Detecting Over-Indebtedness while Monitoring Credit Markets in India

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Executive Summary

The household sector, comprising of individuals, households, proprietorships, and other non-corporate entities, has over INR 46 trillion as outstanding in the Indian formal credit market. The ability to access credit enables an individual and her household to gain better financial wellbeing and economic welfare outcomes, and an excess of credit has the potential to diminish any developmental gains, leading to detrimental outcomes for the borrowers. In addition to the deterioration of households' social and economic well-being, excess household debt negatively affects the growth and stability of the economy in the long run. Signs of borrower distress have been appearing in many states over the past years and most recently in the eastern states of India. Many of these events did not end well, either for borrowers or for lenders. This serves as a reminder that there is a need to develop the regulatory capacity to monitor credit markets and to prevent and manage distress caused by over-indebtedness.

Unlike several jurisdictions, especially in Europe, India does not have a clear definition of over-indebtedness (OI). In the UK, over-indebtedness is defined as a situation where *"households or individuals are in arrears on a structural basis or are at a significant risk of getting into arrears on a structural basis*." In Germany, it is defined as a situation where "*household income in spite of a reduction of the standard of living, is insufficient to discharge all payment obligations over a long period of time*." In Peru, it is defined as the "*level of indebtedness in the financial system that, due to its excessive nature regarding income and ability to pay puts at risk the repayment obligations of a retail debtor*." Quantitative measures such as incidence of defaults on loans are inadequate as the impact of over-indebtedness is often experienced by the borrower long before she goes into default.

The distress undergone by households in the repayment of their loans often remains undetected due to the measures that households take, ranging from mild coping mechanisms, such as borrowing from family, acquaintances and informal lenders or temporarily cutting down on expenses, to extreme coping mechanisms, such as skipping meals or discontinuing their children's education, in order to repay on time. Such households who continually struggle to repay, though not necessarily default, must also be considered over-indebted. Long-drawn, geographically concentrated OI may develop into systemic risk and political unrest, adversely affecting the credit markets from developing in an orderly manner and inhibiting growth in the real economy.

Presently, the Reserve Bank of India (RBI) uses various approaches to combat OI. These include ex-ante micro-prudential tools, like a) mandatory credit bureau checks, b) placing loan exposure limits, etc. The RBI also uses ex-ante macro-prudential tools like a) asset-level risk-weighting approaches, b) prescriptions on asset provisioning, and c) caps on Loan-To-Value (LTV) ratio for certain loans. However, these prudential tools often prove ineffective in combating OI, and result in market distortions. There is a clear need to design more effective and tailored policies to combat OI. Therefore, it is important to develop the RBI's supervisory capacity to monitor credit markets and prevent OI.

A complete understanding of the level of indebtedness and over-indebtedness rests only with the borrower. Though indebtedness can be captured as a quantitative measure, over-indebtedness experienced, as financial and non-financial distress, has many qualitative aspects. Thus, the RBI should have a repertoire of tools to capture both quantitative and qualitative aspects. However, the level of detail that the RBI presently captures leaves much to be desired.

Presently, the provider has visibility over the debt serviceability of the borrower, and the Credit Information Companies (CICs) have visibility over her outstanding credit and repayment behaviour. Continued capture and analysis of these data, and borrower-level qualitative details on debt stress may prove to be a good starting point. However, to discharge its assigned objective of ensuring "systemic stability" and "consumer protection", the regulator must have visibility over the debt serviceability levels in the economy. Further, such data must be collected at an appropriate level of geographic granularity (e.g. district-level, for India's more than 700 districts) and borrower segment level.

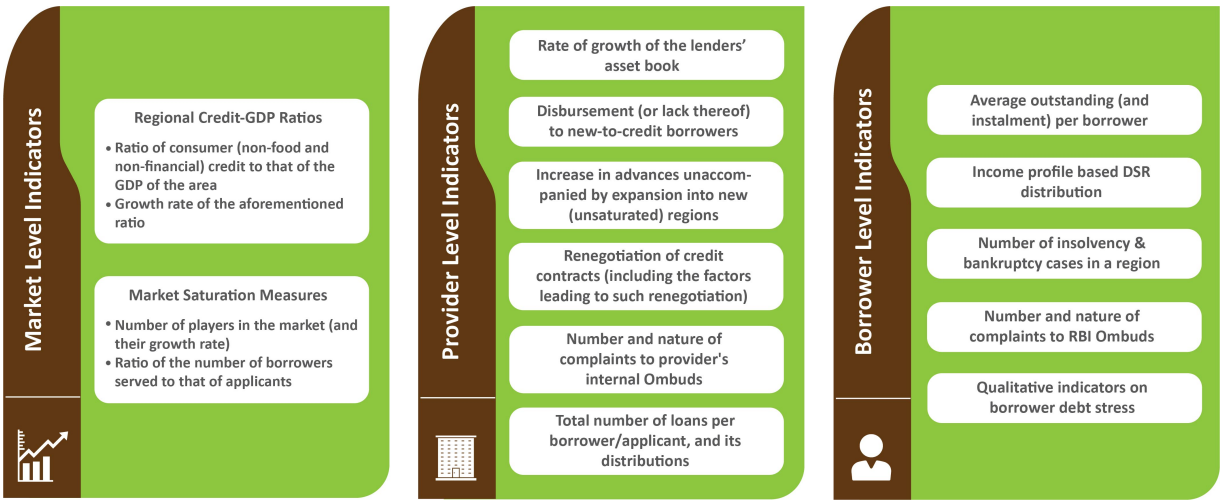
Thus, the RBI must specify how *debt serviceability* is to be calculated for such reporting purposes (and not for credit decision making). One approach would be to use the Debt Service Capacity Ratio (DSR) as an indicator. This may be computed by subtracting expenses from the income of the borrower and then obtaining a ratio of the repayment obligation to that of the surplus thus obtained, see illustration below.

$$\text{Debt Service Capacity Ratio} = \frac{\text{Income of the Borrower} - \text{Expenditure of the Borrower}}{\text{Repayment Obligation of the Borrower}}$$

Due to the seasonality of income streams and unforeseen expenses, DSR is expected to be dynamic. However, it is impractical, if not impossible, to track DSR in real-time. Therefore, a set of secondary indicators must be adopted to ensure that the levels of indebtedness are made visible to the RBI.

After conducting an analysis of literature on the subject and studying international practices, it emerges that it is possible to construct a framework with indicators, which, when deployed together, provides an acceptable level of visibility over the levels of indebtedness (and over-indebtedness). Figure A1 describes the components of such a framework designed with twin outcomes in mind, of– financial stability and financial consumer protection.

Figure A1: Framework for Credit Market Monitoring and Detection of Over-Indebtedness: Component Indicators



Credit-GDP ratio, a traditional market-level indicator of overheating of credit markets is used both by regulators for supervisory monitoring purposes and by providers for estimating business potential. A severe regional mismatch in the economy for this indicator may indicate simultaneous pockets of over-heated credit markets and under-served populace. Market saturation estimates the relationship between demand and supply. Higher values of these measures indicate a greater degree of credit penetration which has been shown to be correlated with a higher incidence of household OI.

Features of the providers' asset book can be used to estimate the levels of indebtedness at each division. Provider-level indicators such as growth in the size of credit providers, are useful as their uninhibited growth in specific geographies or demographic sub-categories could inadvertently lead to the overburdening of borrowers, especially if such geographies are already saturated. Thus, this may act as an early warning indicator of over-lending, and thus potential borrower distress. In 2014, Zambia adopted a similar approach to monitor the health of its credit markets, and to identify potential pockets of overheating. Further, aggregate level data on the instances of multiple lending, and the number of enquiries and complaints made to the providers' internal grievance redressal mechanism or internal Ombuds, are indicators which are expected to be correlated with debt stress, and should be captured.

Borrower (segment) level indicators, which measure the various aspects of borrowers' liability profile, are the richest source of information for accurately assessing indebtedness. The primary indicator to be deployed is a modified version of the earlier discussed indicator, DSR. Similar indicators are presently being deployed in Peru to enhance the regulator's oversight of its credit markets. It is important that DSR be reported according to income segments of the borrower. In the absence of any income profile-based debt serviceability reporting, the data on high-income borrowers (with very high DSR) may over-shadow the potentially low DSRs of low-income borrowers, thus minimising the efficacy of the indicator. Additionally, indicators such as the number of complaints to the RBI Ombuds, the number of insolvency and bankruptcy cases, etc., act as indicators situated after the point where the borrower has already (potentially) undergone a situation of OI, however, may act as leading indicators for the geography.

