit risk management by the board committee for risk management.</p>
<b>Key consideration 3</b>	<p><b>A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at</b></p>

	<p>least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the sub-portfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, pro-cyclical changes.</p>
<p>Description</p>	<p><b><i>Initial margin model, Closeout and sample periods</i></b></p> <p>Initial margin is based on Value at Risk at 99% confidence level. Look back period is between 250 days and 1000 days depending upon the segment. The look-back period is 1000 days for the cash market [securities, forex and CBLO segment]. The look-back period is 500 days for the forex forwards and 250 days for IRS.</p> <p>The initial margin model varies by market-segment:</p> <ul style="list-style-type: none"> <li>- Securities Segment: Historical simulation by VAR model (historical VAR)</li> <li>- CBLO Segment: Historical simulation by VAR model (historical VAR)</li> <li>- Forex Segment: Historical simulation by VAR model (historical VAR)</li> <li>- Forex forward and Rupees derivative: Portfolio Level based on weighted historical simulation by VAR model (EWMA Hull-White)</li> </ul> <p>The current levels across different market-segments are:</p> <ul style="list-style-type: none"> <li>- Securities Segment: varies by securities</li> <li>- CBLO Segment: 0.5%</li> <li>- Forex Segment: 2.75%</li> <li>- Forex Forward and Rupees Derivatives: depends on portfolio</li> </ul> <p>The margin factor for participants with higher credit risk is increased by a factor of 1.5 or 2. The margin factor for illiquid and securities in 'when issued' market is also stepped up by a factor 2 and 1.5 respectively.</p> <p>Time required to close-out defaulter's positions from the point of trade has been estimated at 3 days for all segments except for forex forward, for which it is 2 days.</p> <p>The liquidation horizon is taken based on above-mentioned estimate. Confidence interval at 99% has been considered adequate as back testing results have revealed that even in extreme cases, losses are well covered by available resources.</p> <p>Products being less complex, tradeoff between prompt liquidation and adverse price effects has not been considered.</p>

	<p><b><i>Procyclicality and specific wrong-way risk</i></b></p> <p>Minimum margin has been prescribed to take care of the pro-cyclicality issue. However, the possibility of margin requirement suddenly moving up due to increased volatility is possible. CCIL has a provision for collection of volatility margin when there is extra volatility in the market.</p> <p>CCIL has a practice of collecting higher initial margin from participants with lower credit ratings. For the derivatives segment, CCIL has established a floor for the margin to avoid a large increase in margin when market volatility and risks increase.</p> <p>Collaterals being cash and government securities there is no specific wrong way risk.</p>
<b>Key consideration 4</b>	<b>A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.</b>
Description	<p>Variation margin, MTM margin in CCIL terminology, is collected based on end of the day market rates. Intra-day MTM margin collection process is also in place.</p> <p>Intra-day margin calls for both additional Initial Margin (in the form of Volatility Margin) and Mark to Market margins are made and collected. Both MTM margin and volatility margin have to be posted within 1 hour from the time calls are made.</p>
<b>Key consideration 5</b>	<b>In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorized to offer cross-margining, they must have appropriate safeguards and harmonized overall risk-management systems.</b>
Description	<p><b><i>Portfolio margining</i></b></p> <p>Each product is margined separately. Even at product level, full offset is not allowed for positions on similar securities or positions settling on different settlement dates.</p> <p><b><i>Cross-margining</i></b></p> <p>No cross-margining arrangement is in place.</p> <p>Offset is given between positions settling on different settlement dates. In such cases also, there is a process of disallowance through imposition of spread margin (which effectively reduces extent of offset).</p> <p><b><i>Robustness of methodologies</i></b></p> <p>Back-testing of margining on daily basis helps in assessing the robustness of margining model. Stress testing determines adequacy of financial resources to meet participant default.</p>

<b>Key consideration 6</b>	<p><b>A CCP should analyze and monitor its model performance and overall margin coverage by conducting rigorous daily back testing – and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model’s coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.</b></p>
Description	<p><i>Backtesting and sensitivity analysis</i></p> <p>Coverage of back testing is 100% and 99% confidence level is used to assess efficiency of margining model. As margining model does not allow offset amongst positions in different asset classes, testing for efficiency of cross margining is not required.</p> <p><i>Margin model performance</i></p> <p>The cases of inadequacies are analyzed in detail and corrective action taken in consultation with the Board Risk Committee and the Regulator.</p> <p>Daily back-testing results display adequate coverage. Live market data is used for such back testing.</p> <p>Results of the back testing are shared with Board Risk Committee and are considered for internal model review. These results are made available to regulators on monthly basis.</p>
<b>Key consideration 7</b>	<p><b>A CCP should regularly review and validate its margin system.</b></p>
Description	<p>The initial margin amount is reviewed on a monthly basis and also based on any adverse findings during back-testing. In addition the margining model is reviewed as part of the periodic review (six times a year) by the board committee on risk management, as part of the monthly internal risk committee meeting and at the risk advisory group meetings.</p> <p>Periodic external review is in place. Frequency of review has been increased from once in about 2 years to the same being carried out on an annual basis. Any material revision of margin system is carried out with approval from Board Committee on Risk Management and with Regulatory approvals. Changes are notified to Clearing Participants well in advance (usually at least 30 days).</p>
<i>Key conclusions</i>	<p>CCIL has a well-defined margin model, which varies by the specific market-segment, but share broad characteristics like using 99% confidence VAR.</p> <p>The margin model includes initial margin, intra-day MTM margin (variation margin) and volatility margin. The margin model takes into account higher margin factor for high risk participants and higher margin factors for illiquid securities. In the forex forward and IRS segments, there is a floor established for initial margin.</p>

	<p>The margin model is subject to daily back-testing and the back-testing results are reviewed by the board committee on risk management periodically. There is also an established mechanism of annual review by external experts. The newly established risk advisory group comprising of participants also studies the efficacy of the margin model.</p> <p>The margining model is described in the operating rules of the CCIL for specific market segments and also specified in the CCIL website and in the quantitative and qualitative disclosures by the CCIL as part of its disclosure as per the disclosure framework of the PFMI.</p>
<b>Assessment of Principle 6</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

PS	CS	SSS	CCP	TR
●	D	●	●	

<b>Principle 7: Liquidity risk</b>					
<p>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.</p>					
<b>Key consideration 1</b>	PS	CSD	SSS	CCP	TR
	●		●	●	
<p><b>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.</b></p>					
Description	<p>CCIL as a CCP is committed to settle any shortfalls in the funds leg on account of a settlement failure of one or more participants. CCIL has established framework for meeting its obligations using tools like netting to minimize the settlement exposures, having pre-arranged lines of credits, using the securities in the collateral pool and DF to seek liquidity and using its own liquid resources.</p> <p>CCIL is also exposed to liquidity risks in the CLS bank and IRS non-guaranteed settlements. However, for CLS bank segment, CCIL has access to intraday LOC in CHF and also the collateral of the members.</p> <p>In the case of IRS non-guaranteed settlement, there is no mutualization of settlement exposure as settlement is on ‘all or none’ basis.</p> <p>CCIL is also exposed to liquidity risks arising from failure of its settlement banks or LOC providers. There is a process of on-line monitoring of liquidity exposures on participants and on settlement banks, through the IRMS and also by the participants on their exposures through the IRIS.</p>				

	<p>For the past year (1<sup>st</sup> Apr'15 to 31<sup>st</sup>Dec'16 ) the highest payable obligation on a single day in INR was Rs.147.615 Billion and in USD was \$ 249.55 million.</p> <p>CCIL has committed LOC in INR and USD funds and, also for securities. In addition, CCIL has adequate quantum of Government Securities in the collateral pool with the help of which it can raise additional liquidity.</p> <p>A portion of the INR LOCs are registered with the RBI, enabling a guaranteed execution of the LOC when needed.</p> <p>In case of both INR and USD, participants share any settlement shortfalls through shortfall allocation. Moreover, PVP/ DvP settlements in all segments reduce liquidity risk significantly.</p> <p>Apart from LOC and support against cash collaterals, CCIL also has government securities as collateral against which it can avail liquidity support.</p> <p>Liquidity stress tests are conducted on a daily basis. The liquidity stress test takes into account the exposures of the participant with the largest settlement position, its affiliates without taking into account any reduction arising from offsetting positions and also any exposures if it plays the role of a settlement bank. Further in assessing adequacy of the resources, any LOCs provided by that participant it not taken into account.</p>										
<b>Key consideration 2</b>	<table border="1" data-bbox="523 898 935 981"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td>●</td> <td></td> <td>●</td> <td>●</td> <td></td> </tr> </table> <p><b>An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.</b></p>	PS	CSD	SSS	CCP	TR	●		●	●	
PS	CSD	SSS	CCP	TR							
●		●	●								
Description	<p>CCIL uses the IRMS system to monitor the settlement exposures and available liquid resources. CCIL also has access to its account at the RBI and also its accounts at the settlement banks, using which it can monitor incoming flows. Using the IRMS, CCIL can track any event of shortfall within a short time and take corrective measures.</p> <p>For Rupee settlements at the RBI and for Dollar Settlement at Settlement Banks, LOC usage for shortage is automatic.</p> <p>Settlements are monitored on an ongoing basis by tracking transactions in Settlement accounts.</p>										
<b>Key consideration 3</b>	<table border="1" data-bbox="523 1462 935 1545"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td>●</td> <td></td> <td>●</td> <td></td> <td></td> </tr> </table> <p><b>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.</b></p>	PS	CSD	SSS	CCP	TR	●		●		
PS	CSD	SSS	CCP	TR							
●		●									
Description	<p>CCIL functions as a payment system supporting PVP settlement for the CLS bank and non-guaranteed IRS segment.</p>										



	<p>CCIL has access to committed LOCs in INR registered at the RBI and LOCs with other banks. In addition for USD commitments, CCIL has established LOC with the two settlement banks in the USA. CCIL collects collateral to cover any credit exposures from its participants in the CLS segment. These resources and the SRF setup by CCIL can also be used for meeting any liquidity needs.</p> <p>There is no liquidity stress testing for the CLS segment.</p> <p>In the case of non-guaranteed IRS segment, settlement failures are to be bilaterally settled amongst members.</p>										
<p><b>Key consideration 4</b></p>	<table border="1" data-bbox="523 488 922 573"> <tr> <td data-bbox="523 488 587 573">PS</td> <td data-bbox="587 488 679 573">CSD</td> <td data-bbox="679 488 762 573">SSS</td> <td data-bbox="762 488 852 573">CCP</td> <td data-bbox="852 488 922 573">TR</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;">●</td> <td></td> </tr> </table> <p><b>A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time 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 to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.</b></p>	PS	CSD	SSS	CCP	TR				●	
PS	CSD	SSS	CCP	TR							
			●								
<p>Description</p>	<p><b><i>Sufficient liquid resources</i></b></p> <p>The CCIL’s daily liquidity stress test assumes a stress scenario in which the group (entity and its affiliates) with highest payment obligation in INR and the group with the highest payment obligation in USD, default in their entire payment obligations. Any Lines of Credit (LoC) offered by the defaulting member is excluded from the amount of resources available for meeting liquidity shortfall.</p> <p>Highest liquidity need in INR on account of a participant and its affiliates for the period(1st April ‘11 to 31st Dec ‘16) was INR 170.30 Billion (27<sup>th</sup> May’16) and USD 263.35 million (on 6<sup>th</sup> September 2016).</p> <p>CCIL’s liquidity resources include committed lines of credit, overdrafts against fixed deposits and adequate quantum of Government Securities in the DF that can be used to raise additional liquidity. All these liquidity resources cumulatively were always higher than the highest liquidity needed for the period under consideration. Hence, there was no estimated liquidity shortfall in either of the currencies, viz USD, INR for the period under consideration.</p> <p>CCIL does not pay variation margin gains to members in Cash. Instead, CCIL allows members to treat such gains as additional collateral against which members can conclude further trades. Hence variation margin credits do not result in additional liquidity requirements for CCIL.</p>										

	<p><b><i>Risk profile</i></b></p> <p>CCIL provides settlement of cash products in the wholesale debt, forex and money markets in India. Additionally, it clears forward forex trades as a CCP and has recently started CCP clearing for IRS. In regard to INR-USD settlement, while it settles USD leg of the transactions in US, clearing is on-shore. Hence, it is not treated as systemically important in multiple jurisdictions and thus, liquid resources to Cover the settlement obligation of the participant with the largest settlement position is maintained.</p>										
<p><b>Key consideration 5</b></p>	<table border="1" data-bbox="523 465 922 555"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td>●</td> <td></td> <td>●</td> <td>●</td> <td></td> </tr> </table> <p><b>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.</b></p>	PS	CSD	SSS	CCP	TR	●		●	●	
PS	CSD	SSS	CCP	TR							
●		●	●								
<p>Description</p>	<p><b><i>Size and composition of qualifying liquid resources</i></b></p> <p>The available sources of liquidity include:</p> <ul style="list-style-type: none"> <li>- LOC registered at RBI: INR 32 Billion</li> <li>- LOC at INR Settlement Banks: INR 63 Billion;</li> <li>- LOC at USD settlement banks: USD 575 million [USD 400 million are backed by T-bills]</li> </ul> <p>Further, CCIL has overdraft limits from banks against the cash collateral balances deposited with them.</p> <p>In addition, CCIL has adequate quantum of Government Securities [Collateral in the form of securities in the margin pool as on 31<sup>st</sup> Dec’ 16 : INR 323.315 Billion] (excluding collaterals for CBLO) with the help of which it can raise additional liquidity.</p> <p>As per current assumption no collateral or investment is likely to be en-cashed on the day of default. However, counter-value assets held back from the defaulter will be used for default handling.</p> <p>CCIL does not have access to routine liquidity support / credit from Reserve Bank of India.</p> <p>Under normal circumstances, available liquid resources (including Govt. Securities available with CCIL which can be used to generate liquid resources in a short time) are adequate to meet the identified minimum liquid resource requirement.</p>										

	<p>CCIL is in the process of finalizing an alternate liquidity arrangement with a set of banks. This will further enhance the reliability of using the securities collateral in the margin pool and the DF for meeting any liquidity needs.</p> <p>CCIL also has arrangements to borrow securities from a set of Institutions, in the event of a failure to deliver securities in the securities market-segment.</p>										
<b>Key consideration 6</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td>●</td> <td></td> <td>●</td> <td>●</td> <td></td> </tr> </table> <p><b>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.</b></p>	PS	CSD	SSS	CCP	TR	●		●	●	
PS	CSD	SSS	CCP	TR							
●		●	●								
Description	<p><i>Size and composition of supplementary liquid resources</i></p> <p>The supplementary sources of liquidity include using the securities holdings in the SRF and DF for raising cash using repo facilities.</p> <p>The size of these as of December 2016 are:</p> <p>Settlement Reserve Fund: INR 10 Billion</p> <p>Cash Collaterals in DF: INR 3.251 Billion &amp; USD 577.0 million</p> <p><u>DF</u>: (As on Dec 2016)</p> <p>Forex Forward: INR 15.880 Billion  Derivatives: INR 5.208 Billion  Forex: INR 2.143 Billion  Securities: INR 7.159 Billion  CBLO: INR 2.799 Billion</p>										
<b>Key consideration 7</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td>●</td> <td></td> <td>●</td> <td>●</td> <td></td> </tr> </table> <p><b>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</b></p>	PS	CSD	SSS	CCP	TR	●		●	●	
PS	CSD	SSS	CCP	TR							
●		●	●								