Further, qualitative indicators from consumers concerning debt stress they face, sacrifices made, and other difficulties faced to repay, act as key inputs in assessing whether borrowers in a geography or customer-segment are over-indebted. These qualitative indicators could be sourced through third-party localised demand surveys that the RBI can commission based on signals from the Monitoring & Detection Framework. Given that the complete picture of over-indebtedness rests with the borrower, the qualitative indicators act as significant inputs to the proposed Monitoring & Detection Framework.

Finally, the regulator must aggregate data reported by providers and those collected from other sources to construct the Monitoring & Detection system. Thereafter, appropriate algorithms may be deployed to measure levels of indebtedness and OI in a geography. Finally, the RBI should deploy validation strategies to validate the results of the framework, and to adjust the parameters of the algorithm to make it more accurate. To augment the results of the framework, the validation strategy must employ localised demand-side (sample) surveys of the population where the Monitoring & Detection system predicts OI. Such a task can also be carried out using commissioned thematic studies (akin to research commissioned by UK's Financial Conduct Authority to study the interactions of the a*geing population with financial services,* and *the review into the unsecured credit market*). The results from the framework can be benchmarked against other consumer-level inputs such as from consumer groups and complaints from social media, as part of the validation strategy.

When deployed together, the Monitoring & Detection Framework and validation strategy will work hand in hand and provide the RBI with greater visibility over the extent of, and causes behind, over-indebtedness, thus allowing for the design and implementation of targeted policies.

To contrast this proposed state of monitoring and supervision against the existing system, we study the indicators (and data formats) that the RBI regularly uses in relation to regulated entities. Currently, the RBI's visibility over credit markets comes from a combination of its on-site inspections, its off-site reporting systems, market intelligence and annual reports of statutory auditors. Due to the limited availability of information in the public domain, we restrict our study to the regular off-site reporting formats prescribed by the RBI. Specifically, we focus on:

1. **Availability of Asset Class Detail for entire/partial portfolio:**
   We ask which of the formats captures the details of the asset book of the provider. Thus, the question becomes the primary filter to determine the usability of the reporting format for the purposes of detection of OI.

2. **Granularity of Asset Class Details Captured (for entire portfolio):**
   For reporting formats capturing the details of assets, we analyse the type of details captured and the level of granularity at which such data is captured.

3. **Standalone and combination analysis possible for A, B and C below:**
   A. Whether the report has data for *Geo-Spatial Identification of Loan (Intra-India)*.
   B. Whether the report has data on *Income Profile-based Debt Serviceability of Borrower.*
   C. Whether the report has data for *Identification of Deployed Sector*.

Studying the 20 reporting formats for NBFCs, we observe that data thus collected does not capture various indicators like, average loan outstanding of a borrower, type of borrower, the economic activity of the borrower, and geography of disbursement, in a simultaneous manner. These lacunae persist even in the case of Systemically Important NBFCs (NBFC-SIs). The RBI's visibility over the asset book of NBFCs-SIs is found to be limited to a balance sheet level disaggregation of sectors, with no details of geography of disbursement/servicing, or income profile-based debt serviceability of the borrower, or the loan ticket amounts.

In the case of banks, the visibility that the RBI has over the debt extended by them is better than that of NBFCs. Out of the 148 different regular reporting formats for banks, it appears that the Basic Statistical Return-1 (BSR-1) format may be used to generate much of the needed and proposed insight into the portfolio of banks. The BSR-1B format captures district-level details of loans given to each occupational and organisation category by their credit limits (up to INR 25,000 and between INR 25,000 and 200,000). Further, the format also captures the number of accounts, amount outstanding, the rate of interest, type of interest (fixed or floating), and whether the loan is secured or not, for such accounts. However, the data recording format prevents a combined analysis using more than one factor. For instance, it is possible to ascertain the number of bank loans in the agricultural sector in the district of Bangalore, Karnataka, however, it is not possible to ascertain the number of such agricultural accounts which have a floating rate of interest.

Another feature of BSR-1B is that all accounts having a credit limit of up to INR 25,000 have a homogenous treatment. Similarly, the homogenous treatment continues for the accounts in the much wider reporting band, of credit limit between INR 25,000 and 200,000. Given the aggregated reporting, it becomes impossible to ascertain the number of agricultural accounts having outstanding dues less than, say, INR 125,000, which is also the maximum permissible indebtedness level of an

NBFC-MFI borrower. This prevents the RBI from constructing customised classes based on the credit limit of the account. Since over 58% of personal loan accounts with the SCBs have credit limits between INR 25,000 and INR 200,000, this lack of visibility is a severe bottleneck.

The BSR-1A format, on the other hand, is used for accounts with credit limits greater than INR 200,000. In this format, the RBI requires the banks to share similar details (as discussed earlier) of each account. Thus, the format allows for analysis that incorporates more than two parameters. Further, given the account level reporting, the RBI may, at its discretion, increase or decrease the level of granularity. Thus, unlike BSR-1B where the loan-size bucket is fixed at the time of reporting, like between INR 25,000 and INR 200,000, with BSR-1A, the RBI can construct customised loan-size buckets depending on the need. Thus, the existing BSR-1B format should be amended to allow for as detailed and granular reporting as under BSR-1A format. Further, when the feasibility of building the Monitoring & Detection Framework (using the presently reported data) is analysed, it emerges that due to the lack of data on the *income profile-based debt serviceability* of the borrowers, the RBI's visibility over potential levels of indebtedness remains incomplete.

The data on the debt serviceability of the borrower is pivotal to monitor credit markets and detect over-indebtedness. Thus, data on *income profile-based debt serviceability,* which captures DSR distribution across income segments must be added to the reporting formats being used by RBI. Further, there are several lacunae that the RBI must also address to capture other indicators that are pre-requisites for the Monitoring & Detection Framework. While these indicators and their efficacy in detecting OI have been discussed earlier, these indicators are also capable of serving another critical function, that of enhancing the RBI's monitoring capacity over the health of the Indian credit market. This resultant monitoring capacity is expected to remove the present hurdles, since:

1. The present reporting frameworks prevent the RBI from monitoring district-level credit to GDP ratio. This is because the RBI's regular reporting frameworks do not capture the geographical details of disbursements by NBFCs.
2. These proposed indicators would allow the RBI to have enhanced visibility over the operations of a provider. Thus, if from the reported data, it emerges that the activities of one provider stand out in comparison to others in a geography, the RBI may investigate the matter further.
3. One of the primary objectives of the RBI is to ensure customer protection, and the proposed indicators would allow the RBI to measure the conduct of the providers as experienced by the borrowers through the indicators that are part of the borrower level indicators.

To develop the above proposed supervisory capacity at the RBI, it would be necessary to make changes to the existing reporting frameworks. Though various new features may be directly added to existing formats, any changes to the reporting formats would have its costs. However, it is also important to understand that any concerns that such costs (of revamping the reporting systems of providers) would put providers out of business are unsubstantiated, since in most cases it would only require minor changes to existing IT infrastructure deployed across lending institutions to start undertaking enhanced reporting to the RBI. Also, as many of the data elements we propose are presently housed under CICs, this suggests that the initial exercise of gathering the input information may not be excessively costly.

Finally, the Monitoring & Detection Framework proposed in the report necessitates adequate safeguards for the personal data being collected. Once adopted, the improved supervisory capacity of the RBI is expected to play a pivotal role in helping the RBI discharge its mandate towards financial stability and customer protection.

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List of Select Abbreviations and Acronyms

BoZ	Bank of Zambia
CIC	Credit Information Company
DSR	Debt-to-Debt Service Capacity Ratio
EU	European Union
FB	Foreign Bank
GDP	Gross Domestic Product
GST	Goods and Service Tax
IU	Information Utilities
LIH	Low-Income Households
LGD	Loss Given Default
LTV	Loan to Value Ratio
M&E	Monitoring and Evaluation
MFI	Micro-finance Institution
MFIN	Microfinance Institutions Network
MSME	Micro, Small and Medium Enterprises
NABARD	National Bank for Agriculture and Rural Development
NBFC	Non-Banking Financial Company
NBFC-MFI	Non-Banking Financial Company-Micro Finance Institution
NBFI	Non-Banking Financial Institution
OECD	Organisation for Economic Co-operation and Development
OI	Over-indebtedness
PCR	Public Credit Registry
PSB	Public Sector Bank
PSL	Priority Sector Lending
PvSB	Private Sector Bank
RBI	Reserve Bank of India
RRB	Regional Rural Bank
RCD	Debtor-Creditor Report
SBS	Superintendencia de Banca, Seguros y AFP
SCB	Scheduled Commercial Bank
SFB	Small Finance Bank

Chapter-1: Understanding Over-Indebtedness

The credit market in India is occupied by a variety of providers who service different types of organisations, including government departments, corporates, and households. The formal credit market has providers such as Scheduled Commercial Banks (SCBs), Non-banking Financial Companies (NBFCs), Urban Co-operative Banks (UCBs), and Regional Rural Banks. The SCBs themselves are composed of different sub-categories of banks - Public Sector Banks (PSBs), Private Sector Banks (PvSBs), Foreign Banks (FBs), and Small Finance Banks (SFBs). As of March 2019, the outstanding credit amount provided by these formal credit providers is Rs. 126 trillion[2], with NBFCs and SCBs accounting for 95% of the total amount (see Figure 1). In addition to this, there also exists the informal credit market, composed of non-institutional providers, like money providers, and non-regulated (by the RBI) providers, such as non-governmental micro-finance institutions.