	<p><b>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.</b></p>										
Description	<p><b><i>Use of liquidity providers</i></b></p> <p>Providers of the CCIL’s minimum required qualifying liquid resources are LOCs with settlement banks and other banks. These institutions are also its participants in several market segments.</p> <p>CCIL has a mechanism in place to rate banks based on various sources of information and it chooses the settlement banks and its other LOC banks, very carefully taking into account its internal credit rating and operational and IT capabilities of the banks.</p> <p>A portion of the LOCs in INR are registered at the RBI, enabling a high degree of certainty in accessing them even if the LOC providing bank is operationally impaired.</p> <p>CCIL held Government securities of Rs.323.315 Billion as on 31st Dec ‘16 in its margin pool, which can be used as collateral for accessing funds, in the form of a repo or other appropriate instruments.</p> <p><b><i>Reliability of liquidity providers</i></b></p> <p>As indicated above, a part of the rupee denominated LOCs at RBI are kept separately funded by the LOC extending banks. Such funds are on an automatic drawdown basis and as such get tested as a part of settlement process.</p> <p>USD Settlement banks are selected based on their rating, net worth and access to adequate liquidity in USD funds thus assuring their capacity to perform.</p> <p>Liquidity providers’ potential access to credit at the central bank of issue is also taken into account.</p> <p>Liquidity stress test is run on a daily basis by considering the highest group exposures in each currency.</p>										
<b>Key consideration 8</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td>●</td> <td></td> <td>●</td> <td>●</td> <td></td> </tr> </table> <p><b>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.</b></p>	PS	CSD	SSS	CCP	TR	●		●	●	
PS	CSD	SSS	CCP	TR							
●		●	●								
Description	<p>Access to Central Bank accounts, payment and security services are available for settlement in the accounts of participants who have accounts with Central Bank i.e. Reserve Bank of India.</p> <p>Central bank services are used to enhance management of liquidity to the maximum possible extent. Even for settlement through Designated Settlement Banks, final settlement is in INR at Central Bank.</p> <p>As noted earlier, CCIL is in the process of establishing an alternate liquidity arrangement with a set of banks.</p> <p>Settlement of US Dollar legs of INR/USD segment directly through Central Bank is not possible as Federal Reserve does not allow foreign CCPs to have such access to their system.</p>										

<b>Key consideration 9</b>	<table border="1"> <tr> <td>PS</td> <td>CS</td> <td>SSS</td> <td>CCP</td> <td>T</td> </tr> <tr> <td>●</td> <td></td> <td>●</td> <td>●</td> <td></td> </tr> </table>	PS	CS	SSS	CCP	T	●		●	●	
PS	CS	SSS	CCP	T							
●		●	●								
<b>Description</b>	<p><b>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.</b></p> <p><b><i>Stress test programme</i></b></p> <p>Stress test is carried out on a daily basis assuming settlement default by entity (and its affiliates) with largest exposure.</p> <p>The Managing Director of CCIL reviews the result of stress test on a daily basis. Moreover, the board committee on risk management also reviews the result during its periodic meetings.</p> <p><b><i>Stress test scenarios</i></b></p> <p>The scenarios envisaged in liquidity stress test are failure of single largest participant and its affiliates in INR and USD independently. Default in securities deliverable position by the group is also presumed. As regards simultaneous pressures in funding, it is presumed that the LOC provided by the group in default is not available to meet the shortfall.</p> <p><b><i>Review and validation</i></b></p> <p>Periodic external review is in place – used to take place once in about 2 years. Frequency has since been increased to have the review annually.</p> <p>There is a board approved stress test process document that lists out rationale for and its governance arrangement.</p>										

<b>Key consideration 10</b>	<table border="1"> <tr> <td data-bbox="517 192 587 277">PS ●</td> <td data-bbox="587 192 676 277">CSD</td> <td data-bbox="676 192 762 277">SSS ●</td> <td data-bbox="762 192 852 277">CCP ●</td> <td data-bbox="852 192 922 277">TR</td> </tr> </table>	PS ●	CSD	SSS ●	CCP ●	TR
PS ●	CSD	SSS ●	CCP ●	TR		
<b>Description</b>	<p><b>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.</b></p> <p><b><i>Same day settlement</i></b></p> <p>Processes are in place to use Lines of Credit (LOC) availed by CCIL for this purpose. Processes are also in place for handling shortfalls beyond available LOC. These are expected to take care of all eventualities. A process for allocation of settlement shortfall to the participants with receivable position is being considered.</p> <p><b><i>Replenishment of liquidity resources</i></b></p> <p>CCIL bye-laws, regulations and rules, require the defaulting participant to cover any shortfall by the beginning of the next day. In the event of that not being met, the shortfall handling process and default handling process combined together will guide the actions to be taken. The potential actions include, sale of the positions pertaining to the underlying transaction, accessing the DF contribution of the member, closing out all obligations of the defaulting participant and loss allocation.</p>					
<b>Key Conclusions</b>	<p>CCIL has a liquidity risk management framework in place with a well-defined and diversified primary and supplementary sources of liquidity. The primary sources of liquidity include LOCs in INR with settlement banks and a few other banks; and LOC in USD with the two USD settlement banks. The USD LOCs are backed by US T-Bills, enhancing the certainty of their timely execution. A portion of the INR LOC is registered with the RBI, enabling timely execution of the LOC even in the event of operational impairment of the LOC provider. In addition, the securities in the margin pool of participants can also be used to raise funds.</p> <p>The supplementary sources of liquidity include the DF and SRF.</p> <p>There is a daily liquidity stress testing process in place. The stress testing scenario essentially involves assessing whether the obligations of the participant with the largest position and its affiliates can be covered using the available sources of liquidity. If this participant is also a liquidity provider, the LOCs provided by this participant is not considered in the available sources of liquidity.</p> <p>There is an opportunity to enhance the liquidity stress testing framework, by including scenarios like historical peaks, participant facing liquidity pressures across multiple market segments and adverse movement in the price of securities in the collateral pool. The CCIL could also consider doing a reverse stress testing mechanism framework to assess the adverse scenarios in which the available liquid resources would be inadequate.</p>					

	There is an established process in place to replenish the resources used to cover any liquidity shortage.
<b>Assessment of Principle 7</b>	<b>Observed</b>
<b>Recommendations and comments</b>	<p>CCIL should enhance the scenarios considered in the liquidity stress testing, to include peak values over a period of time; include failure of one or more settlement banks; failure of a participant across market segments; and finally take into account any potential liquidity needs to cover the settlement positions of the defaulting participant across days.</p> <p>The CCIL could also introduce a reverse stress testing framework for liquidity risk.</p> <p>The CCIL should also introduce liquidity stress testing for the CLS segment as well.</p>

PS	CSD	SSS	CCP	TR
●		●	●	

### 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 Member **should** provide final settlement intraday or in real time.

<b>Key consideration 1</b>	<b>An FMI's rules and procedures should clearly define the point at which settlement is final.</b>
Description	<p><b><i>Point of settlement finality</i></b></p> <p>In terms of the provisions contained in Section 23 of Payments and Settlement System (PSS) Act 2007, Settlement is final and irrevocable when the netting for settlement is over and obligations are determined. The settlement finality is also provided for under the governing document of CCIL i.e. Bye-laws, Rules and Regulations (BRR). This document is available in CCIL website. As noted in the discussion on Principle 1 of this assessment, CCIL Bye-laws define the point of finality as the completion of the settlement of the transactions. The specific market-segment regulations however define that transactions are irrevocable and final when the net positions are calculated [Ch IV, I.4.3 of the regulations for the securities segment.]</p> <p><b><i>Finality in the case of links</i></b></p> <p>Consistency of finality is achieved very clearly in terms of the Payments and Settlement Systems Act, the Bye-laws Rules &amp; Regulations of the CCP in respect of the securities segment, where the CCIL also acts as the SSS and the securities positions are recorded in the RBI PDO and the funds leg in RTGS system operated by the RBI.</p>
<b>Key consideration 2</b>	<b>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.</b>
Description	<p><b><i>Final settlement on the value date</i></b></p> <p>Final settlement is provided on the settlement date itself.</p>

	<p>CCIL has not experienced any deferral of final settlement so far except to handle unscheduled holidays in terms of its Bye-laws, Rules and Regulations.</p> <p><b><i>Intraday or real-time final settlement</i></b></p> <p>CCIL settles trades only at the end of the day and provides end of the day settlement. As regards the T+0 settlement, trades accepted till the cut-off time (around 2.00 PM) are settled along with the trades of previous period on that day.</p> <p>On-line view of balances is available to clearing participants maintaining accounts at RBI. Moreover, Settlement Completion Reports are provided to participants by CCIL after settlement is over.</p> <p>Risk control in existence is considered adequate for day-end settlement. Settlements are at day-end. Hence, intra-day or real time settlement is not under consideration.</p>
<b>Key consideration 3</b>	<b>An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.</b>
Description	<p>The market-segment wise regulations deem transactions for which the multilateral netting or other process for arriving at settlement obligations has been arrived at, as irrevocable and final. As noted, in the discussion of principle 1, CCIL bye-laws define point of finality as when the transaction is settled.</p> <p>Reported transactions cannot be cancelled unilaterally after those are matched in the system. Delivery/payment, once received from a participant is final. Similarly obligations cannot be altered after the netting for clearing is completed by CCIL.</p>
<b>Key conclusions</b>	<p>CCIL Bye-laws, rules and regulations provide for defining a point after which a transaction is considered irrevocable and final. However, CCIL bye-laws do not specifically define a point of irrevocability and deem a transaction as final only when it is settled, as against when net positions are computed in the CCIL regulations of certain market-segments.</p> <p>The PSS also provides the legal backing for CCIL bye-laws, rules and regulations.</p>
<b>Assessment of Principle 8</b>	<b>Observed.</b>
<b>Recommendations and comments</b>	CCIL could consider reviewing its bye-laws, rules and regulations and ensure consistency on the point of irrevocability and finality of a transaction, to the extent the different characteristics of market-segments allow (see Principle 1).



PS ●	CSD	SSS ●	CCP ●	TR
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### 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 minimize and strictly control the credit and liquidity risk arising from the use of commercial bank money.

<b>Key consideration 1</b>	<b>An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.</b>
Description	<p>CCIL has an account with the RBI and participates in the RTGS system. A set of bank / non-bank participants in the securities and CBLO market-segment, do not have an account /access to an account at the RBI and do not participate in the RTGS system. To cater to these institutions, CCIL has developed a settlement bank model which operates in parallel to the settlement in RTGS for other participants. The settlement bank model, gives CCIL control over the pay-in and pay-out process for these non-bank participants. These settlement banks also double up as LOC providers.</p> <p>Money Settlements are as under: Securities Segment –</p> <ol style="list-style-type: none"> <li>a) INR funds settlement for participants with access to RTGS, in Central Bank money; but for some participants without access to RTGS, the settlement is at designated settlement banks.</li> <li>b) Securities Settlement – only through depository maintained by Central Bank.</li> </ol> <p>Forex Settlement (INR/USD) Segment –</p> <ol style="list-style-type: none"> <li>a) INR funds settlement in Central Bank money.</li> <li>b) USD funds settlement through settlement bank.</li> </ol> <p><u>CBLO Settlement</u> – Funds settlement, same as for the securities segment. For settlement of INR funds in settlement banks, final exchange between settlement bank and CCIL happens at Central Bank with minimum delay.</p> <p>A major part of the INR settlements are made in Central Bank money. Some of the participants do not have current accounts with the RBI. In such cases settlements are made through member accounts with settlement banks.</p> <p>In the case of USD settlements, CCIL is not allowed to maintain an account with the Federal Reserve. Hence USD settlements are carried out through settlement banks.</p>
<b>Key consideration 2</b>	<b>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.</b>
Description	<p>Settlement Bank Risk Management Policy is in place to manage Settlement Bank Risk which covers both credit and liquidity risk on Settlement Banks.</p> <p>There is a laid down minimum standards for selecting a bank as a settlement bank. Moreover, limits are set on these settlement banks for intra-day and overnight exposures; exposures against such limits are closely monitored.</p>

	CCIL is also working with the RBI and settlement banks, to have more frequent credits from the settlement bank to CCIL's account at the RBI, to minimize its exposure to the settlement bank.
<b>Key consideration3</b>	<b>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, capitalization, 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.</b>
Description	<p>Criteria laid down for selection of settlement bank are:</p> <ul style="list-style-type: none"> <li>a) Acceptable Financial standing (credit rating of investment grade, wherever available)</li> <li>b) Previous experience as Settlement Bank</li> <li>c) No record of any persistent default</li> <li>d) Existence of effective Risk Management arrangements</li> <li>e) No record of liquidity problem faced by the bank in past 3 years</li> <li>f) Adequate IT infrastructure to support settlement activity (with suitable redundancies) with a well spread out and integrated branch net work</li> </ul> <p>Concentration of credit and liquidity risks to the commercial settlement banks is managed by setting limits on exposures and by closely monitoring such exposures.</p> <p>Limits set as above helps in monitoring concentration as well and settlements passing through such settlement banks are monitored. Annual review of position regarding adherence to the criteria is carried out.</p> <p>In addition, CCIL bye-laws, rules and regulations specifically recognize the funds paid in by participants in the settlement banks as final only when it is actually credited into CCIL's RTGS account.</p>
<b>Key consideration 4</b>	<b>If an FMI conducts money settlements on its own books, it should minimize and strictly control its credit and liquidity risks.</b>
Description	No money settlement happens in CCIL books.
<b>Key consideration 5</b>	<b>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.</b>
Description	<p>CCIL's legal agreements with its settlement banks state that transfers are final when effected, and that funds received by CCIL are transferable.</p> <p>Funds are transferred latest by the end of the day. Intra-day transfers are possible and a process for this is being developed. The process will be introduced shortly.</p>
<b>Key conclusions</b>	CCIL's participants include some bank / non-bank institutions which do not have access to settlement accounts at the RBI. CCIL itself has access to the RTGS and uses this for settlement with the participants who have access to RTGS.

	CCIL has a well-laid out process to select settlement banks, which includes emphasis on financial soundness, risk management arrangements and robust operation and IT capabilities.
<b>Assessment of Principle 9</b>	<b>Observed</b>
<b>Recommendations and comments</b>	CCIL should monitor the settlement banks to reduce exposure, if any.

PS	CSD	SSS	CCP	TR
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<b>Principle 10: Physical Deliveries</b>	
An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.	
<b>Key consideration 1</b>	<b>An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.</b>
Description	Physical delivery: Not applicable
<b>Key consideration 2</b>	<b>An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.</b>
Description	Physical delivery: Not applicable
<b>Key conclusions</b>	Not applicable
<b>Assessment of Principle 10</b>	<b>Not applicable</b>
<b>Recommendations and comments</b>	-

PS	CSD	SSS	CCP	TR
	•			

<b>Principle 11: Central Securities Depositories</b>	
A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilized or dematerialized form for their transfer by book entry.	
<b>Key consideration 1</b>	<b>A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.</b>
Description	<i>Safeguarding the rights of securities issuers and holders</i>

	<p>Not applicable</p> <p><i>Prevention of the unauthorised creation or deletion of securities</i></p> <p>Not applicable</p> <p><i>Periodic reconciliation of securities issues</i></p> <p>Not applicable</p>
<b>Key consideration 2</b>	<b>A CSD should prohibit overdrafts and debit balances in securities accounts.</b>
Description	Not applicable
<b>Key consideration 3</b>	A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilise or dematerialise securities.
Description	Not applicable
<b>Key consideration 4</b>	A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.
Description	Not applicable
<b>Key consideration 5</b>	A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.
Description	Not applicable
<b>Key consideration 6</b>	A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.
Description	Not applicable
<b>Key conclusions</b>	Not Applicable
<b>Assessment of Principle 11</b>	<b>Not applicable</b>
<b>Recommendations and comments</b>	-

PS ●	CSD	SSS ●	CCP ●	TR
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**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.

<b>Key consideration 1</b>	<b>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.</b>
Description	<p>USD/INR Settlement (Forex Segment) and the CLS Bank market-segment settlements are on PVP basis. In all other cases, settlements are on DvP basis.</p> <p>In the case of the USD/INR settlements and also on the CLS bank settlements, the USD leg settlement payouts and pay-ins are from CCIL’s USD settlement bank. Only when the USD and INR pay-ins are received, the USD and INR pay-outs are made.</p> <p>In the case of securities segment, CCIL has an SGL and CSGL account at the RBI and sends the consolidated list of securities settlements and funds payout instructions to the RBI. These two are processed simultaneously.</p> <p>Finality of settlement of obligations is simultaneous.</p>
<b>Key conclusions</b>	CCIL settles in PVP mode for USD-INR as also CLS bank settlements and DVP mode for rest of the market segments.
<b>Assessment of Principle 12</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

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**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.

<b>Key consideration 1</b>	<b>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.</b>
Description	<p><i>Participant default rules and procedures</i></p> <p>CCIL bye-laws describes the rules pertaining to default handling and the procedures (Chapter XII). The Bye-laws also specifically mention that the specificities of a particular market segment would be detailed in CCIL regulations for the specific market-segment (Chapter V). Accordingly, CCIL has developed regulations for each of the market-segments, each of which have a chapter “Shortage and Default”.</p> <p>The bye-laws and the regulations taken together cover the following areas:</p>

- a. What constitutes default: Failure to fulfill obligations related to clearing and settlement, margin calls, additional contribution to DF, failure to comply with any dispute resolution provisions or rules of CCIL, and when any wind-down, insolvency or bankruptcy proceedings have been started against the participant. CCIL also retains the right to add any additional conditions for declaring a participant as being in default.
- b. Actions that the FMI can take when a default is declared are specifically provided under "Shortage and Default" Chapter of Regulations of respective segments.
- c. The actions include right to cover any exposure to CCIL or other participants caused by the default of the member by using: the participant's margins, contribution to DF and any monies due to the participant.
- d. Changes to normal settlement practices may also include close out of trades for subsequent days; loss allocation to other participants; auctioning the defaulting participant's positions; and not accepting any new trade for novation from the participant in default.
- e. CCIL regulations do not have any special provision so far between positions and collaterals in respect of participants' proprietary and client transactions.
- f. Regulations of respective sections clearly list out the roles, obligations, and responsibilities of the various parties.

### ***Use of financial resources***

CCIL bye-laws and regulations, allow for using the financial resources of the participant in default right-after declaration of default.

DF has been created in all CCP cleared segments. Sequence of appropriation of various resources have been detailed below. After declaring a default, the defaulter's withheld assets, collaterals and other receivables will be used up first. Thereafter, Contribution of defaulter member to the Default Fund, then from CCIL's Settlement Reserve Fund:

- (i) 25% of the balance for forex forward and Rupee Derivatives segment;
- (ii) 15% of the balance for forex segment;
- (iii) 10% of the balance for Securities segment;
- (iv) 5% of the balance for CBLO segment

Any residual shortage will then be allocated to DF of the surviving clearing participants.

Member margins and contributions to segment wise Default Fund are either in Govt. Securities or in Rupee funds. CCIL's Settlement Reserve Fund (SRF) is also kept in bank deposits with early termination option. CCIL has also started investing in T-Bills. This ensures quick availability of resources.

DF is in place in all clearing segments with default fund in Securities and CBLO becoming effective from 16th August'16 and 14th Oct'16 respectively. In the event of DF being used to meet loss on account of a default, provisions have been created in respective business segments' Regulations to make replenishment calls from the non-defaulting participants to the extent of DF utilization and also in CCIL bye-laws (Ch. IX.7). Further additional contribution can be called for from the non-defaulting members if the resources i.e. DF and CCIL's skin in the game are inadequate to meet the loss.

	<p>As regards replenishment of CCP's own resources following a default, CCIL Board has approved a policy for transfer of funds from General Reserve to Settlement Reserve Fund. Provision has been made to opt for rights issue as well with general body approval, in case it is necessary.</p> <p>Failure to comply with additional contribution to DF, would lead to blockage of any future trades and trigger declaration of the participant being in default.</p>
<b>Key consideration 2</b>	<b>An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.</b>
Description	<p>The Default Handling Policy/Procedure is in place for each segment with roles and responsibilities are clearly delineated.</p> <p>CCIL has also carried out two table top exercise involving participants to test the default handling procedure to ensure better preparedness for handling any default.</p> <p>CCIL bye-laws and regulations allow all available means (i.e. letter, mail, fax etc.) to communicate and reach all relevant stakeholders, including regulators, supervisors, and overseers, in a timely manner.</p> <p>Default handling procedures in various segments are reviewed once in a year by the Board Committee on Risk Management.</p>
<b>Key consideration 3</b>	<b>An FMI should publicly disclose key aspects of its default rules and procedures.</b>
Description	<p>CCIL bye-laws and rules and the regulations of each segment are publicly available. CCIL Bye-laws and market-segment regulations describe the default handling procedures covering the following areas:</p> <ul style="list-style-type: none"> <li>• The circumstances in which default can be declared;</li> <li>• How can default be communicated and who takes the decision; and</li> <li>• The scope of actions that can be taken including on the usage of financial resources of the participant in default to cover its obligations to the CCIL and other participants.</li> </ul> <p>CCIL bye-laws, rules and regulations do not explicitly distinguish between a participant's proprietary and customer trades and accordingly it does not also distinguish between the positions and assets of the participant proprietary trades and those on account of its customers trades. The RBI and the CCIL have confirmed that the market structure and policy framework is such that, only the proprietary trades of the participants are introduced for clearing and settlement to the CCIL system. The only exception is the Government securities segment.</p>
<b>Key consideration 4</b>	<b>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.</b>
Description	<p>As noted in KC 2 of this principle, CCIL has also carried out two table top exercise involving participants to test the default handling procedure to ensure better preparedness for handling any default.</p>

	<p>CCIL bye-laws and regulations allow all available means (i.e. letter, mail, fax etc.) to communicate and reach all relevant stakeholders, including regulators, supervisors, and overseers, in a timely manner.</p> <p>Default handling procedures in various segments are reviewed once in a year by the Board Committee on Risk Management.</p>
<b>Key conclusions</b>	<p>CCIL Bye-laws, rules and regulations explicitly cover the default handling procedures. The procedures detailed allow CCIL to execute a range of actions in a timely manner to handle the settlement obligations of the participant in default. The procedures also allow for CCIL to replenish any resources used to meet the default of the participant, from the participant in default and failing which from other participants.</p> <p>CCIL bye-laws and market-segment regulations are publicly available. CCIL also conducts a periodic drill of the default handling procedures and involves its members in these.</p> <p>CCIL bye-laws and regulations, do not explicitly mention how the assets of customers of the participant in default are to be handled in the event of a default, this is relevant for the funds position of the customers trades in the Government securities market.</p>
<b>Assessment of Principle 13</b>	<b>Observed.</b>
<b>Recommendations and comments</b>	The CCIL already conducts default management drills and includes its members in them. The CCIL could ensure that these drills are conducted at least once a year.

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<b>Principle 14. Segregation and Portability</b>	
A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.	
<b>Key consideration 1</b>	<b>A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the CCP additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the CCP should take steps to ensure that such protection is effective.</b>
Description	<p><b><i>Customer protection from participant default</i></b></p> <p>As per CCIL bye-laws (Ch. VII.11), CCIL deals with its participants directly and recognizes only the member as the counterparty and makes it liable for all transactions initiated by it, including those on behalf of its customers (referred to as constituents).</p>



	<p>The only exception to this is the Government securities where a RBI approved scheme allows trading by constituents through CCIL member. Even in this segment, CCIL members take all responsibilities to settle all transactions relating to their clients as per a scheme formulated by RBI regarding Constituent Members. The securities holdings of constituents are recorded in the members' CSGL account with RBI PDO. There is however no segregation of funds and collaterals at CCIL end.</p> <p>Further, the CCIL and the RBI noted that the policy framework and operating model is such that only the proprietary trades are introduced for clearing and settlement in the CCIL, in all market segments except the Government securities.</p> <p><b><i>Customer protection from participant and fellow customer default</i></b></p> <p>In the case of the securities segment, the direct participants are required to observe CSGL guidelines and the RBI RTGS account or the guidelines applicable to settlement banks (Securities segment regulations, IV(j).1.1 and 1.2 ). There is no explicit discussion of this in the BRR for other market-segments.</p> <p><b><i>Legal basis</i></b></p> <p>There is no explicit basis for the segregation and portability of customer's funds and assets in the CCIL BRRs. However currently, there are general requirements related to the participant's observance of extant regulations and other legal measures issued by the relevant regulator for the particular market segment.</p>
<b>Key consideration 2</b>	<b>A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.</b>
Description	CCIL has only direct participation except for G-Sec segment where to an extent tiered participation exists under the RBI approved scheme. CCIL provides a detailed separate final funds and securities settlement obligation report to each member for settlement of SGL trades and CSGL trades, at each constituent level. However, CCIL does not explicitly segregate the holdings of the participant's customers collateral and assets and the responsibility is of the participant.
<b>Key consideration 3</b>	<b>A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.</b>
Description	As noted earlier in KC 1 and 2, the only segment where there is an explicit framework for segregation is the Government securities segment. Even in that segment segregation is available only in the securities side, on the funds side there is no established framework in the CCIL BRRs.
<b>Key consideration 4</b>	<b>A CCP should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an</b>

	<b>individual or omnibus basis. In addition, a CCP should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant’s customers’ positions and related collateral.</b>
Description	The PSSA provides the legal certainty on the protection of collaterals. The collateral is however held on an omnibus basis.
<b>Key conclusions</b>	<p>The regulations for the government securities segment, explicitly recognize segregation of the customer’s securities in the customer’s ‘account in the CCIL CSGL account or any other SGL or CSGL account. Even in this case however there is no explicit coverage on portability topics.</p> <p>CCIL regulations for the securities segment, specifically note that the RBI PDO’s regulations related to CSGL accounts and customers securities; the regulations related to the RBI RTGS account; and contractual and regulatory requirements pertinent to settlement banks handling customer funds and assets, would apply.</p> <p>The participants in specific market-segments are licensed institutions regulated by the RBI and subject to the specific regulations of the RBI pertaining to the specific market-segment. Further the CCIL and the RBI, have noted that the policy framework and the operational model for the specific market segments is such that only proprietary transactions are submitted to the CCIL for clearing and settlement, except the Government securities segment.</p>
<b>Assessment of Principle 14</b>	<b>Broadly Observed</b>
<b>Recommendations and comments</b>	CCIL needs to implement a framework for segregation and portability of customer funds and assets in the G-Sec segment where to an extent tiered participation exists. The framework, should explicitly reference any applicable regulations of the RBI and other regulators and describe how the process for portability would be facilitated by CCIL. This could be addressed through explicitly requiring segregation in the CCIL BRR and validating as part of default drills.

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<b>Principle 15: General business risk</b>	
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 materialize. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.	
<b>Key consideration 1</b>	<b>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.</b>
Description	As noted in the discussion on principle 3, the CCIL risk management framework includes “strategic risk” as one of the risks. The “strategic risk” encompasses wrong execution of business strategy and wrong business strategy.

	<p>CCIL has established a 2-person research desk in the risk department which monitors the developments in the international markets and domestic markets through subscription to relevant journals and industry reports. This analysis provides an input into the assessment of the “Strategic” risk.</p> <p>The business performance of CCIL is closely monitored by the senior management of CCIL on a regular basis. Annual cost and income estimates are prepared and the business performance of the Company is also reviewed every quarter by the Board of Directors, at which times risks to continued profitability of the company are examined. CCIL prepares an income statement per business segment, enabling evaluation of performance at business segment level.</p> <p>CCIL has put in place Management and Internal control systems to monitor and manage general business risks through a review of each type of operation on quarterly basis and annual structured budgeting process. Performance reviews happen at Managing Director’s level and Board monitors these risks.</p>
<b>Key consideration 2</b>	<b>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.</b>
Description	<p>CCIL periodically looks at liquid net assets funded by equity as multiple of amount it requires to continue its operations and services as going concern. In last two years (as on year end date), net assets funded by equity &amp; reserves are 63 and 92 times of its current monthly operating expenses requirement, respectively. The estimate for six months of operating expenses is around INR 450 million.</p> <p>This coverage is adequate for any orderly wind-down of critical operations and services.</p>
<b>Key consideration 3</b>	<b>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.</b>
Description	<p><i>Recovery or orderly wind-down plan</i></p> <p>CCIL has detailed default handling procedures outlined in its BRR. While multilateral netting and DVP/PVP mode of settlements bring down/eliminate credit risks, CCIL also collects initial margin, MTM margin and volatility margin to mitigate market risk.</p>

	<p>CCIL also has in place member contributed default fund in all its business segments with provision for calling additional contributions from members as and when required.</p> <p>CCIL also has set up from its own resources, a SRF as its skin in the game in respect of losses caused by member default, loss on account of settlement bank failure, investment losses etc. In case of utilisation of its SRF, CCIL also has a provision to transfer funds from its General Reserve to SRF.</p> <p>Specific waterfall has also been outlined in CCIL’s BRR clarifying the order in which pre-funded default resources such as margins, member contributed default funds and the SRF will be used to meet default losses.</p> <p>CCIL bye-laws (chapter XV) provided for handling of the voluntary wind-down or admission of any bankruptcy or insolvency proceedings against it. The bye-laws accord powers to the CCIL to close-out all open trades using the MTM prices of the previous business day and arrive a termination amount payable or due from each member. Default on any payable amount is treated as a default and the default management processes are initiated. The close-out of transactions are binding and deemed final and irrevocable.</p> <p>CCIL published a draft for enhancing its recovery plan<sup>8</sup> to solicit feedback from participants and after suitably incorporating feedback from participants will seek RBI’s approval. The proposed plan takes into account the below proposed changes to the SRF:</p> <ul style="list-style-type: none"> <li>• To be pegged at 25% of the default fund and being larger than the largest contribution to the default fund;</li> <li>• Used in two tranches: 15% before the use of non-defaulting participants default fund contributions; 10% after exhausting all pre-funded resources for default handling; and</li> <li>• Using the remaining to cover any remaining losses.</li> </ul> <p><b>Resources</b></p> <p>Liquid net asset cover (excluding liquid funds set apart towards SRF) is far higher than six months’ current operating expenses. In fact, it amounts to a substantially higher 92 months of operating expenses. Resources designated to cover business risks and losses are separated from resources designated to cover the default of a member.</p> <p>SRF balances are to be used to meet the default of a member. These balances are kept separately in liquid instruments such as bank deposits and Treasury Bills.</p> <p>The minimum capital/equity for CCPs has not been prescribed.</p>
<b>Key consideration 4</b>	<b>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.</b>
Description	Liquid net assets funded by equity are invested in Deposits with Banks and at times in government treasury bills or held as bank balance.

<sup>8</sup>[https://www.ccilindia.com/Lists/LstDiscussionForum/Attachments/21/Recovery%20tools%20at%20the%20end%20of%20the%20prefunded%20Default%20Waterfall\\_ConsultationPaper.pdf](https://www.ccilindia.com/Lists/LstDiscussionForum/Attachments/21/Recovery%20tools%20at%20the%20end%20of%20the%20prefunded%20Default%20Waterfall_ConsultationPaper.pdf)

<b>Key consideration 5</b>	<b>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.</b>
<b>Description</b>	<p>CCIL board at its meeting held on August 25, 2014 has approved the plan for raising of resources in the event the equity capital falls below the amount needed in terms of Principle 15 of the PFMI guidelines.</p> <p>This provides for transfer of funds from the general reserves to the SRF, subject to approval of shareholders of the company, in case of any depletion due to its use for the purpose of meeting any event of loss as approved.</p> <p>If the balance in capital, general reserves and surplus falls below the minimum required amount equivalent to at least six months' operating expenses as required under the PFMI, the company would initiate the process to raise additional capital through a rights Issue.</p> <p>The Board reviews overall financial position of the Company on quarterly basis which also includes review of additional capital requirement.</p> <p>The plan is also reviewed as part of the quarterly comprehensive review carried out by the Board.</p>
<b>Key conclusions</b>	<p>CCIL monitors business risk as part of its overall risk management framework. The CCIL board on a quarterly basis reviews the performance of the CCIL business segment wise. There are board approvals in place to enhance the capital through a rights issue if needed and replenishment of any usage of SRF. The current levels of equity funded liquid assets are adequate to cover over 15 times the required coverage of six months operating expenses.</p> <p>CCIL has proposed enhancing its recovery plan and is in the process of seeking comments from its participants. The proposed recovery plan assumes that CCIL will continue to function as a going-concern, failing which the resolution regime (proposed under the FRDI bill), will establish a mechanism to transfer operations or wind-down in an orderly manner.</p> <p>The bye-laws as it stands, requires the CCIL to close-out all positions the next day, if any insolvency or bankruptcy proceedings are started against it.</p>
<b>Assessment of Principle 15</b>	<b>Observed</b>
<b>Recommendations and comments</b>	CCIL has all the tools in place for timely recovery. CCIL should however, pursue its efforts to further develop and formalize the recovery plan and appropriately reflect these in its BRR.