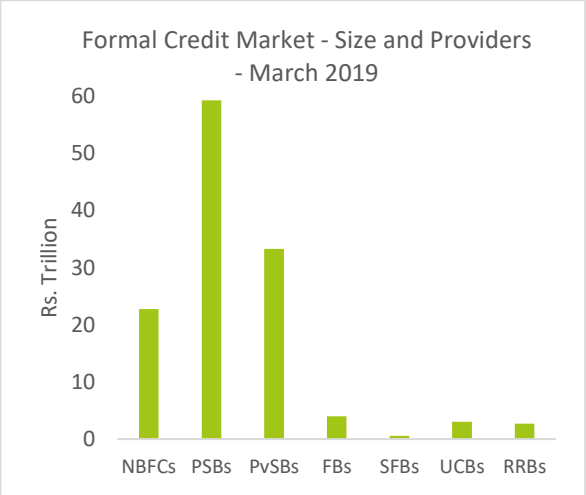

Figure 1: Outstanding Loans and Advances of Formal Credit Providers - March 2019

Of the total non-food credit, the industry sector which is composed of large corporates and enterprises, and micro, small, medium enterprises (MSMEs) engaged in manufacturing activities, receives the major share, as seen in Figure 2[3]. Retail loans, which comprise 25% of the total non-food credit, include forms of credit such as housing loans, loans towards consumer durables, credit card receivables, auto loans, education loans, among others. Retail credit also includes priority sector loans which are made across categories of agriculture and allied activities, micro and small enterprises, housing and education loans, among others.

Apart from corporates (both financial and non-financial corporations) which receive a large chunk of bank credit, households are major recipients of bank credit as well,

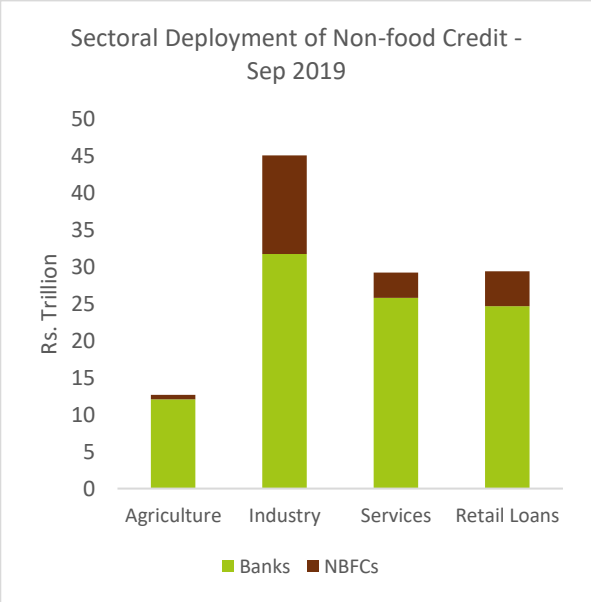

Figure 2: Sectoral Deployment of Bank and NBFC Credit - September 2019

[2] Calculated from consolidated balance sheets of each bank group from RBI's Report on Trend and Progress of Banking in India 2018-19. Retrieved from: https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/0RTP241219FL760D9F69321B47988DE44D68D9217A7E.PDF

[3] Sectoral Deployment of Bank Credit – September 2020, RBI Press Releases. Retrieved from: https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=50595

as seen in Figure 3. However, it must be noted that the household sector is composed of not only individuals but also non-incorporated businesses such as proprietary concerns and partnership firms.

Encompassed within the agenda of financial inclusion, much progress has been made towards credit inclusion. This growth has been more so in case of microcredit which witnessed over a 12-fold increase in portfolio size in only 7 years, considerably more than the 2-fold increase of total bank credit[4]. Over the last five years, the household sector credit too grew faster at an average annual growth of 13% compared to the 9% for total bank credit[5].

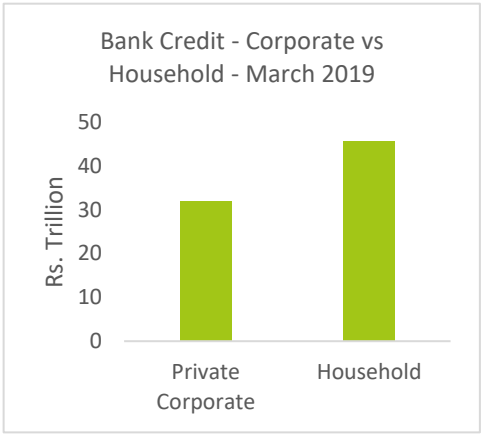

Figure 3: Credit towards Private Corporates and Households - March 2019

As of March 2020, the household sector had 263.7 million credit accounts with SCBs, representing 96.7% of all credit accounts with SCBs[6]. The analysis further shows that most of the accounts of the household sector (77.5% of accounts) had credit limits below INR 200,000. However, even for large borrower accounts (accounts with credit limit greater than INR 200,000)[7], the household sector accounted for 94.2% of the credit accounts. The credit outstanding of the sector with the SCBs, on the other hand, stood at 50.9%. Therefore, even with a lower value of per-account credit amount outstanding than the private corporate sector, the household sector sees a significant amount of credit flowing towards it from the SCBs.

While the ability to access credit enables an individual and her household to gain better welfare outcomes, an excess of credit has the potential to diminish any developmental gains, leading to detrimental outcomes for the borrowers, especially for the low-income households (LIHs), which are characterised by multiple and irregular income streams. In addition to the deterioration of households' social and economic well-being, excess household debt negatively affects the growth and stability of the economy in the long run[8].

Providers may disburse excess credit for several reasons. Some of these are incorrect assessment of individual credit demand, lack of information regarding the levels of indebtedness of borrowers, perverse incentives placed on loan officers, and lack of, and inability to undertake, adequate

[4] Calculated from 2019 and 2012 data of bank credit outstanding and microcredit outstanding sourced from Basic Statistical Return - Credit by SCBs, RBI Database on Indian Economy, and Micrometer report, MFIN respectively. Accessible using: https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications https://mfinindia.org/mfin-publications

[5] Calculated from 2019 to 2014 data of organization wise classification of bank credit sourced from Table No. 3.2 – Organisation-Wise Classification Of Outstanding Credit Of Scheduled Commercial Banks According To Occupation. Retrieved from: https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications

[6] See the RBI publication of data on DBIE titled, *Table no. 1.11* - Outstanding Credit of Scheduled Commercial Banks According to Organisation, March - 2020, accessible at: https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications#I9

[7] The RBI Report titled "*Small Borrowal Accounts of Scheduled Commercial Banks*" (2014) was used for the classification, accessible at: https://www.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=15563

[8] Adrian Alter, Alan Xiaochen Feng & Nico Valckx. 2018. *Understanding the Macro-Financial Effects of Household Debt: A Global Perspective.* IMF Working Paper No. 18/76. Accessible from: https://www.imf.org/en/Publications/WP/Issues/2018/04/06/Understanding-the-Macro-Financial-Effects-of-Household-Debt-A-Global-Perspective-45744

assessments of repayment capacity, among others[9]. Excess credit, when coupled with a lack of adequate repayment capacity, may lead to over-indebtedness of the borrower and her household. Defining over-indebtedness is key to an effective monitoring system as it lays out the details which need to be measured/captured. Unlike several jurisdictions, especially in Europe, India does not have a clear definition of over-indebtedness (OI). In the UK, for instance, over-indebtedness is defined as a situation "*where households or individuals are in arrears on a structural basis, or at a significant risk of getting into arrears on a structural basis*[10]." In Germany, it is defined as a situation where household income "*in spite of a reduction of the standard of living, is insufficient to discharge all payment obligations over a long period of time*[11]." In Peru, it is defined as the "*level of indebtedness in the financial system that, due to its excessive nature regarding income and ability to pay puts at risk the repayment obligations of a retail debtor*[12]." Although several frameworks exist, there continues to be no commonly agreed-upon definition of OI and how to measure it. The European Commission in its research note on over-indebtedness put forth a unified definition of an over-indebted household, based on certain criteria (See Annexure-1), as "*one whose existing and foreseeable resources are insufficient to meet its financial commitments without lowering its living standards*[13]." Further, studies which attempted to identify household over-indebtedness have used a variety of both quantitative and qualitative indicators. While quantitative measures, such as the household debt to income ratio, are easier to measure and employ as a compliance criterion, qualitative measures such as perceived financial and non-financial burden and indicators of distress have however been shown to better capture the complete state of over-indebtedness at the household level[14].

These indicators of distress remain undetected by conventional reporting requirements due to the measures that the household takes to repay in time, ranging from mild coping mechanisms such as borrowing from family/ acquaintances/ informal lenders, temporarily cutting down on unnecessary expenses, to extreme ones like skipping meals and discontinuing their children's education. From a borrower's perspective, such a household/borrower which continuously struggle(s) to repay and is forced due to the debt obligation to make unduly high sacrifices is considered to be over-indebted[15]. Therefore, when a default does occur, it often signals a stage of severe and un-manageable distress. Therefore, relying on default indicators as the only measure of household over-indebtedness would be inadequate, and this could potentially affect the stability of the financial system as well[16]. Should the state of over-indebtedness persist for a longer period and

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[15] Jessica Schicks. 2013. *The Over-Indebtedness of Microfinance Customers – An Analysis from the Customer Protection Perspective.* Université libre de Bruxelles. Accessible from: https://dipot.ulb.ac.be/dspace/bitstream/2013/209525/4/cc75c32d-026c-4a4d-81b7-7394bfa59981.txt

[16] Giovanni D'Alessio, Stefano Iezzi. 2013. Household Over-Indebtedness Definition and Measurement with Italian Data. Bank of Italy, Economic and Financial Statistics Department. Accessible from: https://www.bis.org/ifc/events/6ifcconf/dalessioiezzi.pdf

escalate beyond just one at a (few) household(s') level to one at a regional/sectoral level, it could subject the various market participants to considerable levels of systemic risk. The ramifications of such crises may go beyond just the economic losses incurred by providers due to defaults and cause severe social unrest due to the borrowers' over-indebtedness and their perception of provider exploitation. This could also have political repercussions, as witnessed in the case of Nicaragua's No Pago (No Payment) movement[17] Bolivia's repayment crisis and recently in the states of Assam[18] and West Bengal[19], in India. The unfortunate events in Assam particularly the passing of state-level legislation[20] to control the activities of RBI-regulated micro-finance institutions, raised the spectre of the Andhra Pradesh ordinance in 2010 and the adverse impact on credit provision in the state as well as a significant reduction in consumption by borrowers[21]. A volatile socio-political environment could act as a significant deterrent to future entrants in the credit market, increase business costs such as cost of funds and operating costs for lenders in the region, increase the pricing of loans to even borrowers with good credit history and abilities to repay, and thereby negatively impact legitimate access to credit for households and enterprises.

Strategies for addressing over-indebtedness may be of two forms (ex-post and ex-ante) depending on whether over-indebtedness has already manifested or not. The table below (Table-1) highlights the different tools that can be adopted at different levels - supervisory, regulatory and/or at the practitioner level.

[17] (Jan 2011). *Nicaragua's Microfinance Crisis: Looking Back, What Did We Learn?* Centre for Financial Inclusion. Accessible from: https://www.centerforfinancialinclusion.org/nicaraguas-microfinance-crisis-looking-back-what-did-we-learn

[18] Atmadip Ray. 2020. *It all began with a few defaults. Then, suddenly it was full-scale microfinance mayhem in Assam*. The Economic Times. Accessible from: https://economictimes.indiatimes.com/industry/banking/finance/as-anti-caa-protests-quieten-assams-microfinance-troubles-are-back-in-focus/articleshow/74089389.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

[19] Elisabeth Rhyne. 2010. *Repayment Crises: Lessons Learned from Bolivia.* Centre for Financial Inclusion. Accessible from: https://www.centerforfinancialinclusion.org/repayment-crises-lessons-learned-from-bolivia

[20] Abhishek Saha. 2020. *Assam House nod for to Bill to regulate microfinance firms.* The Indian Express. Accessible from: https://indianexpress.com/article/north-east-india/assam/assam-house-nod-to-bill-to-regulate-microfinance-firms-7126939/

[21] Renuka Sane, Susan Thomas. 2015. *The real cost of credit constraints: Evidence from Micro-finance.* The B.E. Journal of Economic Analysis & Policy, Volume 16, Issue 1, Pages 151–183, eISSN 1935-1682, ISSN 2194-6108, DOI: https://doi.org/10.1515/bejeap-2014-0154

Table-1: Potential Tools to Address Over-indebtedness

Regulatory approaches	
Ex-ante macro-prudential tools by the regulator	- Risk-weighting approaches to asset-class level capital adequacy requirements under Basel[22] - Placing prescriptions on asset provisioning - Placing caps on Loan-To-Value (LTV) such as for gold loans, housing loans
Ex-ante micro-prudential tools by the regulator	- Mandatory credit bureau checks on borrower and other members of the household, co-borrowers, guarantors, joint liability groups - Placing absolute and relative loan exposure limits - Placing caps on household income levels, above which certain types of lending are not permitted, and below which limits prescribed in number and amount of certain loans[23] - Placing caps on Loan-To-Value (LTV) such as for gold loans, housing loans
Supervisory approaches	
Ex-ante supervisory tools	- Monitoring of regional Credit-to-GDP - Monitoring of market saturation, number of players, asset book growth unsupported by new-to-credit customers (aggregate), Equated Monthly Instalment (EMI) /individual[24] - Heat-maps - Continuous/regular offsite supervisory reporting in a granular, templatised manner by all credit market participants including credit bureaus - Quality of credit risk management teams to be assessed and scored - Consolidated annual reporting or review by regulator/supervisor on overall retail credit markets (in addition to segment-wise analysis)[25]

[22] Banks providing individual housing loans with an LTV of less 80% are required to have a risk weight of 35%. In case of NBFCs, the required risk weight is 100%.
https://www.rbi.org.in/scripts/NotificationUser.aspx?Mode=0&Id=11984
Chapter IV – Capital Requirements
https://rbidocs.rbi.org.in/rdocs/notification/PDFs/45MD01092016B52D6E12D49F411DB63F67F2344A4E09.PDF

[23] NBFC-MFIs are largely restricted from lending to rural households with annual income of greater than Rs. 1 lakh and urban and semi-urban households with annual income of greater than Rs. 1,60,000.

[24] Number of MFIs and number of loans, by themselves, are poor proxies for over-indebtedness, since the number of loans and providers in a geography may be identical, but the economic activities in the geography, population, etc. may be significantly varied. To exemplify, if geography A has 1/10th of the population compared to geography B, as well as 1/10th of geography B's GDP, it would be expected that if both geography A and B have identical number of loans and MFIs operating, the level of stress would be greater in case of geography A.

[25] UK Financial Conduct Authority (FCA)'s 'Sector Views' contains a discussion of the trends and performances of each sector including retail lending. Source: Feb 2020. *Sector Views*. FCA Publications. Retrieved from: https://www.fca.org.uk/publication/corporate/sector-views-2020.pdf;
In 2020, the FCA also launched a review of the unsecured credit market to work on how regulation can better support a healthy unsecured credit market. Source: September 2020. *Christopher Woolard to chair review of*

	- Demand-side surveys
Ex-post supervisory tools	- Upon identification of potential hotspots (through a matrix approach), supervisory interventions to limit further lending
Practitioner-led approaches	
Ex-ante tools	- Cash flow analysis and repayment capacity analysis of borrower to arrive at the debt-servicing capacity - Risk-based pricing by providers to temper higher demands of the risky borrowers - Demand-side data collection
Ex-post tools	- Restructuring of loans

Several of these regulations and practices, in various combinations, have been adopted by regulators across the world to tackle the problem of over-indebtedness. In the following section, we discuss some of the measures put in place by the RBI to address over-indebtedness in India.