<p><b>Principle 16. Custody and Investment Risks</b></p> <p>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.</p>	
<p><b>Key consideration 1</b></p>	<p><b>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.</b></p>
<p>Description</p>	<p>The entities with which CCIL places its own funds and participants assets are:</p> <ol style="list-style-type: none"> <li>1. Securities received as collaterals or towards margin in the non-forex segments are kept with the RBI.</li> <li>2. Liquid net assets funded by equity and reserves are invested in fixed deposits of less than 13 months maturity with banks in India and in government treasury bills or held in savings or current account bank.</li> <li>3. INR funds received towards members margin contributions are invested in deposits with Banks and in government securities / treasury bills.</li> <li>4. USD funds are invested in USD T-bills – residual amount remains with settlement Bank. USD funds received as pre-funding are kept in deposits with highly rated banks including settlement banks.</li> </ol> <p>Custodian entities dealt with are either the RBI or regulated entities in the respective jurisdictions. All these entities are governed by legal provisions and local regulations with regard to accounting practices, safekeeping procedures and internal controls applicable to respective countries. CCIL has put in place a process to review the standing of the banks on on-going basis through its investment policy which has a detailed framework to assess investment related risks.</p>
<p><b>Key consideration 2</b></p>	<p><b>An FMI should have prompt access to its assets and the assets provided by participants, when required.</b></p>
<p>Description</p>	<p>Assets in cash are held in bank deposits or accounts in the name of CCIL. In case of securities, the balances are kept with the RBI PDO in its own SGL account. The RBI rules regarding SGL clearly recognize the beneficial ownership of SGL account holders. In addition to the rights available to it through BRR, CCIL has retained the earlier provision of securing a power of attorney from the participants to ensure CCIL’s right to appropriate such securities, if needed.</p> <p>Funds and Securities available as collaterals are in effective custody of CCIL (in CCIL’s CSGL account) and can be used promptly in the event of a participant default.</p>
<p><b>Key consideration 3</b></p>	<p><b>An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.</b></p>
<p>Description</p>	<p>CCIL has secured a confirmation from the USD Settlement banks which also provide it custodial services that its USD T-Bills are kept in a segregated fashion without commingling them with the proprietary assets of the custodian and its other customers. Hence,</p>

	CCIL does not consider exposures on the settlement banks/custodian. INR securities are maintained with the RBI and hence do not represent a credit exposure.
<b>Key consideration 4</b>	<b>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.</b>
Description	<p><b><i>Investment strategy</i></b></p> <p>Investment Policy is vetted by the CODRM and approved by the BOD. In terms of the Investment Policy the Investments are only in bank deposits and government securities which are most liquid instruments.</p> <p>Investment Policy has also been disclosed to participants and the RBI. In case of bank deposits, investments are made only with highly rated and well capitalized banks, subject to ceilings/limits for individual banks.</p> <p>There is a process in place to track exposure on banks on account of investments made. Further, a quarterly investment analysis is reviewed by the CODRM.</p> <p><b><i>Risk characteristics of investments</i></b></p> <p>CCIL's investments in Government securities are exclusively in T-bills. The CCIL's investment Policy prescribes limits for its investments with each eligible entity.</p> <p>CCIL does not invest in any of the securities issued by its participants. Investments are in the bank deposits with banks which also happen to be its participants. CCIL has put in place counterparty exposure limits for all such deposits and balances lying with various banks.</p> <p>Bank deposits can be liquidated with a very short notice without any loss to the capital. Similarly Investment in Government securities is in T-bills, which are very liquid and can be normally sold with very little adverse impact on the principal amount invested.</p>
<b><i>Key conclusions</i></b>	<p>CCIL has established a conservative investment policy and investments of its own assets and participant's assets are held as bank deposits or in T-bills. CCIL holds assets related to the forex and CLS bank segments in the US and Switzerland respectively. These are also held as deposits at accredited banks or T-Bill (only US Government).</p> <p>There are well-laid out process for selecting banks in India, USA and Switzerland. These are based on available credit rating information and an internal credit rating mechanism. The custodians for GOI T-bills are held at the RBI PDO in the name of CCIL in its SGL account, with a clear legal framework for beneficial ownership. The USD T-Bills are held in the two USD settlement banks – which have confirmed to CCIL on having segregated accounts.</p>
<b><i>Assessment of Principle 16</i></b>	<b>Observed</b>

<b>Recommendations and comments</b>	CCIL could consider seeking a formal written confirmation from the auditors of the two US settlement banks on their observance of segregation of client accounts.
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**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 fulfillment of the FMI’s obligations, including in the event of a wide-scale or major disruption.

<b>Key consideration 1</b>	<b>An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.</b>
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Description	<p><b><i>Identification of operational risk</i></b></p> <p>Operational risks are categorized into IT system related and non- IT system related.</p> <p>In the category of IT risks, the malfunction of any IT systems, downtime of communication networks, challenges in functioning of IT systems due to impact to the physical infrastructure due to natural disasters and other such event, and any software related errors are included. Many of the software applications used by CCIL are customer developed solutions.</p> <p>The category of non-IT risks include: operational errors, fraud, impact on staff including inability to access CCIL premises due to natural disasters, pandemics and such and physical security.</p> <p>IT system failure has been identified as one of the critical failure point. There is an incident management process in place to record, track and analyze all operational risk incidents. The TAC and CODRM oversee this process.</p> <p><b><i>Manangement of operational risk</i></b></p> <p>The IT related risks are addressed through established and documented processes for software development lifecycle, business continuity planning, incident management, periodic ethical hacking and penetration testing and annual external review of IT systems.</p> <p>Non-IT risks are controlled through building in system driven operational controls and following a documented operational process.</p> <p><b><i>Policies, processes and controls</i></b></p> <p>The CCIL IT related processes are certified against the ISO 27001-2013 standard.</p> <p>Human resources development is a key activity looked after by a separate department. There are documented recruitment and training policies which are also subject to internal audit. Fraud prevention is taken care of through pre-employment verification and through extensive use of maker-checker principle.</p>
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	<p>All new staff and onsite contractors are required to go through an IT security training and there is a monthly IT security bulletin which is sent to all staff and onsite contractors.</p> <p>IT system changes are managed in line with a documented software change management process.</p>
<b>Key consideration 2</b>	<b>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.</b>
Description	<p><b><i>Roles, responsibilities and framework</i></b></p> <p>An operational risk management policy has been implemented and the CODRM oversees its observance and effectiveness.</p> <p>All operational risk events are reviewed by the CODRM on half yearly basis. Roles and responsibilities for specific processes are assigned to staff as per the approved organization structure.</p> <p>There is an Information Security Management Forum, chaired by the MD and comprised of all head of departments. This forum meets quarterly to review observance and effectiveness of information security policies and procedures.</p> <p><b><i>Review, audit and testing</i></b></p> <p>Operational processes and deficiencies are regularly reviewed through operational audit carried out by independent auditors and their reports are reviewed by audit committee of the board.</p> <p>Business Continuity related activities are subject to operations audit carried out by external auditors. These technical arrangements and executions are also subject to review by IT system auditors. These reviews are placed to the TAC for further analysis.</p>
<b>Key consideration 3</b>	<b>An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.</b>
Description	<p>CCIL has a Business Continuity Plan (BCP) document which also covers its operational reliability objectives.</p> <p>The primary operational reliability indicator is the system uptime which is set at 99.5%. There are also various system level indicators, which collectively seek to ensure that the IT systems are not overloaded and are functioning as required. There are several automated reports which track these.</p> <p>The incident management process reviews and tracks any operational risk incident and provides a process of continuous improvement to ensure a high degree of security and operational reliability.</p> <p>The BCP document is reviewed once in a year at the Board level and also submitted to the RBI.</p> <p>Audit process covers BCP areas and there are periodic drills to assess effectiveness of the BCP processes.</p>

<b>Key consideration 4</b>	<b>An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.</b>
Description	<p><i>Scalable capacity</i></p> <p>IT capabilities and capacity utilisations are periodically reviewed. This is a monthly process.</p> <p><i>Operational capacity is neared or exceeded</i></p> <p>No such situation where operational capacity is reached or exceeded was observed.</p>
<b>Key consideration 5</b>	<b>An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.</b>
Description	<p><i>Physical security</i></p> <p>Vulnerabilities are reviewed as part of BCP process and any shortcoming observed is plugged.</p> <p>Physical security related aspects are well controlled and subject to Information Security Management System (ISMS) audit process. ISMS controls are in place.</p> <p><i>Information security</i></p> <p>FMI's policies and processes, including change management and project management policies and processes, for addressing the plausible sources of information security vulnerabilities and threats are kept in special focus while carrying out any change involving IT system.</p> <p>CCIL's policies, processes, controls, and testing take into consideration relevant international, national, and industry-level standards for information security—CCIL is a ISO 27001 compliant Company since 2006.</p> <p>FMI's change-management and project-management policies and processes ensure that changes and major projects do not affect the information security of the system: This critical aspect is given due importance before making any change. External assistance is also taken to assess any vulnerability.</p>
<b>Key consideration 6</b>	<b>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.</b>
Description	<i>Objectives of business continuity plan</i>

	<p>CCIL’s BCP is based on an extensive Business Impact Analysis (BIA), which categorizes criticality of business processes as Low, Medium and High. The trading, clearing, settlement and risks management related processes are categorized as high.</p> <p>The BCP of CCIL seeks to provide a high degree of assurance that CCILs systems and procedures will continue to function as needed even in extreme situations.</p> <p><b><i>Design of business continuity plan</i></b></p> <p>The Recovery Time Objective (RTO) for the processes categorized as High, is 2 hours, and it is 1 day and 2 days respectively for medium and low. The BCP testing shows that recovery within 2 hours will be possible under almost all circumstances.</p> <p>BCP processes are clearly laid out in the BCP plan and the plan also ensures that the extent of data loss is minimal. The Recovery Point Objective (RPO) is set at 15 minutes.</p> <p>There is a contingency plan in place to rapidly validate status of all transactions in a timely manner.</p> <p>Steering Committee involving Head of Departments is in place for managing the BCP process.</p> <p><b><i>Secondary site</i></b></p> <p>CCIL presently has a secondary operations site in a different location but in the same city as its primary site and a disaster recovery site in a different city with a different seismic risk profile. IT support staff is available at all locations. Officials with ability to run business processes have been placed at both the in-city locations and at the DR site location as well.</p> <p>Data is replicated in real-time between the main and secondary site, and with a 10 minute delay to the disaster recovery site.</p> <p><b><i>Review and testing</i></b></p> <p>The BCP is reviewed once in a year and is tested quarterly. Participants, service providers, settlement banks and LOC providers participate in the drills.</p> <p>The CCIL also participates in the BCP testing of the RTGS and PDO by the RBI.</p>
<b>Key consideration 7</b>	<b>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.</b>
Description	<p><b><i>Risks to the FMI’s own operations</i></b></p> <p>All processes including settlement related transactions are monitored on a regular basis. In respect of risks from participants, CCIL monitors any development relating to its participants that may have the potential to adversely impact their functioning. For Service and utility providers, fall back arrangements are in place.</p> <p>IT Services are considered critical for CCIL operations. Software development is through a team deployed by software vendors which are based in CCIL locations. They have been located in CCIL offices to ensure better control and to identify and</p>

	<p>address any potential risks upfront. Moreover, critical IT operations processes like the database and server management is done by in-house personnel.</p> <p><b>Risks posed to other FMIs</b></p> <p>The operational risk management framework does not explicitly recognize FMI Links.</p>
<b>Key conclusions</b>	<p>CCIL has established an operational risk management framework covering both IT and non-IT risks. IT risks are addressed through appropriate IT system design, in-built redundancies and a secondary and disaster recovery site. There is a BCP in place, which is tested on a quarterly basis involving participants and also other service providers.</p> <p>The CODRM is entrusted with the review of the operational risk management framework, its observance and continued effectiveness.</p> <p>The CCIL's IT processes have been certified against the ISO 27001-2013. The CCIL has an ethical hacking and penetration testing twice a year and an annual external audit of IT security.</p> <p>CCIL has also adopted the guidance from the CPMI-IOSCO on Cybersecurity resilience.</p> <p>CCIL has also established framework for handling non-IT risks, through a combination of documenting operational procedures, system based controls, recruitment and training policies.</p> <p>CCIL operational risk management framework does not explicitly acknowledge its FMI links with the RBI RTGS and RBI PDO. However as it participates in the BCP of these FMIs and the RBI as the operator is committed to ensuring these FMIs observe the PFMIs, this is not an issue of concern.</p>
<b>Assessment of Principle 17</b>	<b>Observed</b>
<b>Recommendations and comments</b>	<p>CCIL could consider incorporating additional scenarios in the BCP to assess achievement of RTO and RPO objectives even in very adverse situations:</p> <ul style="list-style-type: none"> <li>• Simulating an operational risk event at critical times during the business day – say 3 hours before close of business day or beginning of business day {this need not be on a live system, it could be a simulation on a business holiday};</li> <li>• Functioning of settlement banks from their back-up sites.</li> </ul> <p>CCIL should explicitly recognize its FMI Links with the RBI operated RTGS and PDO, in its operational risk management framework.</p>

PS ●	CSD ●	SSS ●	CCP ●	TR ●
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<b>Principle 18. Access and participation requirements</b>	
An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.	
<b>Key consideration 1</b>	<b>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.</b>
Description	<b>Participation criteria and requirements</b>

	<p>The market-segments in which CCIL operates are regulated by the RBI. Only entities eligible to operate in the specific market segments can seek participation in CCIL.</p> <p>The CCIL membership is granted on a market-segment basis. CCIL by-laws provides for a high level framework (Chapter IV) for membership and this is further elaborated in the CCIL Rules (Chapter IV.2) and the operating rules for specific market-segments.</p> <p>In general, the participants need to submit an application providing details of their financials, IT, operational, risk management and human resources capabilities. Only upon CCIL’s satisfactory review of this applicant provided membership.</p> <p>Policies for accessing of CCIL’s clearing &amp; settlement segments are clearly included in the Regulations of each segment and are made available through CCIL’s website as well.</p> <p>This information is in public domain for last so many years and no significant inconsistency has so far been pointed out.</p> <p><b><i>Access to Clearing &amp; Settlement Services:</i></b></p> <p>Access related requirements for CCIL services ensure that there is no denial of access other than on risk consideration and on account of regulatory compliance requirements.</p>
<p><b>Key consideration 2</b></p>	<p><b>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 endeavor to set requirements that have the least-restrictive impact on access that circumstances permit.</b></p>
<p>Description</p>	<p><b><i>Justification and rationale of participation criteria</i></b></p> <p>Participation requirements are adequately tailored to ensure participation of all eligible entities and any restriction imposed is only on risk grounds or due to regulatory prescriptions. Participation requirements are reviewed on periodic basis.</p> <p>Access criteria are different for different segments. It depends on the conditions required to be fulfilled for trading/dealing in the respective market and /or the minimum requirement to settle such trades (like for forex settlement only authorised dealers can be participants).</p> <p><b><i>Least restrictive access</i></b></p> <p>All entities allowed to operate in a particular market-segment are eligible for membership, subject to their satisfying technical, operational, risk management and human resources capabilities. CCIL offers alternative arrangements for entities like non-banks which are eligible to participate</p>

	<p>in a market-segment but do not have access to the RTGS and the communication infrastructure INFINET.</p> <p><b><i>Disclosure of criteria</i></b></p> <p>Participation criteria and restrictions are available publicly through CCIL website.</p>
<b>Key consideration 3</b>	<p><b>An FMI should monitor compliance with its participation requirements on an ongoing 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.</b></p>
Description	<p><b><i>Monitoring compliance</i></b></p> <p>Monitoring of compliance with participation requirements is through a process of annual review. At the time of such review, latest financial data and information is used to assess the adherence to the eligibility criteria.</p> <p>Processes are in place to track any deterioration of risk profile.</p> <p>The Bye-laws (Ch. IV.5) require participants to notify CCIL in the event of any change in control, re-organization or merger and provide relevant information to CCIL for it to assess continued adherence to the membership requirements.</p> <p><b><i>Suspension and orderly exit</i></b></p> <p>Participants are required to report any major change in their status to CCIL.</p> <p>For any existing participant which does not fulfill eligibility criteria, already accepted positions are frozen and no new positions are accepted. Such members are usually required to move out of all segments.</p> <p>Procedures for managing the suspension and orderly exit of a participant is mentioned in CCIL Bye-laws (Ch. IV.7).</p> <p>In case of suspension of a participant or declaration of such participant as defaulter, all other clearing and settlement participants are duly notified.</p>
<b><i>Key Conclusions</i></b>	<p>The CCIL membership is by market-segment. Entities allowed to participate in a particular market-segment by the RBI, are eligible to be members of CCIL. CCIL, in addition, specifies requirements related to financial strength, IT, operational, risk management and human resources capabilities.</p> <p>The CCIL BRR are available in the public domain. The membership criteria are reviewed annually by the board.</p> <p>CCIL provides for alternative arrangements for eligible entities which do not have access to the RBI RTGS and the INFINET communication infrastructure, enabling all eligible entities meeting the risk based membership criteria to access the CCIL services.</p>

<i>Assessment of principle 18</i>	<b>Observed.</b>
<i>Recommendations and comments</i>	-

PS	CSD	SSS	CCP	TR
●	●	●	●	●

### **Principle 19. Tiered Participation Arrangements**

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

<b>Key consideration 1</b>	<b>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.</b>
Description	<p><b><i>Tiered participation arrangements</i></b></p> <p>CCIL bye-laws (Chapter IV.4) allow CCIL to process its own proprietary transactions and on behalf of its customers (referred to as constituents). Some of these constituents could be entities themselves eligible for membership of CCIL.</p> <p>The CCIL BRR however do not recognize indirect participation, except for the Government securities segment.</p> <p>In the Government securities market-segment, for indirect participants - basic information such as name, proof of identity such as registrations certificates, Permanent Account Number (PAN) etc. are collected through the Primary Members, through whom they participate. As and when there are changes, the Primary Member is responsible for updating such change. Transactions of indirect participants are reported through the trading engines and are recorded in their name at CCIL. Settlement of such transactions is however, the responsibility of the Primary Members.</p> <p><b><i>Risks to the FMI</i></b></p> <p>The transactions of the indirect participants in the Government securities market-segment, are identified through the specific member Id allocated to the indirect participant (securities segment operating rules, chapter 2.D). CCIL, hence, is able to monitor the trades of the constituents of the primary member and monitors the exposures.</p> <p>However, for other market-segments, there is no process in place for monitoring the risks arising from tiered-participation.</p>
<b>Key consideration 2</b>	<b>An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.</b>
Description	The extent of dependencies is monitored on regular basis, only for the Government securities market-segment which has limited tiered participation.
<b>Key consideration 3</b>	<b>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</b>

	<b>relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.</b>
Description	<p>The risks arising from the key indirect participants of the primary participants are kept under close watch in the Government securities market-segment.</p> <p>As per the CCIL management, the market structure is such that the likelihood of customer transactions in the derivatives and forex segment is very small. In CBLO segment all members are direct members</p>
<b>Key consideration 4</b>	<b>An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.</b>
Description	CCIL explicitly recognizes tiered participation only for the Government securities market-segment. CCIL has a monthly monitoring process for the transactions of the constituents. In the other market-segments, there is however no process in place.
<b>Key conclusions</b>	<p>The CCIL BRR allow for transactions by the participants for both their proprietary book and for their constituents. The CCIL BRR has an explicit framework for tiered participation for the Government securities market-segment and accordingly only monitors tiered participation in this market-segment.</p> <p>However, it appears that the market structure is such that the tiered participation arrangement is likely to be relevant more in the CBLO market-segment and non-existent in the forex and derivatives market-segment.</p>
<b>Assessment of Principle 19</b>	<b>Broadly Observed</b>
<b>Recommendations and comments</b>	Currently, there is no tiered participation in any segment except to a small extent in Government securities segment under an RBI approved scheme. In the Government securities' segment constituent positions are tracked. CCIL could consider having a reporting requirements from the direct members through whom the constituents participate on the delay in giving margin, etc. by the constituents.



PS	CSD ●	SSS ●	CCP ●	TR ●
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### Principle 20. FMI Links

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

<b>Key consideration 1</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td>●</td> <td>●</td> <td>●</td> <td></td> </tr> </table> <p><b>Before entering into a link arrangement and on an ongoing 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.</b></p>	PS	CSD	SSS	CCP	TR		●	●	●	
PS	CSD	SSS	CCP	TR							
	●	●	●								
Description	<p>The CCIL CCP service has FMI links with the RBI RTGS for the settlement of the funds leg in a DVP and PVP mode; and with the RBI PDO for the securities settlement leg in DVP mode and as a custodian for the CCIL's collateral holdings and its own assets.</p> <p>The CCIL framework recognises the risks from the links. The same is closely monitored for early warnings and appropriate action taken.</p>										
<b>Key consideration 2</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> </tr> </table> <p><b>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.</b></p>	PS	CSD	SSS	CCP	TR		●	●	●	●
PS	CSD	SSS	CCP	TR							
	●	●	●	●							
Description	<p>The FMI links with the RBI RTGS and RBI PDO, have a well-founded legal basis arising from the PSSA, the operating rules of these FMIs and the membership agreements for these FMIs.</p>										
<b>Key consideration 3</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td>●</td> <td>●</td> <td></td> <td></td> </tr> </table> <p><b>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.</b></p>	PS	CSD	SSS	CCP	TR		●	●		
PS	CSD	SSS	CCP	TR							
	●	●									
Description	Not applicable										
<b>Key consideration 4</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td>●</td> <td>●</td> <td></td> <td></td> </tr> </table> <p><b>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.</b></p>	PS	CSD	SSS	CCP	TR		●	●		
PS	CSD	SSS	CCP	TR							
	●	●									
Description	Not applicable										

<b>Key consideration 5</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td>•</td> <td>•</td> <td></td> <td></td> </tr> </table>	PS	CSD	SSS	CCP	TR		•	•			<p>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.</p>
PS	CSD	SSS	CCP	TR								
	•	•										
Description	Not applicable											
<b>Key consideration 6</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td>•</td> <td>•</td> <td></td> <td></td> </tr> </table>	PS	CSD	SSS	CCP	TR		•	•			<p>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.</p>
PS	CSD	SSS	CCP	TR								
	•	•										
Description	Not applicable											
<b>Key consideration 7</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td></td> <td></td> <td>•</td> <td></td> </tr> </table>	PS	CSD	SSS	CCP	TR				•		<p>Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.</p>
PS	CSD	SSS	CCP	TR								
			•									
Description	<p><i>Linked CCP default</i></p> <p>Not applicable as no link exists with another CCP</p>											
<b>Key consideration 8</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td></td> <td></td> <td>•</td> <td></td> </tr> </table>	PS	CSD	SSS	CCP	TR				•		<p>Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP’s ability to fulfill its obligations to its own participants at any time.</p>
PS	CSD	SSS	CCP	TR								
			•									
Description	<p><i>Exposures and coverage of exposures</i></p> <p>Not applicable</p> <p><i>Management of risks</i></p> <p>Not applicable</p> <p><i>Information provided to participants</i></p>											

	Not applicable										
<b>Key consideration 9</b>	<table border="1"> <tr> <td>PS</td> <td>CSD</td> <td>SSS</td> <td>CCP</td> <td>TR</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>●</td> </tr> </table> <p><b>A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.</b></p>	PS	CSD	SSS	CCP	TR					●
PS	CSD	SSS	CCP	TR							
				●							
Description	Not applicable.										
<b>Key conclusions</b>	<p>CCIL has FMI links with the RBI operated RTGS and the PDO. There is a well-founded legal basis for these links.</p> <p>The linked FMIs are operated by the RBI, which has committed to ensuring the observance of these FMIs to the PFMIs. This is hence not a major issue of concern, however it is important that CCIL monitors these links.</p>										
<b>Assessment of Principle 20</b>	<b>Observed</b>										
<b>Recommendations and comments</b>	CCIL acknowledges the FMI links with the RBI RTGS and PDO. CCIL itself acknowledges that the risks cannot be eliminated and as indicated in CCIL policy framework, CCIL needs to monitor and look for early warning signals and take appropriate action.										

PS	CSD	SSS	CCP	TR
●	●	●	●	●

<b>Principle 21: Efficiency and effectiveness</b>	
An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.	
<b>Key consideration 1</b>	<b>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.</b>
Description	<p>CCIL provides its CCP and PS services to market-segments that are regulated by the RBI. CCIL has progressively introduced new products and services to the market in line with the evolving regulatory framework for these market segments. The recent introduction of CCP services for IRS, the CLS bank arrangement for the forex markets and portfolio compression services are examples of this.</p> <p>CCIL has progressively enhanced its ancillary services like introducing a comprehensive risks management dashboard for its members, providing ability to simulate impact of a new trade and introduction of risk management features like CCIL's skin-in-the-game.</p> <p>CCIL has allowed participants alternative connection options like web-based access instead of through INFINET and settlement bank options instead of RTGS settlement, to cater for specific requirements of some segment of members.</p> <p>CCIL services however are also dependent on the services offered by the trading platforms like the NDS-OM, CROMS and Fx Clear and Swap; and</p>

	<p>FMI – RBI RTGS and PDO. Specific constraints in these systems and FMIs, can impact the overall efficiency for the CCIL participants. Notable constraints include:</p> <ul style="list-style-type: none"> <li>• Non-settlement bank participants are unable to offer services to their clients in market-segments like the CBLO;</li> <li>• Restrictions in the RBI PDO free-of-payment transfers impacts emergence of tiered participation arrangements in some market segments;</li> <li>• The possibility of operational inefficiencies and errors arising from lack of direct linkage between the trading platforms and the RBI PDO and the members internal systems with the RBI PDO (settlement failures on securities side in the Government securities segment in 2016 were 18, usually it is lower than 10); and</li> <li>• Integration at the level of back-office.</li> </ul> <p>The CCIL has provided tools in the form of reports which can be used to compare the settlement positions of the participants with the securities holdings in the RBI PDO. This helps participants to institute operational controls to mitigate the risk of failures on securities delivery.</p>
<b>Key consideration 2</b>	<b>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.</b>
Description	<p>CCIL’s goals and objectives are to provide efficient risk mitigated Clearing, settlement and Trade Warehouse related services.</p> <p>Feedback from participants during individual interactions and through user group meetings are used to measure extent of achievement. The CCIL has also established a risk advisory group comprising of a set of participants. This groups deliberates on the risk management aspects and serves as a body for substantive discussions on risk management aspects.</p>
<b>Key consideration 3</b>	<b>An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.</b>
Description	<p>CCIL reviews its efficiency and effectiveness through tracking of quality of services through user group meetings.</p> <p>Participants are categorized into groups like primary dealers, foreign banks, state-owned banks, non-bank entities etc. User group meetings are held with participants from each of these categories.</p> <p>User Group meetings are held in such a manner that each participant gets an opportunity to meet CCIL officials at least once in a year.</p> <p>Frequent interaction with user groups and market bodies ensure that the products developed/enhanced meet the needs of the users.</p> <p>Periodic interactions with the users through user group meetings and at individual level ensure that the requirements of the participants are met.</p> <p>CCIL also is a member of the CCP 12 international group of CCPs and also participated in the CPMI-IOSCO Level 3 assessment. These also provide inputs to the CCL for benchmarking its efficiency and effectiveness.</p>
<b>Key conclusions</b>	CCIL has progressively enhanced its ancillary services like introducing a comprehensive risks management dashboard for its members, providing ability to simulate impact of a new trade and introduction of risk management features like CCIL’s skin-in-the-game.

	<p>CCIL has allowed participants alternative connection options like web-based access instead of through INFINET and settlement bank options instead of RTGS settlement, to cater for specific requirements of some segment of members.</p> <p>CCIL services however are also dependent on the services offered by the trading platforms like the NDS-OM, CROMS and Fx Clear and Swap; and FMIs – RBI RTGS and PDO. The features and services available from these FMIs, can impact the overall efficiency for the CCIL participants.</p> <p>The CCIL has a mechanism in place for periodic discussions and consultations with market participants.</p>
<b>Assessment of Principle 21</b>	<b>Observed.</b>
<b>Recommendations and comments</b>	<p>CCIL could consider studying in co-ordination and with the approval of the RBI, the feasibility of introducing the below features highlighted by the participants the mission team met:</p> <ul style="list-style-type: none"> <li>• Ability to flag shortage of securities when placing a repo or an outright sale through CROMS and NDS-OM;</li> <li>• Introduce tiered participation in the CBLO segment and potentially other segments, along the lines of the arrangements in the Government securities market;</li> <li>• Introduce real-time interfaces with the RBI PDO integrated with the IRIS system, enabling the participants to have a complete picture of their securities holdings.</li> </ul> <p>CCIL could also consider introducing annual surveys of participants to seek their feedback on existing products and services; and demand for new products and services.</p>

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<b>Principle 22: Communication procedures and standards</b>	
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.	
<b>Key consideration 1</b>	<b>An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.</b>
Description	<p><b>Communication procedures</b></p> <p>CCIL uses message based communication procedures to interact with participants and other connected parties. IBM MQ is used as the standard messaging layer for exchanging data with RBI.</p> <p>CCIL has provided an application which converts the internal message formats of the participants to the CCIL formats. This application can also be integrated in a Straight-Through-Processing (STP) mode with the participant’s internal systems.</p> <p>SWIFT is in the process of evaluating implementing the FIX messaging standard for the interfaces with the trading platforms.</p>

	<p>Secure channel SSL is used for data file exchange with settlement banks and participants. CCIL uses SWIFT for its cross-border operations.</p> <p>CCIL uses the inter-bank financial network – INFINET, as the underlying communications networks. Non-bank entities do not have access to this network. They are able to participate in the system using internet browser based interfaces.</p> <p><b>Communication standards</b></p> <p>CCIL uses proprietary message structures between participants and other connected parties. These message structures are however modelled on SWIFT MT series messages. Some of the message structures exchanged with settlement banks are based on the SWIFT standard.</p> <p>CCIL uses the SWIFT message standard for its cross-border operations.</p> <p>Secure channel SSL is used for data file exchange with participants.</p>
<b>Key conclusions</b>	<p>CCIL uses proprietary message format modelled on the SWIFT MT message format. The CCIL provides an application enabling a seamless translation from participants internal message formats to the CCIL message formats. The CCIL uses industry standard networking and message exchange protocols.</p> <p>CCIL and RBI have expressed that there is no difference in the quality and effectiveness of interface from the INFINET system or through internet by non-INFINET members as no issues have been raised by non-INFINET members.</p>
<b>Assessment of Principle 22</b>	<b>Observed</b>
<b>Recommendations and comments</b>	