Section-1.1: Regulatory and Supervisory Approaches in India to Monitor Credit Markets and Address Over-Indebtedness

The RBI has in place varying levels of exposure norms for all types of financial institutions in India, which include, among others, individual borrower limits, group borrower limits, limits on credit exposures to certain economic sectors, institution types and type of credit exposures[26]. Another ex-ante regulatory measure used for regulating credit markets is of having differential risk weights for asset classes applicable on financial institutions (including commercial banks, non-bank financial companies or NBFCs and co-operative banks) based on the classification of the exposure, for example, consumer credit, housing credit, credit for commercial real estate and loans towards leased assets[27]. The supervisory framework employed by the RBI, Supervisory Programme for Assessment of Risk and Capital (SPARC) aids in monitoring the health of the bank credit market by reviewing each bank's measurement and assessment of credit risk and other risks on its books. Additionally, both banks and

unsecured credit market regulation. FCA Press Releases. Retrieved from: https://www.fca.org.uk/news/press-releases/christopher-woolard-chair-review-unsecured-credit-market-regulation;

The Central Bank of Ireland publishes annually the 'Household Credit Market Report' to provide an up-to-date picture of developments in the household credit market in Ireland. Source: *Household Credit Market Report*. Central Bank of Ireland Publications. Retrieved from: https://www.centralbank.ie/publication/household-credit-market-report;

Bank of Zambia publishes annual 'Credit Market Monitoring Reports' to provide an overview of Zambia's credit market with particular focus on access to credit and debt stress. Source: *Credit Market Monitoring Reports.* Bank of Zambia Research and Publications. Retrieved from: https://www.boz.zm/credit-market-monitoring-reports.htm

[26] RBI Master Circular – Exposure Norms. Retrieved from: https://m.rbi.org.in/Scripts/BS_ViewMasCirculardetails.aspx?id=9875#2;

23. Concentration of credit/investment for applicable NBFC, Master Direction - Non-Banking Financial Company - Systemically Important Non-Deposit taking Company and Deposit taking Company (Reserve Bank) Directions, 2016, RBI Circulars. Retrieved from: https://rbidocs.rbi.org.in/rdocs/notification/PDFs/45MD01092016B52D6E12D49F411DB63F67F2344A4E09.PDF;

Master Circular- Exposure Norms and Statutory / Other Restrictions – UCBs, RBI Circulars. Retrieved from: https://www.rbi.org.in/Scripts/BS_ViewMasCirculardetails.aspx?id=9866

[27] 5.Capital Charge for Credit Risk, Master Circular on Basel III Capital Regulations, RBI Circulars. Retrieved from: https://rbidocs.rbi.org.in/rdocs/content/pdfs/58BS300685FL.pdf

non-bank providers are mandated to periodically submit credit information to CICs[28]. The RBI regularly publishes information on the credit market on its data warehouse website – Database on Indian Economy (DBIE). This data is published for the benefit of various stakeholders and market participants (See more in Box 1).

The RBI has also undertaken several measures to address over-indebtedness in microcredit markets. Post the AP micro-finance crisis, in a bid to regulate the micro-finance sector, it instituted a new class of NBFCs, NBFC-MFIs, which had several prescriptions such as pricing of credit and limits on lending and loan amounts.

For the purposes of regulating institutional conduct of providers towards their borrowers, the RBI has instituted the right to suitability for bank borrowers within the RBI's Charter of Borrower Rights[29]. This along with elements in the fair practices code for providers, act, to an extent, as guiding principles for providers to avoid borrower over-indebtedness. Working alongside this is the set of guidelines, the code for responsible lending, issued by the self-regulatory organisations of the micro-finance sector, MFIN and Sa-Dhan. Some outputs such as heatmaps based on the regional number of players and amount of disbursement are published by MFIN.

These various measures in place to address over-indebtedness would be more effective if an accurate picture of the levels of indebtedness is visible to the RBI, to begin with. In the following section, we look at some aspects of the current credit monitoring regime which preclude such visibility.

Section-1.2: Lacunae in the Monitoring Regime

While the current set of regulations act as some form of control, they are not well placed to truly detect and tackle the problem of over-indebtedness in the retail and household sectors. For instance,

A) There are differential regulations regarding reporting to Credit Information Companies (CICs) for the different type of institutions - SCBs, NBFCs and Co-operative banks. The RBI mandates membership of CICs by banks and NBFCs, whereas in case of co-operative banks, their compliance regarding membership of CICs is more advisory in nature[30]. This creates a lacuna due to the lack of visibility, for a particular CIC, of credit information of borrowers of those co-operative banks which are not members of that particular CIC. While co-operative banks contribute to less than 5% of the total banking credit, they disproportionately lend to rural and agricultural households which are subject to another lacuna in lending as seen in point B) below. Therefore, this results in the regulator having an incomplete picture of borrower indebtedness in the credit markets.

B) While the loans disbursed by RBI-regulated NBFC-MFIs are restricted to two per borrower, this leaves out the whole spectrum of other providers such as commercial banks and non-MFI NBFCs. This regulatory lacuna has grown larger recently with the conversion of several large NBFC-MFIs into small finance banks.

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[28] Section 17 – Collection and furnishing of credit information, The Credit Information Companies (Regulation) Act, 2005. Retrieved from: https://www.indiacode.nic.in/show-data?actid=AC_CEN_2_11_00003_200530_1517807317795&sectionId=19337&sectionno=17&orderno=17

[29] Charter of Customer Rights, RBI Releases. Accessible from: https://rbidocs.rbi.org.in/rdocs/content/pdfs/CCSR03122014_1.pdf

[30] RBI circular on membership of CICs by banks "…hereby directs that within three months from the date of this directive, (i) all credit institutions (CIs) shall become members of all CICs…". Similarly, in the case of NBFCs, the RBI circular "…all NBFCs are directed to comply with the directive and become member of all CICs…". In the case of co-operative banks, the RBI circular states that "..all co-operative are advised to comply with the directive…..and become member of all CICs…".

The pressing issue that needs addressing is the current lack of visibility into the complete indebtedness levels at the level of a geography and/or borrower-segment, as the *debt serviceability* of the borrowers is not mandated to be reported. Further, even if such data were reported, it is expected to be rife with inaccuracies, since there is an over-reliance on self-reported, non-validated data by the borrowers for lending purposes. This is also acknowledged by the RBI High-level Task Force on Public Credit Registry for India (2018), which partially mentions,

> *"Currently there is a lot of self-certified data taken from customers and relied upon e.g. client KYC, Income details, financial details (assets & liabilities), net worth, contact numbers, nationality etc. These details, especially financial details, are important parameters for lending. In case of companies, these details are available through audited financials; however, the same does not provide a holistic view regarding the paying capacity of the client."*[31]

The report also suggests that income be verified and updated regularly through the course of the loan, rather than just be a static data point while originating the loan[32]. Thus, the providers must use verified and updated income data of their borrowers, so that data on debt serviceability is accurately calculated, and then shared with the regulator. Once the data is shared, it would enable the regulator to better supervise and manage macro-stability through monitoring of overheating in credit markets.

Apart from accurate data on debt serviceability, there are other data that the regulator must capture to effectively monitor the credit markets. In the following chapters, we discuss in detail such indicators for not only monitoring of the credit markets, but also for detection of levels of indebtedness and over-indebtedness. Embedded therein, we discuss how the framework further develops and strengthens the present monitoring system deployed by the RBI.

[31] See paragraph 4.11 of the Report of the High Level Task Force on Public Credit Registry for India (2018), accessible at: https://rbidocs.rbi.org.in/rdocs//PublicationReport/Pdfs/PCRRR09CF7539AC3E48C9B69112AF2A498EFD.PDF

[32] See Pg. A48 of the Report of the High Level Task Force on Public Credit Registry for India (2018), accessible at: https://rbidocs.rbi.org.in/rdocs//PublicationReport/Pdfs/PCRRR09CF7539AC3E48C9B69112AF2A498EFD.PDF

Chapter-2: Detecting and Addressing Over-Indebtedness

Currently, the RBI obtains information on credit markets including on retail credit markets, through three main routes:

A) supervisory process of inspecting off-site filing of returns to the regulator periodically,