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<b>Principle 23: Disclosure of rules, key procedures, and market data</b>	
<p>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.</p>	
<b>Key consideration 1</b>	<b>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.</b>
Description	<p><b>Rules and procedures</b></p> <p>Bye-laws, Rules and Regulations and notifications are published on CCIL’s website. Feedback from participants and other stake-holders provide basis for assessing the level of clarity of the BRR and key procedures. Periodic internal review is also carried out.</p> <p>Issues like default handling, risk management framework and pricing information are included in detail.</p> <p>These rules and procedures are in public domain for years and apart from CCIL’s internal reviews.</p>

	<p><b><i>Disclosure</i></b></p> <p>Any change in rules and procedures require prior approval of its regulators, Reserve Bank of India and these are required to be notified to all participants at least 30 days' in advance before implementation.</p> <p>Soft copies are available publicly through CCIL website. Hard copies of these are also made available to the participants.</p>
<b>Key consideration 2</b>	<b>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.</b>
Description	<p><b><i>Regulations for each segment describe these processes.</i></b></p> <p>These details are disclosed to participants, regulators and other stake-holders through fact book, notifications and regulations. These are also available to the public at large.</p> <p>Areas where discretions can be exercised are listed out in the respective segment regulations. Processes followed to change rules is listed in CCIL BRR.</p> <p>Description of participants' rights and obligations are detailed in membership documents, CCIL BRR and notifications.</p>
<b>Key consideration 3</b>	<b>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.</b>
Description	<p>FMI documentation and training for its Participants are through various interactions including by providing written clarifications.</p> <p>Interactions with the participants and potential participants provide indirect evidence to this effect.</p> <p>Training programs are organized for participants on a need basis and when there are any new features or services introduced.</p>
<b>Key consideration 4</b>	<b>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.</b>
Description	<p>Pricing information is publicly available. These are made available through public notification.</p> <p>Any change is required to be notified at least 30 days in advance. For effecting any major change, before obtaining appropriate internal authorization, user group inputs are taken and regulator's approvals are taken wherever necessary.</p> <p>CCIL is the only CCP working on the specific market-segments. The other CCPs in India work in the securities markets. CCIL as such does not compare and benchmark its fees to these CCPs.</p>
<b>Key consideration 5</b>	<b>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.</b>

<b>Description</b>	<p>CCIL has completed its self-assessment against the PFMI and updates this annually or after any major changes in policies and procedures or introduction of new products or services. CCIL has also completed its disclosure framework and it is usually updated once in a year or after any material change. Qualitative disclosures are updated on yearly basis while quantitative disclosures are published on a quarterly basis. Trade volume, Settlement data, CCIL financials and other statistical information are available to the public at large through the CCIL website.</p> <p>Any change to the process or any proposal to carry out any change to any existing process is also disclosed to the public.</p> <p>These are made available through CCIL website (<a href="http://www.ccilindia.com">www.ccilindia.com</a>). Disclosures are in English.</p>
<b>Key conclusions</b>	CCIL has completed the self-assessment and has published the disclosure framework and the qualitative and quantitative statistical information. These are in English and are updated periodically and made available through CCIL's website for public at large.
<b>Assessment of Principle 23</b>	<b>Observed.</b>
<b>Recommendations and comments</b>	-

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<b>Principle 24: Disclosure of Market Data by Trade Repositories</b>	
A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.	
<b>Key consideration 1</b>	A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives.
<b>Description</b>	Not applicable.
<b>Key consideration 2</b>	A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities.
<b>Description</b>	Not applicable.
<b>Key consideration 3</b>	A TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analyzed.
<b>Description</b>	Not applicable.
<b>Key conclusions</b>	Not applicable.
<b>Assessment of Principle 24</b>	<b>Not applicable.</b>
<b>Recommendations and comments</b>	-



## VII. DETAILED ASSESSMENT REPORT –CCIL TR

<p><b>Principle 1: Legal basis</b></p> <p>An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.</p>	
<b>Key consideration 1</b>	<b>The legal basis should provide a high degree of certainty for each material aspect of an FMI’s activities in all relevant jurisdictions.</b>
Description	<p><i>Material aspects and relevant jurisdictions</i></p> <p><b>Material aspects of the TR’s activity requiring legal certainty are:</b></p> <ul style="list-style-type: none"> <li>• Functioning as a TR and its operating rules and procedures;</li> <li>• Protection of records it maintains; and</li> <li>• Protection of rights of the participants and other stakeholders on access, confidentiality of data and disclosure of data.</li> </ul> <p><b>The relevant jurisdictions are:</b></p> <ul style="list-style-type: none"> <li>• India for all market segments;</li> </ul> <p><i>Legal basis for each material aspect</i></p> <p>The 2015 amendment to PSSA, introduced a definition for TR in section 2.r. The amendment also adds a new section 34a.1, which makes the PSSA applicable to designated trade repository. The CCIL has been licensed as a TR and is also a designated payment system, making all the provisions related to the rights and powers of the RBI, applicable to TRs as well.</p> <p>Given the above, the provisions of section 22 and section 24 of the PSA applies to TR as well, which provides for protection of confidentiality of the records maintained by a licensed entity; and including provisions related to protecting the rights of participants and other stakeholders.</p>
<b>Key consideration 2</b>	<b>An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.</b>
Description	<p>CCIL is in the process of securing approval from the RBI, on its operating rules for the TR service. At the moment, there are no documented operating rules and regulations for the functioning of the TR.</p> <p>As per RBI's direction, operating guidelines have been made available by CCIL to the members. CCIL-TR provides User Manuals containing all the relevant information with respect to reporting modalities of all OTC trades in various asset classes and the User Manual can be accessed over CCIL Online Reporting Engine.</p>
<b>Key consideration 3</b>	<b>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.</b>
Description	As described in KC2, there are currently no operating rules and regulations for the TR segment.
<b>Key consideration 4</b>	<b>An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that</b>

	<b>actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.</b>
Description	<p><b><i>Enforceability of rules, procedures and contracts</i></b></p> <p>Once the operating rules and regulations are developed, as noted in the assessment for the CCIL CCP services, there is high degree of certainty on the enforceability of CCIL’s operating rules and regulations.</p> <p><b><i>Degree of certainty for rules and procedures</i></b></p> <p>Once the operating rules and regulations are developed, as noted in the assessment for the CCIL CCP services, there is high degree of certainty on the enforceability of CCIL’s operating rules and regulations.</p>
<b>Key consideration 5</b>	<b>An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.</b>
Description	As regards the TR operations of CCIL, the only relevant jurisdiction is India.
<b>Key conclusions</b>	<p>The PSSA, PSSR and Indian Contract Act, provide a strong statutory legal basis for the functioning of CCP’s and provide for legal certainty for all the operational processes of a TR. CCIL as per RBI’s direction have made available the operating guidelines to the members. CCIL-TR also provides User Manuals containing all the relevant information with respect to reporting modalities of all OTC trades in various asset classes and the User Manual can be accessed over CCIL Online Reporting Engine.</p> <p>The operating rules have been made available to the participants, however the regulations of CCIL are in the process of development, the provisions in the law have not been clearly articulated and hence can pose a degree of legal uncertainty.</p>
<b>Assessment of Principle 1</b>	<b>Partly Observed</b>
<b>Recommendations and comments</b>	CCIL should in co-ordination with the RBI expedite the adoption of comprehensive operating rules and regulations for the TR services.

PS	CSD	SSS	CCP	TR
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<b>Principle 2: Governance</b>	
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.	
<b>Key consideration 1</b>	<b>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</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 2</b>	<b>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.</b>

Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 3</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 4</b>	<b>The board should contain suitable members with the appropriate skills and incentives to fulfill its multiple roles. This typically requires the inclusion of non-executive board member(s).</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 5</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 6</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 7</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key conclusion</b>	The CCIL’s governance arrangements spans all its services, hence the description of the governance arrangements for the CCIL’s CCP services applies for the TR services as well.
<b>Assessment of Principle 2</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

PS	CSD	SSS	CCP	TR
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<p><b>Principle 3: Framework for the comprehensive management of risks</b></p> <p>An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.</p>	
<b>Key consideration 1</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 2</b>	<b>An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 3</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 4</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key conclusions</b>	<p>The CCIL’s risk management framework spans all its services, hence the description of this principle for CCIL’s CCP services applies for the TR services as well.</p> <p>The risk management framework includes the specific discussion on the risks that TRs are exposed to: legal, operational and reputational risk. There are operational controls to ensure data quality and to prevent data errors.</p> <p>The risk management monitoring framework for the CCP services is used for the TR as well.</p>

	The risks related to links does not specifically apply for TR services, hence that is not an issue of concern for CCILs TR services.
<b>Assessment of Principle 3</b>	<b>Observed</b>
<b>Recommendations and comments</b>	

PS ●	CSD ●	SSS ●	CCP ●	TR
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<b>Principle 15: General business risk</b>	
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 materialize. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.	
<b>Key consideration 1</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 2</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 3</b>	<b>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.</b>
Description	<i>Recovery or orderly wind-down plan</i>

	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 4</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 5</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key conclusions</b>	The CCIL's business risk management framework spans all its services, hence the description of this principle for CCIL's CCP services applies for the TR services as well. However the risks related to recovery plan is not an immediate issue of concern as regards its TR services.
<b>Assessment of Principle 15</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

PS ●	CSD ●	SSS ●	CCP ●	TR ●
<b>Principle 17: Operational risk</b>				
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 fulfillment of the FMI's obligations, including in the event of a wide-scale or major disruption.				
<b>Key consideration 1</b>	<b>An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.</b>			
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>  In addition, the CCIL provides the CCIL Online Reporting Engine (CORE) and another utility for reporting using structured files. There are operational controls in place to ensure data quality and minimize errors.			
<b>Key consideration 2</b>	<b>An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse</b>			

	<b>the FMI’s operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 3</b>	<b>An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>  Data is reported using online utilities and is hence immediately available post automated checks. There are system based checks based on specific business logic and in case of interbank transactions, matching of the reporting from both counterparties. These controls ensure quality and minimizes errors.
<b>Key consideration 4</b>	<b>An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 5</b>	<b>An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 6</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 7</b>	<b>An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might</b>

	<b>pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key conclusions</b>	The CCIL’s operational risk management framework spans all its services, hence the description of this principle for CCIL’s CCP services applies for the TR services as well. The CCIL however will need to update its BCP document to account for TR services, including their categorization in terms of criticality and include TR related scenarios in the BCP testing, performance indicators and metrics. This however at the moment is not an issue of concern, as the TR system is in some sense accessed from the public website of the CCIL and participants and RBI through the IRIS and other such systems, which are included in the BCP processes.
<b>Assessment of Principle 17</b>	<b>Observed</b>
<b>Recommendations and comments</b>	CCIL as part of its BCP review process incorporate processes and scenarios related to TRs in the BCP document and include the data vendors which rely on the CCIL TR data also in the BCP exercise relevant for TR services.  CCIL should also explicitly identify performance metrics and indicators to monitor the performance of its TR services.

PS ●	CSD ●	SSS ●	CCP ●	TR ●
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<b>Principle 18. Access and participation requirements</b>	
An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.	
<b>Key consideration 1</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 2</b>	<b>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 endeavor to set requirements that have the least-restrictive impact on access that circumstances permit.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 3</b>	<b>An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for</b>



	<b>facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key Conclusions</b>	CCIL membership is by market-segment. Entities allowed to participate in a particular market-segment by the RBI, are eligible to be members of the CCIL. The CCIL in addition specifies requirements related to financial strength, IT, operational, risk management and human resources capabilities, which are specified in the CCIL rules.  CCIL is in the process of securing regulatory approval for the operating regulations for the TR segment and amendments to its bye-laws and rules.
<b>Assessment of principle 18</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

PS	CSD	SSS	CCP	TR
●	●	●	●	●

<b>Principle 19. Tiered Participation Arrangements</b>	
An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.	
<b>Key consideration 1</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 2</b>	<b>An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 3</b>	<b>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.</b>
Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key consideration 4</b>	<b>An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.</b>

Description	<i>Same as for the description for this KC in the assessment of CCIL CCP services.</i>
<b>Key conclusions</b>	As noted in the key conclusions for this principle for CCIL CCP services, the tiered participation arrangements are not explicitly recognized in the CCIL BRR except for the government securities segment. As the operating regulations for the TR segment is in process, this gap with respect to CCIL TR services could be addressed. However at the moment, the CCIL TR information is available to participants, regulators and aggregated information to the public at large. There is no plan to extend any additional information to any tiered participant, hence it is not an issue of concern at the moment.
<b>Assessment of Principle 19</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

PS	CSD	SSS	CCP	TR
●	●	●	●	●

<b>Principle 21: Efficiency and effectiveness</b>	
An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.	
<b>Key consideration 1</b>	<b>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.</b>
Description	<p>CCIL TR services are made available to participants, regulators, market data providers and public at large using the existing online data access systems, and as such the description for this KC would be the same as in the assessment of CCIL CCP services.</p> <p>The CCIL provides data to the RBI through the reporting engine and also using structured reports. The participants have access to their data and aggregated information through the reporting engine and other structured reports. Market data providers like Reuters and Bloomberg also collect data from CCIL TR services. The aggregate data is also available for the public on CCIL website and through its newsletter.</p> <p>The CCIL also provides the last trade prices on specific market segments in real-time for inter-bank transactions and with a lag for client transactions.</p>
<b>Key consideration 2</b>	<b>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.</b>
Description	The goals and objectives of safety, reliability and efficiency, discussed in the assessment of the CCIL CCP services are also considered applicable for TR services, and TR services are explicitly mentioned in the goal and objectives statement.

<b>Key consideration 3</b>	<b>An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.</b>
Description	The CCIL's mechanism for regular review of efficiency and effectiveness is applicable for its TR services as well. The users of CCIL TR services include the same entities participating in the various market segments and in addition includes the RBI as regulator which uses the data from CCIL for its regulatory functions; and market data providers. The existing mechanisms for reviewing efficiency and effectiveness of CCIL CCP services cover also TR services.
<b>Key conclusions</b>	CCIL TR services have been offered since 2008 and in the interactions with the market participants, the regulator and perusing the data available in the CCIL website, the TR services of CCIL are meeting the needs of the market players in an efficient manner.
<b>Assessment of Principle 21</b>	<b>Observed.</b>
<b>Recommendations and comments</b>	As noted for the CCP services, the CCIL could conduct a survey to assess user satisfaction with CCIL TR services and also seek inputs for enhancing CCILs products and services in its role as a TR.