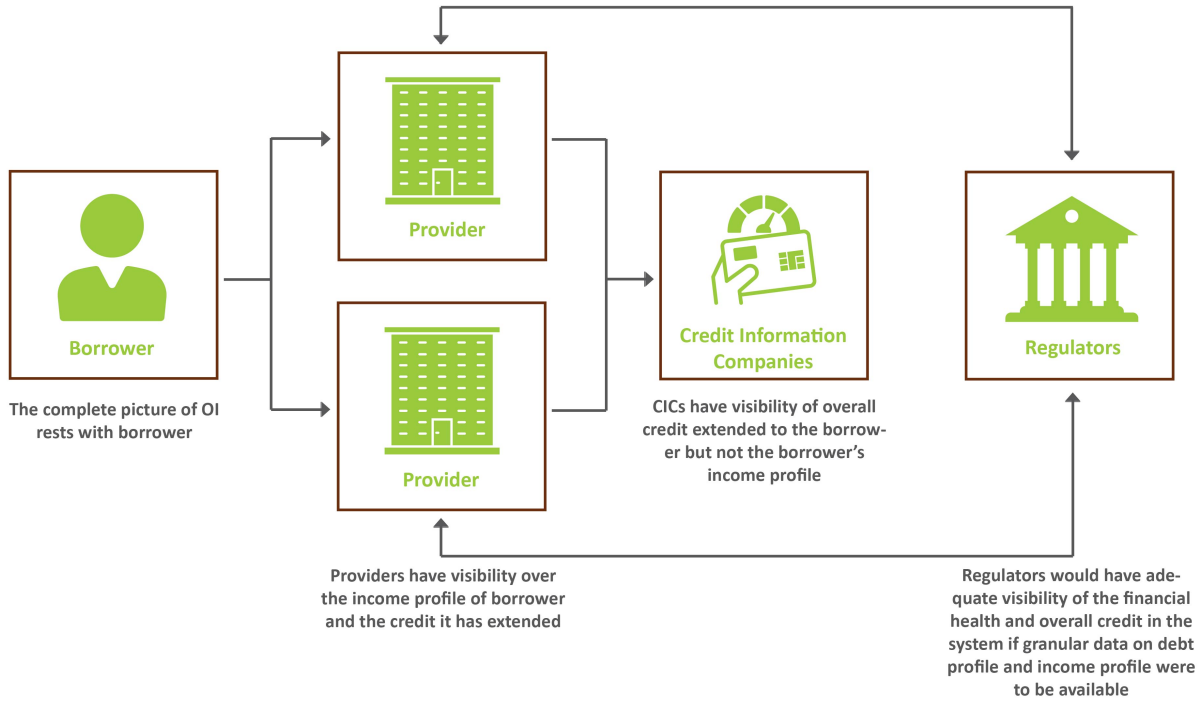
B) the supervisory process of on-site inspection and

C) statutory reporting on loan accounts to credit information companies by RBI-regulated providers

This is in addition to market intelligence[33] by the RBI and the scrutiny of reports of Statutory Auditors (SAs) of regulated lending institutions. The RBI has also instituted a '*fifth pillar of supervision*' in the form of 'periodic interaction with all the stakeholders – including statutory auditors, credit rating agencies, credit information companies, mutual funds and banks having large exposures to NBFCs'[34]. The state of this current monitoring regime is discussed in greater detail in Chapter 3.

The indebtedness levels of borrowers can be ascertained if one were able to assess the borrowing profile of the entire of the population under study. This profile may be developed either by accessing a single repository, like a public credit registry, or through an assemblage of data points from several sources, including existing credit bureaus (See Figure 4).

Figure 4: Visibility of Indebtedness levels by Institution Types



[33] More information on what this market intelligence comprises is not available.
[34] Banking Landscape in the 21st Century. Speech by Shri Shaktikanta Das, Governor, RBI, February 24, 2020 at the Mint's Annual Banking Conclave, 2020. Accessible at https://www.rbi.org.in/Scripts/BS_SpeechesView.aspx?Id=1094

Whether the borrower is over-indebted or not, can be correctly determined only when the indebtedness levels of borrowers are placed against measures of income. Providers collect and use, to various extents, information on borrower-level and household-level income and cash-flows to arrive at how much credit to advance. Depending on the nature of the credit advanced, the extent of reliance on income information varies. For instance, gold loans with bullet repayment structures, and loans against property, typically use the value of the collateral as primary determinants of creditworthiness, instead of using, the income profiles of borrowers. For unsecured loans, such as personal loans and micro-finance loans, providers tend to rely on salary statements, or declarations about income, where documentary proof is less easy to obtain. In case of other loans such as housing loans and education loans, providers tend to consider the long-term income-earning capacity of the borrowers. These loans often include a moratorium before repayments kick in, to reflect a period that a student needs before she starts generating income, from which to make repayments. It is to be noted that this analysis of *debt serviceability* is undertaken *before* a loan is sanctioned and it is less clear whether monitoring of borrowers' repayment capacity is continued to be assessed through the life cycle of the loan[35], particularly where borrowers may take additional downstream loans during the tenure of the existing loan. This is particularly true for shorter-term loans.

For larger ticket and longer tenure loans, providers have often adopted discretionary monitoring mechanisms for *debt serviceability,* which helps detect if the borrower is moving towards over-indebtedness. Some of these mechanisms are checks and balances placed on the borrower such as using loan covenants or requiring "No Objection Certificates" for future loans. Increasingly, fintech providers are introducing real-time portfolio monitoring mechanisms and algorithms to track the credit-risk transitions of the borrower during the life cycle of the loan through access to borrower's transactions data, GST data and so on. Further, in cases where there is an availability of direct or indirect measures for income, and total amounts repayable by the household, one can determine whether the household is over-indebted or not.

The amount which is repayable monthly by all the income-earning members of the household, when taken as a proportion of the household's disposable monthly income is a primary measure of assessing whether the household is over-indebted or not. This measure, known as the debt-income ratio, is used to determine what proportion of a household's monthly income is used to service their debt. Higher the ratio, greater is the stress undergone by the household in servicing their debt. However, the usage of 'disposable income' is more appropriate than that of 'total income' wherein the households are afforded less flexibility in their post-loan spending choices.

Regardless of whether disposable or total income is considered, the practise of dividing the annual income by 12 to arrive at the monthly income, is rife with inaccuracy considering the seasonal or business-cycle based fluctuations in the incomes of non-salaried households. Nevertheless, as income details are key inputs to assess the household's repayment capacity, the reporting of any measure of household income to, and its use by, providers in their credit decisioning methodologies would prove beneficial for preventing over-indebtedness.

[35] Suitability assessment in a customer protection framework focused on customer outcomes must include assessment throughout the product lifecycle and the customer journey. Source: Juan Carlos Izaguirre. June 2020. Making Customer Protection Regulation More Customer Centric. CGAP Working Paper. *Consultative Group to Assist the Poor.* Accessible from: https://www.cgap.org/sites/default/files/publications/2020_06_WorkingPaper_Making_Consumer_Protection_Regulation_More_Customer_Centric.pdf

Furthermore, any such borrower details collected are often only at the point of disbursement, and thus a real-time assessment of the levels of indebtedness of the borrower is seldom obtained. Further, given the current set of regulations, the RBI has very limited visibility over the levels of *debt serviceability* and indebtedness in the credit market. One can debate whether regulators must have access to real-time debt serviceability information about borrowers as they can be considered as an instance of regulatory overreach into the private risk-underwriting decisioning of lending institutions. Thus, to be clear, in this report, we do not advocate for the reporting of borrower income levels to the regulator. However, we make a case for the regulator to build capabilities to collect data on debt serviceability of borrowers at an aggregate level, with adequate granularity (at a district-level), and while being anonymised.

One approach the regulator can adopt would be to seek information from providers regarding the debt serviceability of their borrowers. As discussed earlier, providers often undertake debt serviceability analysis before credit disbursement. Since such analysis is carried out using proprietary approaches and tools, it is likely that providers would use different methodologies to calculate debt-serviceability of a borrower. It is therefore important that the data reported to the RBI be harmonised for any meaningful aggregate analysis by the RBI. Hence, to achieve such harmonisation, the RBI must mandate a standard approach to compute the *debt serviceability* for reporting purposes (and not credit decisioning). One such approach would be to use the Debt Service Capacity Ratio (DSR) as an indicator[36]. This may be computed by subtracting expenses from the income of the borrower and then obtaining a ratio of the repayment obligation to that of the surplus thus obtained, see illustration below.

$$\textbf{Debt Service Capacity Ratio} = \frac{\textbf{Income of the Borrower — Expenditure of the Borrower}}{\textbf{Repayment Obligation of the Borrower}}$$

However, *debt serviceability* alone is expected to be an inadequate indicator for accurately measuring the levels of indebtedness and over-indebtedness, in a geography and/or consumer segment. Thus, in the following section, we discuss a more robust framework for measuring the levels of indebtedness and over-indebtedness, while enhancing the credit market monitoring capacity of the regulator.

Section-2.1: A Framework for Detection of Over-Indebtedness

As seen in the previous section, a complete picture of the indebtedness levels of a borrower rests with the borrower herself, since only she has full information on aspects such as her and her household's monthly income levels and the amounts repayable per month for both formal and informal debt. Therefore, an accurate detection strategy would entail collecting these borrower level details. However, capturing information at such a level of granularity, periodicity and accuracy are not feasible considering the cost of such an exercise particularly for smaller ticket loans which form a considerable portion of retail credit in India.

[36] See: Deepti George (2019) (Dvara Research) "*A Practical Note on Operationalising Suitability in Microcredit";* accessible at: https://www.dvara.com/research/wp-content/uploads/2019/02/Operationalising-Suitability-in-Microcredit.pdf

As alternatives to collecting such detailed borrower level information, many tools have been employed or recommended by various agencies worldwide. One of these is a framework[37] developed by the OECD Taskforce on Financial Consumer Protection which sought to identify 'risk drivers' which could, among other consumer protection concerns, cause consumer over-indebtedness. The framework comprises of broad themes such as economic context and demographic context, each of whose risk drivers are quantified as potential indicators such as 'levels of consumer debt', 'debt-to-income ratio over time', 'foreclosures by type of loan', risk-based funding levels', 'revolving credit use' and so on. The framework also lays out 'mitigating actions' against each of these indicators, which can be used to address consumer protection concerns.

Another such tool is the Micro-finance Index of Market Outreach and Saturation (MIMOSA)[38] which is used to analyse total credit market capacity built using the Global Findex[39] dataset which publishes worldwide data on the use of financial services. The market score built by the MIMOSA methodology which can be used to both highlight the growing risks in a particular area as well as the underdevelopment of the credit market in that area. There are similar tools to evaluate risk at the provider level, such as Planet Finance's 'Girafe Rating system' which assesses, among other areas, the risk analysis and control employed by a micro-finance institution[40]. There has also been an attempt to construct an 'early warning index' comprising several indicators which include, among others, market penetration, the growth rate of loan portfolios, average loan balance per borrower and lending methodologies, which can be used to signal over-indebtedness in a particular country[41].

Building on the existing approaches and methodologies, in this section we lay out a Framework for Credit Market Monitoring and Detection of Over-Indebtedness (Monitoring & Detection Framework, hereafter) that lays the foundation for the rest of the report. This Monitoring & Detection Framework comprises a set of indicators covering various dimensions of the retail credit market. Based on their operating level, the indicators could be categorized into the following:

A) Market-level,

B) Provider-level, and,

C) Borrower-level

The framework, therefore, has two outcomes of interest – financial stability and financial consumer protection. It is posited that the framework would develop the credit market monitoring capacity of the regulator. By doing so, the regulator will now be more equipped to intervene and address any issues brewing in localised or regional or sector-level credit markets, instead of responding in a

[37] Annex A. Categorisation Of Risks To Financial Consumer Protection, Financial Consumer Protection Risk Drivers: A Framework For Identification And Mitigation In Line With The High-Level Principles On Financial Consumer Protection, Task Force on Financial Consumer Protection, Feb 2018, Directorate For Financial And Enterprise Affairs Committee On Financial Markets, OECD.
Accessible from: https://one.oecd.org/document/DAF/CMF/FCP/RD(2017)3/FINAL/en/pdf

[38] Microfinance Index of Market Outreach and Saturation, Part 1 – Total Credit Market Capacity, 2013, Fondation Planet Finance. Retrieved from: http://mimosaindex.org/wp-content/uploads/2017/08/MIMOSA-1_0_final-110313.pdf

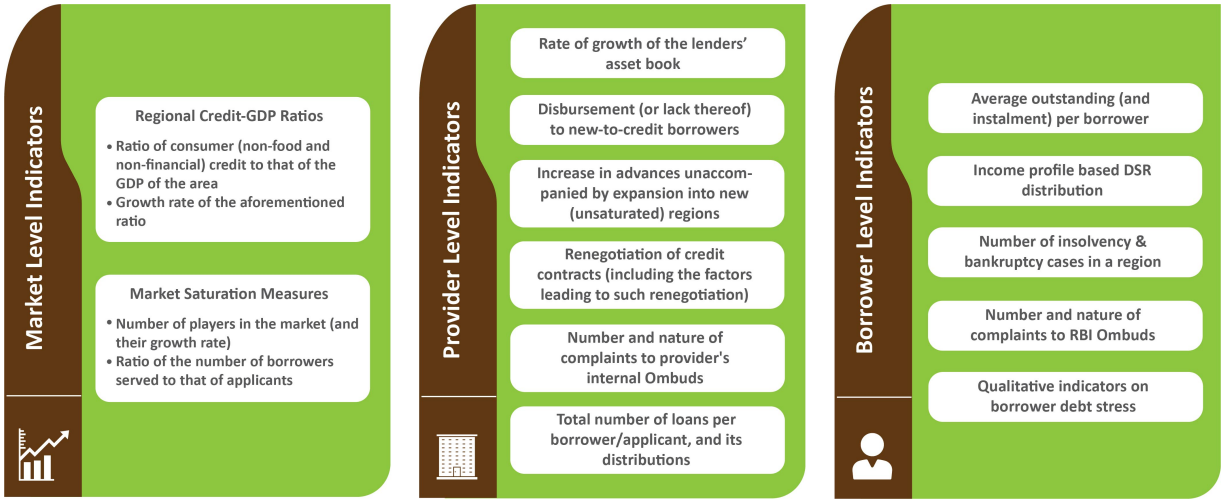
[39] The Global Findex Database. Website URL: https://globalfindex.worldbank.org/

[40] Girafe rating system. Website URL: https://www.gdrc.org/icm/rating/rate-3.html

[41] Vivien Kappel, Annette Krauss, Laura Lontzek. 2010. *Over-indebtedness and Microfinance – Constructing an Early Warning Index*. Center for Microfinance, University of Zurich. Retrieved from: http://www.cmf.uzh.ch/publications/Microfinance%20and%20OID%20-%20full%20version.pdf

reactionary manner. This has implications for enhancing the systemic stability of the financial system. Similarly, such interventions, when designed to target over-indebtedness can arrest the growth of over-indebtedness in a geography, hence protecting financial consumers. In the following sub-section, we analyse the various indicators/sub-indicators that should be used to monitor the credit markets, measure the levels of indebtedness and detect over-indebtedness. In doing so, we also discuss the availability of data and the gaps which need to be filled. Shown below (in Figure-5) is a list of sub-indicators, arranged thematically, that constitute the Monitoring and Detection Framework.

Figure 5: Framework for Credit Market Monitoring and Detection of Over-Indebtedness: Component Indicators



1. **Market Level Indicators:** This has two components - Credit-GDP ratios and measures of market saturation. Credit-GDP ratios are traditional market-level indicators of overheating of credit markets. This ratio is used alike by both regulators for supervisory monitoring purposes and providers for estimating business potential. Although no exact figure of an "optimal" ratio exists, a severe regional mismatch in the economy may indicate pockets of over-heated credit markets in one region and under-served populace in another.

   Another set of indicators at the market level is the market saturation measures that help estimate the relationship between demand and supply in the credit market. Higher values of these measures indicate a greater degree of credit penetration which has been shown to be correlated with a higher incidence of household over-indebtedness.[42]

   Market level indicators which can give information on the levels of credit supply disaggregated by divisions such as economic sectors, geography and demographic sub-categories, provide high-level signals regarding the functioning of various aspects of the credit market. In the case of overheated markets, these act as a signal to further investigate the potential for, and extent of, borrower over-indebtedness.

[42] Barry Firth. 2014. *Over-Indebtedness: A Risk Management Approach*. The Partnership for Responsible Financial Inclusion. Accessible from: https://www.findevgateway.org/sites/default/files/publications/files/mfg-en-paper-over-indebtedness-a-risk-management-approach-apr-2014.pdf

2. **Provider Level Indicators:** Information at the provider level ensures that the regulator receives the next level of granularity about the health of the credit market. Features of the providers' asset book, especially when available at a disaggregated division of economic sector, region or borrower's occupation or another demographic sub-category, can be used to estimate the indebtedness levels at each division. Provider level indicators such as growth in the size of credit providers are useful as their uninhibited growth in credit-saturated specific geographies or among specific demographic sub-categories could indicate overburdened borrowers. Thus, capturing measures reflective of any rapid growth of the asset book of the provider may act as an early-warning indicator for over-lending, which could lead to borrower distress. This is especially important when a more granular view of the borrower profile is not available.

   Another indicator of over-lending that can be captured at the provider level is the total number of loans per borrower. As over-indebtedness has often been correlated with multiple lending, this indicator can be used to identify borrower debt stress. Further, the prevalence of borrower debt stress could also be identified from the nature of complaints that relate to over-lending and unsuitable lending made to the internal Ombuds of the provider. These complaints are expected to provide crucial insight into the stress experienced by borrowers.