PS	CSD	SSS	CCP	TR
●	●	●	●	●

<b>Principle 22: Communication procedures and standards</b>	
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.	
<b>Key consideration 1</b>	<b>An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.</b>
Description	CCIL TR services are made available to participants and regulators using the existing online data access systems, and as such the description for this KC would be the same as in the assessment of CCIL CCP services.
<b>Key conclusions</b>	CCIL TR services are made available to participants and regulators using the existing online data access systems, and as such the description for this KC would be the same as in the assessment of CCIL CCP services.
<b>Assessment of Principle 22</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

PS	CSD	SSS	CCP	TR
•	•	•	•	•

<b>Principle 23: Disclosure of rules, key procedures, and market data</b>	
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.	
<b>Key consideration 1</b>	<b>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.</b>
Description	CCIL rules and operating regulations for the TR market-segment are in the process of being approved by the regulator.
<b>Key consideration 2</b>	<b>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.</b>
Description	The CCIL website provides a description of CCIL TR services, including description of participant’s responsibilities and rights. Further details would be included in the upcoming CCIL operating regulations for the TR market-segment, which would be published on CCIL’s website.
<b>Key consideration 3</b>	<b>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.</b>
Description	CCIL as a process provides training before launching any new services and also on an ongoing basis. This includes also for TR.  The detailed information on TR services are available in its website and also provided to the participants and regulator.
<b>Key consideration 4</b>	<b>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.</b>
Description	CCIL has published its fees notification issued on 1 <sup>st</sup> October 2014 on its website.
<b>Key consideration 5</b>	<b>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.</b>
Description	CCIL has completed an integrated self-assessment and public disclosure in line with the disclosure framework of the PFMIs. This includes both CCIL CCP and TR services.  These are made available through CCIL website ( <a href="http://www.ccilindia.com">www.ccilindia.com</a> ). Disclosures are in English.
<b>Key conclusions</b>	CCIL has completed the self-assessment and has published the disclosure framework and the qualitative and quantitative statistical information. These are in English and

	are updated periodically and made available through CCIL's website for public at large.
<b>Assessment of Principle 23</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

PS	CSD	SSS	CCP	TR ●
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<b>Principle 24: Disclosure of Market Data by Trade Repositories</b>	
A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.	
Key consideration 1	<b>A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives.</b>
Description	Data relating to trades in market, rate range etc. are made available publicly through CCIL website for products in which such data dissemination has been approved by RBI. Additional details are shared with the Regulator. Demands made by various stakeholders are kept in mind while deciding on data disclosure
Key consideration 2	<b>A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities.</b>
Description	Structured information requirement received from Regulator are met as required. Adhoc information is also provided wherever required.  Trade repository strictly follows the processes approved by Regulator.
Key consideration 3	<b>A TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analyzed.</b>
Description	Life cycle Processing in place for certain products like IRS and CDS ensures that the data is up to date and accurate. For other products, accuracy of information is ensured through i) built in validations for all fields; ii) requirement of matching all economic data reported by both counterparties; iii) daily reports to members for reconciliation  Strict quality control ensures that the data remains accurate. Also facilitates various comparisons.
<i>Key conclusions</i>	CCIL TR services provide timely and accurate data to the participants, regulators and other stakeholders in a timely manner. The data accuracy is maintained as the underlying flows from CCIL platforms as part of the processing of the transaction.
<b>Assessment of Principle 24</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

## VIII. DETAILED ASSESSMENT OF RESPONSIBILITIES OF AUTHORITIES

<b>Responsibility A: Regulation, supervision, and oversight of FMIs</b>	
FMIs should be subject to appropriate and effective regulation, supervision, and oversight by a central bank, market regulator, or other relevant authority	
<b>Key consideration 1</b>	<b>What criteria do authorities use to identify FMIs that should be regulated, supervised and overseen?</b>
Description	<p>The authorities with responsibilities for oversight of the FMIs are the RBI and SEBI with clear and differentiated mandates depending on the type of FMI determined by the law.</p> <p><b><u>Payment Systems</u></b></p> <p>The PSSA, 2007 defines a payment system as enabling “payment to be effected between a payer and a beneficiary, involving clearing, payment or settlement service or all of them, but does not include a stock exchange”. Art. 3 designates the RBI as the authority for the regulation and supervision of payment systems under the Act. The PSSA, 2007 and the PSSR, 2008 set out the requirements for the authorization and operation of payment systems. Further, the RBI policy document on Regulation and Supervision of Financial Market Infrastructures regulated by RBI adopts the definition of FMI as prescribed in the PFMIs.</p> <p>The RBI-owned and operated RTGS system is also regulated and overseen by the RBI.</p> <p><b><u>CSDs/SSSs</u></b></p> <p>SEBI Act, 1992 empowers SEBI to take any measures in order to protect the interests of investors and to promote the development of, and to regulate, the securities market. The Depositories Act, 1996 provides for regulation of securities depositories. Further, SEBI has adopted the definition of FMIs as prescribed in the PFMIs through SEBI vide circular no. CIR/MDR/DRMNP/26/2013.</p> <p>The National Securities Depository Limited (NSDL) and the Central Depository Services Limited (CDSL) provide custody and settlement services for corporate securities, and are regulated and overseen by SEBI.</p> <p>RBI-PDO – the RBI-owned and operated CSD/SSS for government securities – is regulated and overseen by the RBI.</p> <p><b><u>CCPs</u></b></p> <p>CCIL serves as a CCP in the government securities segment, collateralised borrowing and lending obligations (CBLO), USD-INR and forex forward segments and IRS. CCIL is regulated and overseen by the RBI.</p> <p>NSCCL, ICCL and MCX-SX CCL act as CCPs for corporate securities and derivatives and are subject to SEBI regulation / supervision.</p> <p><b><u>TRs</u></b></p> <p>The 2015 amendment to PSSA, introduced a definition for TR in section 2.r. The amendment also adds a new section 34a.1, which includes TRs in the definition of designated payment systems. The CCIL has been licensed as a TR and is also a designated payment system, making all the provisions related to the rights and powers of the RBI, applicable to TRs as well.</p> <p>Given the above, the provisions of section 22 and section 24 of the PSSA applies to TR as well, which provides for protection of confidentiality of the records maintained by a licensed entity; and including provisions related to protecting the rights of participants and other stakeholders.</p>

<b>Key consideration 2</b>	<b>How the criteria are publicly disclosed?</b>
Description	The provisions are specified in the law and the responsibilities of authorities are also clarified in their respective web-sites.
<b>Key conclusions for Responsibility A</b>	Specific laws assign the responsibility for regulating, supervising and overseeing the FMI in India to either RBI or SEBI.  The authorities have further publically announced their adoption of the CPMI-IOSCO PFMI.
<b>Assessment of Responsibility A</b>	<b>Observed</b>
<b>Recommendations and comments</b>	-

### **Responsibility B: Regulatory, supervisory, and oversight powers and resources**

Central banks, market regulators, and other relevant authorities should have the powers and resources to carry out effectively their responsibilities in regulating, supervising, and overseeing FMIs.

<b>Key consideration 1</b>	<b>Authorities should have powers or other authority consistent with their relevant responsibilities, including the ability to obtain timely information and to induce change or enforce corrective action.</b>
Description	<p>The RBI powers under the PSSA include: (i) authorization (and revocation of authorization), (ii) determination of standards; (iii) approval of changes in payment systems; (iv) call for returns, documents or other information; (v) access to information; (vi) to enter and inspect; (vii) audit and inspections, and; (viii) issue directions. Violation of directions issued by the RBI would warrant penalty under the PSS Act.</p> <p>The corporate securities market is overseen and regulated by the SEBI. The authority to approve establishment of exchanges, depositories and clearing corporations is vested with the SEBI. The SEBI is also vested with authority to review and approve the bylaws and rules of these institutions and also approve enrollment of new participants. The SEBI also has broad powers to audit and inspect each of the institutions functioning in the corporate securities market. The SEBI regularly audits the exchanges, CCP arrangements and the participants, and also receives periodic reports from these institutions which is used for its regulation and oversight activities.</p> <p>Relevant powers are specified as follows:</p> <p>RBI – Payment and Settlement Systems Act, 2007 and 2015 amendments  <a href="https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/86706.pdf">https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/86706.pdf</a> and  <a href="https://rbidocs.rbi.org.in/rdocs/content/PDFs/PSN190515F.pdf">https://rbidocs.rbi.org.in/rdocs/content/PDFs/PSN190515F.pdf</a></p> <p>RBI – Payment and Settlement Systems Regulations, 2008  <a href="https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/REGULATIO50115.pdf">https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/REGULATIO50115.pdf</a></p> <p>SEBI – Securities Contracts (Regulation) Act 1956.  <a href="http://www.sebi.gov.in/cms/sebi_data/attachdocs/1374642840584.pdf">http://www.sebi.gov.in/cms/sebi_data/attachdocs/1374642840584.pdf</a></p> <p>SEBI – SEBI Act 1992  <a href="http://www.sebi.gov.in/cms/sebi_data/attachdocs/1374643650792.pdf">http://www.sebi.gov.in/cms/sebi_data/attachdocs/1374643650792.pdf</a></p> <p>SEBI – Securities Contract (Regulation) (Stock Exchange and Clearing Corporations) Regulations 2012  <a href="http://www.sebi.gov.in/cms/sebi_data/attachdocs/1340272091708.pdf">http://www.sebi.gov.in/cms/sebi_data/attachdocs/1340272091708.pdf</a></p>

<b>Key consideration 2</b>	<b>Authorities should have sufficient resources to fulfill their regulatory, supervisory, and oversight responsibilities.</b>
Description	<p><u>RBI</u></p> <p>An Oversight Division in the Department of Payment and Settlement Systems (DPSS) has been formed to undertake the oversight of payment and settlement systems. The Oversight Division is supported by other RBI functional departments and four Regional Offices of the RBI. For onsite inspections, the RBI forms a team comprising of staff from legal department, banking supervision, IT department and the DPSS. The DPSS oversight division has a team of 15.</p> <p>The total staff involved with oversight of FMIs is currently 4. During the supervisory assessment, human resources are also drawn from the pool of domain experts working in concerned departments. Also, continuous dialogue, inputs, etc. are obtained from the Departments involved / associated with the respective areas involved.</p> <p>Requirement of Manpower is assessed periodically both at the departmental level and organizational level and on the basis of the assessment, recruitment of additional staff and re-allocation of human resources across departments is done so that the departments are not constrained to carry out their responsibilities. The assessment of staff was undertaken recently in view of the increased responsibility / monitoring for ensuring compliance of the FMIs to the PFMIs. The Human Resource and Management Department (HRMD) has accordingly posted additional resources for the purpose.</p> <p><u>SEBI</u></p> <p>Several SEBI departments take part in the regulation, supervision, and oversight of FMIs. The primary departments responsible for oversight of the FMIs under SEBI’s purview is the Market Regulation Department (MRD) and Commodity Derivatives Market Regulation Department (CDMRD). These departments are responsible for the regulation, supervision and oversight of FMIs .With the transfer of responsibilities of commodities market from FMC to the SEBI, the responsibility for oversight of commodities market FMIs, has also been transferred to the SEBI, and is managed by Commodity Derivatives Market Regulation Department. MRD has staff strength of 29 officials and CDMRD has staff strength of 18 officials. The “market supervision division” within the MRD, is the unit responsible for the supervision, regulation and oversight of the two CSDs and three equity market CCPs. This division has a strength of four including a division chief and corresponding division within CDMRD responsible for handling supervision, inspection and complaints of Exchanges/CCs in Commodity Derivatives markets are five which includes division chief. SEBI conducts onsite inspections of FMIs. There are periodic reporting requirements which are also used for the purpose of oversight of FMIs.</p>
<b>Key conclusions for Responsibility B</b>	<p>RBI and SEBI have the relevant powers to obtain information and induce change to carry out their oversight activities.</p> <p>These powers have been explicitly articulated in primary and secondary regulations.</p> <p>The RBI and SEBI have dedicated organization units with responsibility for oversight of the FMIs under their purview. In addition, both organizations have procedures in places to draw resources from other units within their respective organizations to support the needs of oversight.</p> <p>The commodity derivatives market FMIs are in the process of being fully aligned with the PFMIs and as such places higher demands on the organizational resources. As noted in the discussion for Responsibility D, the scale of oversight activities also need to be scaled up for both the capital market and commodity market FMIs. This will also place higher demands on the organizational resources for oversight in the SEBI.</p>
<b>Assessment of Responsibility B</b>	<b>Observed</b>



<b>Recommendations and comments</b>	The SEBI should assess if they currently have the human and organizational capacity to fully meet their current and expanding oversight responsibilities, in particular arising from the commodity derivatives market FMIs coming under their purview.
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<b>Responsibility C: Disclosure of policies with respect to FMIs</b>	
Central banks, market regulators, and other relevant authorities should clearly define and disclose their regulatory, supervisory, and oversight policies with respect to FMIs.	
<b>Key consideration 1</b>	<b>Authorities should clearly define their policies with respect to FMIs, which include the authorities' objectives, roles, and regulations</b>
Description	<p>RBI and SEBI have issued their policies with regard to FMIs as follows:</p> <p>RBI – Regulation and Supervision of Financial Market Infrastructure regulated by Reserve Bank of India  <a href="https://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2705">https://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2705</a></p> <p>In the above document the following aspects are covered, the definition of FMIs, legal basis for the oversight powers of the RBI over FMIs, the objectives of the RBI with respect to the FMIs, the FMIs under regulation, supervision and oversight of the RBI, the extensive regulatory, supervisory and oversight powers of the RBI and the adoption of the PFMI as the standard governing the FMIs under its purview.</p> <p>SEBI – Circular on the adoption of the Principles for financial market infrastructures  <a href="http://www.sebi.gov.in/cms/sebi_data/attachdocs/1378293615856.pdf">http://www.sebi.gov.in/cms/sebi_data/attachdocs/1378293615856.pdf</a></p> <p>In the above document the term FMIs are defined and the following additional aspects are covered: objectives with respect to the regulation, supervision and oversight of FMIs, the list of FMIs under SEBI's purview (included all CSDs and CCPs in the equities and equity derivatives market). Subsequently in December 2016, the SEBI issued a circular affirming the applicability of the PFMI for the commodities market FMIs as well, the link to this circular is available at:</p> <p><a href="http://www.sebi.gov.in/cms/sebi_data/attachdocs/1481885596226.pdf">http://www.sebi.gov.in/cms/sebi_data/attachdocs/1481885596226.pdf</a></p>
<b>Key consideration 2</b>	<b>Authorities should publicly disclose their relevant policies with respect to the regulation, supervision, and oversight of FMIs.</b>
Description	Relevant laws, regulation and policies are publicly disclosed including through authorities websites.
<b>Key conclusions for Responsibility C</b>	The RBI and SEBI have articulated their policies with respect to FMIs through policy statements and/or regulations available on their respective websites. The policy statements are consistent with the respective legal powers and regulations issued by these authorities.
<b>Assessment of Responsibility C</b>	<b>Observed.</b>
<b>Recommendations and comments</b>	-

<b>Responsibility D: Application of the principles for FMIs</b>	
Central banks, market regulators, and other relevant authorities should adopt <i>the CPSS-IOSCO Principles for financial market infrastructures</i> and apply them consistently	
<b>Key consideration 1</b>	<b>Authorities should adopt the CPSS-IOSCO Principles for financial market infrastructures</b>
Description	<b>Payment Systems</b>

	<p>Through its 2013 policy document “Regulation and Supervision of Financial Market Infrastructures regulated by RBI”, the RBI has committed to the adoption of the PFMI. The RBI has adopted the standards set out in the PFMI for regulation and supervision of FMI in RBI-regulated markets.</p> <p><b><u>CSDs/SSSs</u></b></p> <p>RBI / SEBI have committed to the adoption of the PFMI through the 2013 Policy on “Regulation and Supervision of Financial Market Infrastructures regulated by RBI”, and SEBI vide circular no. CIR/MDR/DRMNP/26/2013, respectively.</p> <p><b><u>CCPs</u></b></p> <p>RBI / SEBI have committed to the adoption of the PFMI through the 2013 Policy on “Regulation and Supervision of Financial Market Infrastructures regulated by RBI”, and SEBI vide circular no. CIR/MDR/DRMNP/26/2013, respectively.</p> <p><b><u>TRs</u></b></p> <p>Through its 2013 policy document “Regulation and Supervision of Financial Market Infrastructures regulated by RBI”, the RBI has committed to the adoption of the PFMI, including for TRs. The RBI has adopted the standards set out in the PFMI for regulation and supervision of FMI in RBI regulated markets.</p>
<b>Key consideration 2</b>	<b>Authorities should ensure that these principles are, at a minimum, applied to all systemically important payment systems, CSDs, SSSs, CCPs, and TRs</b>
Description	<p><b><u>Payment Systems</u></b></p> <p>The RBI policy document states that PFMI are applicable to the RTGS as one the FMI designated by RBI. All the FMI determined by RBI are expected to comply with the PFMI requirements as applicable to them.</p> <p><b><u>CSDs/SSSs</u></b></p> <p>The PFMI are applied to NSDL and CSDL as determined by SEBI in its 2013 circular. The principles applicable this FMI type have been applied by SEBI uniformly to this FMI type set.</p> <p>PFMI are applied to RBI-PDO as determined by RBI in its policy document. All the FMI determined by RBI are expected to comply with the PFMI requirements as applicable to them.</p> <p><b><u>CCPs</u></b></p> <p>PFMI are applied to CCIL as determined by RBI in its policy document. All the FMI determined by RBI are expected to comply with the PFMI requirements as applicable to them.</p> <p>The PFMI are applied to NSCC, ICCL, and MCX-SX as determined by SEBI in its 2013 circular. The principles applicable this FMI type have been applied by SEBI uniformly to this FMI type set.</p> <p><b><u>TRs</u></b></p> <p>The RBI policy document states that PFMI are applicable to TRs. Further the CCIL – which operates a CCP for government securities and the TR – is in general required to comply with PFMI.</p>

<b>Key consideration 3</b>	<b>Authorities should apply these principles consistently within and across jurisdictions, including across borders, and to each type of FMI covered by the principles</b>
Description	<p><b><u>Payment Systems</u></b></p> <p>Timely action to remedy deficiencies is enabled by RBI powers under Chapter IV of the PSS Act. As far as the RTGS is concerned, the RBI policy documents states that, although RBI is exempted from the authorization requirements as an operator of payment system under the PSS Act, RBI would assess/review the FMIs operated by it against the international standards with the same rigour as other FMIs and, where necessary, take action to remedy deficiencies, if any.</p> <p>The only systemically important payments system in India is the RTGS operated by the RBI. The RBI has conducted an assessment of the RTGS system.</p> <p><b><u>CSDs/SSSs</u></b></p> <p>RBI and SEBI have mandated that CSDs/SSSs comply with the PFMI.</p> <p>RBI is committed to assess/review the FMIs operated by it against the international standards with the same rigour as other FMIs and, where necessary, take action to remedy deficiencies, if any.</p> <p>Under the Depositories Act, 1996, SEBI can take appropriate and timely action to remedy FMI deficiencies including through inspections and directions.</p> <p>The SEBI has carried out PFMI assessments of the CSDs and SSSs under its purview. The RBI is currently upgrading the PDO and intends to conduct a PFMI assessment post that.</p> <p>The SEBI conducts an annual inspection of the CSDs under its purview and as part of that any outstanding issues with respect to the PFMI are also covered. The CSDs under the purview of the SEBI have however not published their respective disclosures as required under the PFMI.</p> <p><b><u>CCPs</u></b></p> <p>RBI and SEBI have mandated that CCPs comply with the PFMI.</p> <p>Under the PSSA, RBI can take appropriate and timely action to remedy FMI deficiencies including through inspections and issuance of directions. RBI may revoke authorization as necessary.</p> <p>Under the SCRA, 1996, SEBI can take appropriate and timely action to remedy FMI deficiencies including through inspections and issuance of directions. Withdrawal of recognition is also envisaged under the SCRA.</p> <p>The RBI undertakes formal assessment once in two years with a compliance audit being done in the interim.</p> <p><u>Formal assessment of CCPs with the PFMI has been conducted. The CCIL has been assessed as part of the 2017 FSAP. CCPs have adopted the CPMI-IOSCO Disclosure Framework.</u></p> <p>The SEBI conducts an annual inspection of the CCPs under its purview and as part of that any outstanding issues with respect to the PFMI are also covered. The SEBI also receives monthly report on various risk management aspects – stress testing results, information on any settlement shortfalls and settlement guarantee fund.</p> <p>The capital market CCPs under the purview of the SEBI have published their qualitative disclosures, as required by the PFMI.</p> <p>In The commodity derivatives market currently no Clearing Corporation is functioning. Going Forward Exchanges are in process of transferring their clearing function to dedicated Clearing corporations. As of now Exchanges are acting as CCPs and are in the process of enhancing</p>

	<p>their respective risk management framework, and at this point have not been assessed against the PFMI.</p> <p><b>TR</b></p> <p>The RBI carries out assessment of TR once in two years with compliance audit being done in the interim. CCIL discloses the assessment information as mandated by the CPMI-IOSCO Disclosure Framework.</p>
<b>Key conclusions for Responsibility D</b>	<p>The SEBI and RBI, have adopted the PFMI as the core standard for the oversight of the FMI under their purview.</p> <p>The FMI under the purview of the RBI are the RTGS, CCIL (CCP and TR) and the RBI PDO. With the exception of the RBI PDO, the other two FMI have been assessed against the PFMI. The operations of the RBI PDO are in a transitory phase and the RBI intends to assess the FMI post that.</p> <p>The FMI under the purview of the SEBI include two CSDs, three CCPs for the capital market segment and FMI for the commodity derivatives market. The CSDs and CCPs for the capital market segments have been assessed against the PFMI, however the commodities market FMI are in the process of being fully brought under the PFMI framework.</p> <p>The CCPs under SEBI's purview have published their disclosure framework, but the CSDs have not.</p>
<b>Assessment of Responsibility D</b>	<b>Broadly Observed</b>
<b>Recommendations and comments</b>	The RBI and SEBI should progress their plans to assess all the FMI under their respective purview. In the case of the RBI, the RBI PDO needs to be assessed; and in the case of the SEBI the commodities market FMI need to be assessed and the CSDs need to publish their disclosure framework.

<b>Responsibility E: Cooperation with other authorities</b>	
Central banks, market regulators, and other relevant authorities should cooperate with each other, both domestically and internationally, as appropriate, in promoting the safety and efficiency of FMI.	
<b>Key consideration 1</b>	<b>Relevant authorities should cooperate with each other, both domestically and internationally, to foster efficient and effective communication and consultation in order to support each other in fulfilling their respective mandates with respect to FMI. Such cooperation needs to be effective in normal circumstances and should be adequately flexible to facilitate effective communication, consultation, or coordination, as appropriate, during periods of market stress, crisis situations, and the potential recovery, wind-down, or resolution of an FMI</b>
Description	The Financial Stability Development Council (FSDC) <sup>9</sup> established in December 2010, is the overarching framework for co-ordination amongst all financial sector regulators. This is headed by the Minister of Finance and all the financial sector regulators including the RBI and SEBI are members of the FSDC.

<sup>9</sup> <http://finmin.nic.in/fsdc/StrucFSDC.pdf>

	<p>The FSDC was established to allow more effective regulatory coordination, crisis prevention and management, and ultimately help maintain financial stability. Nevertheless, authorities (RBI, SEBI) discharge their regulatory and supervisory responsibilities separately – i.e., each authority for the market segments under their regulatory purview – and there is no overlap between authorities.</p> <p>There is an FSDC sub-committee under the chairmanship of the RBI Governor, which meets more frequently than the FSDC council.</p> <p>Under the aegis of the FSDC subcommittee, there are several technical committees and working groups. The ones relevant to the FMIs are the Inter-regulatory Technical Group (ITRG), which meets several times a year to address issues requiring co-ordination amongst the different financial sector regulators. This group also discusses topics related to FMIs. A working group on resolution for financial institutions was constituted in 2013. This group also discusses the resolution regimes for the FMIs.</p> <p>In addition there is an Early Warning Group, which discusses matters related to co-ordination during crisis situation and crisis preparedness.</p> <p>This co-ordination framework has been used in the recent past by the RBI and SEBI to: (i) develop a roadmap and process flow for migrating the capital market CCPs settlement from commercial bank money to central bank money; (ii) devise operational and policy measures to facilitate retail participation in government securities; and (iii) enhance limits for foreign portfolio investors in government securities market.</p>
<b>Key consideration 2</b>	<b>If an authority has identified an actual or proposed operation of a cross-border or multicurrency FMI in its jurisdiction, the authority should, as soon as it is practicable, inform other relevant authorities that may have an interest in the FMI’s observance of the CPSS-IOSCO <i>Principles for financial market infrastructures</i>.</b>
Description	As for international cooperation, the RBI has information sharing arrangements in place with the Federal Reserve Bank of New York with regard to CCIL operations in the USD-INR segment.
<b>Key consideration 3</b>	<b>Cooperation may take a variety of forms. The form, degree of formalisation and intensity of cooperation should promote the efficiency and effectiveness of the cooperation, and should be appropriate to the nature and scope of each authority’s responsibility for the supervision or oversight of the FMI and commensurate with the FMI’s systemic importance in the cooperating authorities’ various jurisdictions. Cooperative arrangements should be managed to ensure the efficiency and effectiveness of the cooperation with respect to the number of authorities participating in such arrangements.</b>
Description	There is a clear delineation of responsibilities for the oversight of FMIs, with regulatory and oversight responsibilities for a particular FMI being with either the RBI or the SEBI. In addition the FSDC provides a framework for inter-regulatory co-ordination.
<b>Key consideration 4</b>	<b>For an FMI where cooperative arrangements are appropriate, at least one authority should accept responsibility for establishing efficient and effective cooperation among all relevant authorities. In international cooperative arrangements where no other authority accepts this responsibility, the presumption is the</b>

	<b>authority or authorities with primary responsibility in the FMI's home jurisdiction should accept this responsibility</b>
Description	<p>As noted in KC 3, there is a clear delineation of the oversight responsibilities for FMIs.</p> <p>Under the FSDC umbrella, the FSDC Sub Committee for Inter-regulatory coordination among sectoral regulators the IRTG as also "RBI – SEBI standing technical Committee on Exchange Traded Interest Rate and Currency Derivatives" are available for discussions and exchange of information between the financial market regulators. The views/ information exchanged across these platforms are taken into consideration, while reaching a decision on any particular issue.</p> <p>The RBI-SEBI Technical Advisory Committee meets quarterly. The committee also meets if there are any urgent issues. This committee also discussed topics related to FMIs.</p>
<b>Key consideration 5</b>	<b>At least one authority should ensure that the FMI is periodically assessed against the principles and should, in developing these assessments, consult with other authorities that conduct the supervision or oversight of the FMI and for which the FMI is systemically important</b>
Description	RBI or SEBI are responsible for each respective FMI under their jurisdiction.
<b>Key consideration 6</b>	<b>When assessing an FMI's payment and securities settlement arrangements and its related liquidity risk-management procedures in any currency for which the FMI's settlements are systemically important against the principles, the authority or authorities with primary responsibility with respect to the FMI should consider the views of the central banks of issue. If a central bank of issue is required under its responsibilities to conduct its own assessment of these arrangements and procedures, the central bank should consider the views of the authority or authorities with primary responsibility with respect to the FMI</b>
Description	Not applicable
<b>Key consideration 7</b>	<b>Relevant authorities should provide advance notification, where practicable and otherwise as soon as possible thereafter, regarding pending material regulatory changes and adverse events with respect to the FMI that may significantly affect another authority's regulatory, supervisory, or oversight interests.</b>
Description	Under the aegis of the FSDC, the Inter-Regulatory Technical Group (IRTG) and an Early Warning Group (EWG) meet periodically and consults on related issues. Nevertheless, RBI and SEBI do not provide advance notification regarding pending regulatory changes or adverse events.
<b>Key consideration 8</b>	<b>Relevant authorities should coordinate to ensure timely access to trade data recorded in a TR.</b>
Description	No formal arrangement is in place with regard to access to trade data recorded in the TR although data are made available to the authorities by CCIL.

	<p>Currently, the TR has information / data for the market regulated by the RBI. CCIL has provided on-line access to the RBI for viewing the details of the reported transactions. In addition, CCIL furnishes structured reports to RBI on weekly/monthly basis carrying aggregate data on volume, positions, concentration, participation, etc. of various OTC derivative instruments that are used for market analysis and surveillance purposes.</p> <p>Apart from disseminating aggregate data on the website, data is also provided to the Data providers like Bloomberg and Reuters based on their specific requirements. The high, low, weighted average price, last traded and reported price for interbank trades is disseminated on as and when basis for Rupee IRS products, Rupee Dollar Options and Rupee Dollar forward trades. For client trades, aggregated data is disseminated with a lag to maintain confidentiality.</p> <p>The data reported by members are also provided to them by way of online access to CORE and day end reports. These reports help the members in reconciling their positions and take corrective action required, if any. This also enables members to assess their market share.</p> <p>Before starting any new reporting format for a new product or change in data requirements, feedback from the members and the regulator is taken. During periodic members meetings, issues related to TR are also discussed.</p> <p>The TR has developed the capability to share information with the relevant authorities, as required. There has however been no demand / requirement. All members reporting to TR have access and can query on-line for their own positions. Some foreign banks share their own positions with their overseas regulators.</p> <p>However, to share / provide access, the approval of RBI as the principle regulator / overseer is required.</p>
<b>Key consideration 9</b>	<b>Each authority maintains its discretion to discourage the use of an FMI or the provision of services to such an FMI if, in the authority's judgment, the FMI is not prudently designed or managed or the principles are not adequately observed. An authority exercising such discretion should provide a clear rationale for the action taken both to the FMI and to the authority or authorities with primary responsibility for the supervision or oversight of the FMI.</b>
Description	So far, this case has not occurred and there is no established procedure in place. However the RBI and SEBI do have the powers to do so, if the need arises.
<b>Key consideration 10</b>	<b>Cooperative arrangements between authorities in no way prejudice the statutory or legal or other powers of each participating authority, nor do these arrangements constrain in any way an authority's powers to fulfil its statutory or legislative mandate or its discretion to act in accordance with those powers.</b>
	Not applicable.
<b>Key conclusions for Responsibility E</b>	<p>RBI and SEBI cooperate domestically between them and with other financial sector authorities under the aegis of the Financial Stability Development Council (FSDC) and the various committees and working groups under it. There have been several areas related to FMIs and financial markets where the RBI and SEBI have used this co-ordination framework to discuss topics relevant to FMIs.</p> <p>Although there is no provision restricting the sharing of FMI assessments between RBI and SEBI, authorities have no such bilateral sharing arrangements in place.</p>

	The working group and committees under the FSDC provide for a structured mechanism at the technical level for RBI and SEBI to cooperate in the context of their units' assessment of the FMIs with the PFMI.
<b><i>Assessment of Responsibility E</i></b>	<b>Observed</b>
<b><i>Recommendations and comments</i></b>	The RBI and SEBI should evaluate the need for strengthening the co-operation framework with respect to establishing protocols for sharing data and information for e.g. a framework / formal arrangement for sharing of corporate bonds data with regulator or other FMIs could be considered.

## **IX. AUTHORITIES RESPONSE**

RBI acknowledges and appreciates the detailed assessment of the two FMIs operated by CCIL viz. the CCP and the TR, and assessment of the authorities against the responsibilities indicated in the PFMI, by the FSAP team.

Adoption and effective implementation of PFMI – ‘Principles’ by FMIs and ‘Responsibilities’ by authorities is crucial from a safety and efficiency perspective and RBI has taken necessary measures to ensure that PFMI are implemented consistently by FMIs. RBI welcomes and supports comprehensive assessment of FMIs under FSAP, as an opportunity to have a fresh and independent outlook.

RBI, had in July 2013, issued a Document for Regulation and Supervision of FMIs and, accordingly, has been assessing CCIL for FMIs operated by it against PFMI. RBI believes that this approach is effective and in line with its statutory objectives and global financial stability perspective, which has been well recognised by the FSAP team.

RBI would continue to take necessary steps to ensure that recommendations made in the Assessment are appropriately addressed. Accordingly, the RBI would examine the recommendation made on assessment of PDO as a Central securities depository (CSD). The operations of PDO is in a transitory phase and, as such, assessment will be taken up at an opportune time.

As regards the rating of Trade Repository (TR) for Principle 1, we would like to mention that the operating Regulations for TR services have since received our regulatory approval. CCIL has also notified the Regulations by placing on its website with effective date being 24<sup>th</sup> July 2017:  
<https://www.ccilindia.com/Membership/ByLawsDocs/CCIL%20TR%20rules%2024072017.pdf>.