3. **Borrower Level Indicators:** Borrower (segment) level indicators, which measure the various aspects of borrowers' liability profiles, are the richest source of information for accurately assessing borrowers' levels of indebtedness. The primary indicator to be deployed under this theme is expected to be a modified version of the earlier discussed indicator, DSR.

   Although the income of the borrower is an endogenous variable in calculating the DSR, it is important that DSR be reported according to income segments to make it more meaningful. Thus, it is proposed that income profile-based DSR distribution be reported (See Annexure-5 for more details). Such reporting of DSR distributions across income-levels is crucial since, without it, it is possible that high-income borrowers (with very high DSR) over-shadow the potentially low DSRs of low-income borrowers. Thus, if the DSR levels of all borrowers in a district is reported at an aggregate level, the efficacy of the indicator in monitoring the credit market and measuring the levels of indebtedness would be minimised.

   Additionally, indicators such as the number of complaints to the RBI Ombuds, and the number of insolvency and bankruptcy cases, etc., act as ex-post indicators, i.e., they are situated after the point where the borrower has already (potentially) undergone a situation of OI. Complaints to the provider's internal grievance redressal mechanisms, or Ombuds are deemed to be a part of indicators capturing the provider profile, since such data would necessarily be at a provider level. In contrast, complaints to the RBI Ombuds is captured under borrower level, as providers are not expected to be aware of the complaints at the time of their registration with the RBI Ombuds[43]. Further, as qualitative indicators from consumers in relation to debt stress they face, sacrifices made, and other difficulties faced in order to repay, act as key inputs in assessing whether

[43] Before a borrower can approach the RBI Ombuds, she must already have approached the provider's internal grievance redressal processes. Hence, every complaint that reaches the RBI Ombuds is expected to already be captured in the earlier section on provider profile, where complaints to the providers' Ombuds are being recorded. However, since not all complaints to the provider's internal Ombuds are expected to be resolved satisfactorily, a subset of the complainants (to the providers' internal Ombuds) is expected to approach the RBI. Thus, the RBI Ombuds receives complaints from borrowers across different providers, and providers will not be aware which complaints might have reached the RBI Ombuds (unless they get contacted by the RBI).

borrowers in a geography or customer-segment are over-indebted. These qualitative indicators could be sourced through third-party localised demand surveys that the RBI can commission based on signals from the Monitoring & Detection Framework. Given that the complete picture of over-indebtedness rests with the borrower, the borrower-level details could act as significant inputs to the Monitoring & Detection Framework.

Once the RBI starts collecting the data, from providers and other sources, such data must be aggregated. To exemplify, the income profile based DSR distribution is expected to be reported by individual providers for all new loans. In a geography (ideally at a district-level), where say, 10 providers are operating, the RBI would get the income-profile based DSR distribution for the district from each provider separately. To effectively monitor the credit market, its overheating, and the prevalence of indebtedness, the data must then be aggregated. This process of aggregation in most cases is expected to be simply additive, i.e., data from different providers will be directly added to compute the indicator for the geography. An example of such an additive process would be the data on new-to-credit customers.

However, several other indicators, like multiple lending, income profile based DSR distributions, etc., may present "double-counting" issues. To exemplify, if two providers in the same geography lend to the same borrower, who already has an existing loan(s), both providers would count it as multiple lending, and report it to the RBI. In an additive process, the RBI would then count it as two instances of multiple lending, unaware that there is only one underlying borrower. Though such cases are expected to be rare, it is important that the RBI incorporates measures to mitigate these issues. A detailed discussion on these approaches is, however, beyond the scope of the report, but through regulations on reporting or data triangulation from CICs, such issues may be mitigated.

Thus, once the data is appropriately collated, the RBI would gain significantly greater visibility over the credit markets in India, as compared to what it has in the present paradigm. To elaborate, we use the discussed Monitoring and Detection Framework to analyse in detail the current level of regulatory oversight by the RBI (refer to linked excel workbook, titled "*List of Indicators for OI Supervision (Dvara Research)*"). Through the analysis, it becomes apparent that data required to capture a complete picture of over-indebtedness, or the credit markets' health, such as DSR of the borrower, are absent. Further, even when some of these indicators are present, they are not captured at an optimal periodicity. Finally, while the providers are not required to report many of the desired indicators to the RBI, they are required to report such indicators to the CICs.

To exemplify, underlying data needed to compute all the sub-indicators of the provider profile, and several under the borrower profile, are presently reported to the CICs. Similarly, a sub-indicator to measure market saturation, namely the ratio of the number of borrowers served to that of applicants, too may be constructed from the data available with CICs. However, present regulations prevent the supervisor from accessing this information from the CICs. Thus, providers must be made the source of the earlier discussed indicators. Further, to build a clearer picture of market saturation, data collected by other entities such as the Ministry of Statistics and Program Implementation (MOSPI) and Self-Regulatory Organisations (SROs) of non-banking service providers and micro-finance providers, must also be deployed.

Each indicator, in isolation, adds to the RBI capacity to monitor the credit markets. Thus, when deployed together, it is expected that RBI's credit markets monitoring capacity would improve significantly. However, to measure the levels of indebtedness, and detect potential pockets of over-indebtedness, any single indicator would be incomplete, despite few indicators being empirically proven to be a good proxy for OI. Hence, any algorithm or system designed to detect existing or

incipient cases of OI at a district- product- or customer-segment-level, must invariably use more than one of the discussed indicators.

Since, the algorithm deployed to detect pockets of over-indebtedness is expected to only be indicative, given the indicators' limited scope to capture qualitative aspects of OI, and demand-side surveys being prohibitively costly, we recommend a staggered approach for detecting true levels of over-indebtedness. Initially, the algorithm must be deployed nationally, followed by demand-side surveys in the regions where the algorithm predicts the prevalence of over-indebtedness. Later, these surveys may be extended to the remaining regions. Thus, it is important that apart from incorporating an algorithm to detect OI, efforts are made to verify the results obtained from such an exercise using demand-side insights. Such an approach to validate the results from the detection algorithm would also help in fine-tuning it.

Section-2.2: Validation Strategy

All monitoring and evaluation (M&E) tools need to have periodic reviews to ensure that their efficacy increases over time, or at the very least, does not diminish. Since the indicators discussed in the earlier section are designed as inputs to an M&E framework, their validation becomes critical. Such validation must occur at two distinct phases. The first phase focuses on establishing the baseline efficacy of the framework, i.e. in the first phase, the exercise will evaluate how accurate the designed algorithm is in detecting the complete levels of OI. Thus, the first phase is a one-time exercise and is expected to occur alongside the deployment of the framework. The second phase, on the other hand, is a continuous exercise after the deployment of the framework. During the second phase, the validation strategy is expected to shed light on the continuing efficacy of the M&E framework (here, for the detection of OI).

To elucidate further, the simplest OI detection algorithm would attempt to assign a state of either "over-indebted" or "not over-indebted" to a borrower-segment or region at a point in time. As with all such statistical classification exercises, the algorithm may correctly yield true positives and true negatives (i.e., the classification outcome, capturing accurately the true state of the borrower or region), but it may also produce an incorrect classification, falsely identifying an over-indebted household or region as being not over-indebted, or vice versa. This is the reason that a validation strategy is required – to eliminate, as far as possible, the false positives and false negatives.

As discussed in the earlier section, it is only the borrower who can completely answer whether she is over-indebted or not. Thus, any validation strategy deployed for the OI detection framework must attempt to seek such information from the borrower herself. In an un-constrained set-up, a census survey of the entire population may be adopted. This would allow the regulator to capture every case of over-indebtedness, i.e., of true positives and negatives, as well as false positives and negatives emergent from the algorithm. However, in a constrained environment, a sample survey must suffice.

It is advisable, that along with sample surveys, periodic surveys focusing on specific themes be also carried out. To exemplify, every five years, the RBI may commission studies to investigate the prevalence of OI is specific borrower segments. Such exercises are common in various jurisdictions, and examples include the FCA's review of the unsecured credit market (2020) and the study on the interaction of *Ageing Population and Financial Services*[44].

[44] See Financial Conduct Authority, 2017 "*Occasional Paper 31*"; accessible at: https://www.fca.org.uk/publication/occasional-papers/occasional-paper-31.pdf

Further, it may be noted that given the nature of the exercise, the objective of the validation process ought to be two-fold. Firstly, it captures the true cases of over-indebtedness from a geography that the algorithm classifies as a potential pocket of over-indebtedness. Secondly, the strategy must lead to "minimisation of the false negatives", i.e., to ensure that the algorithm is not classifying geographies as potentially not over-indebted, when they truly are.

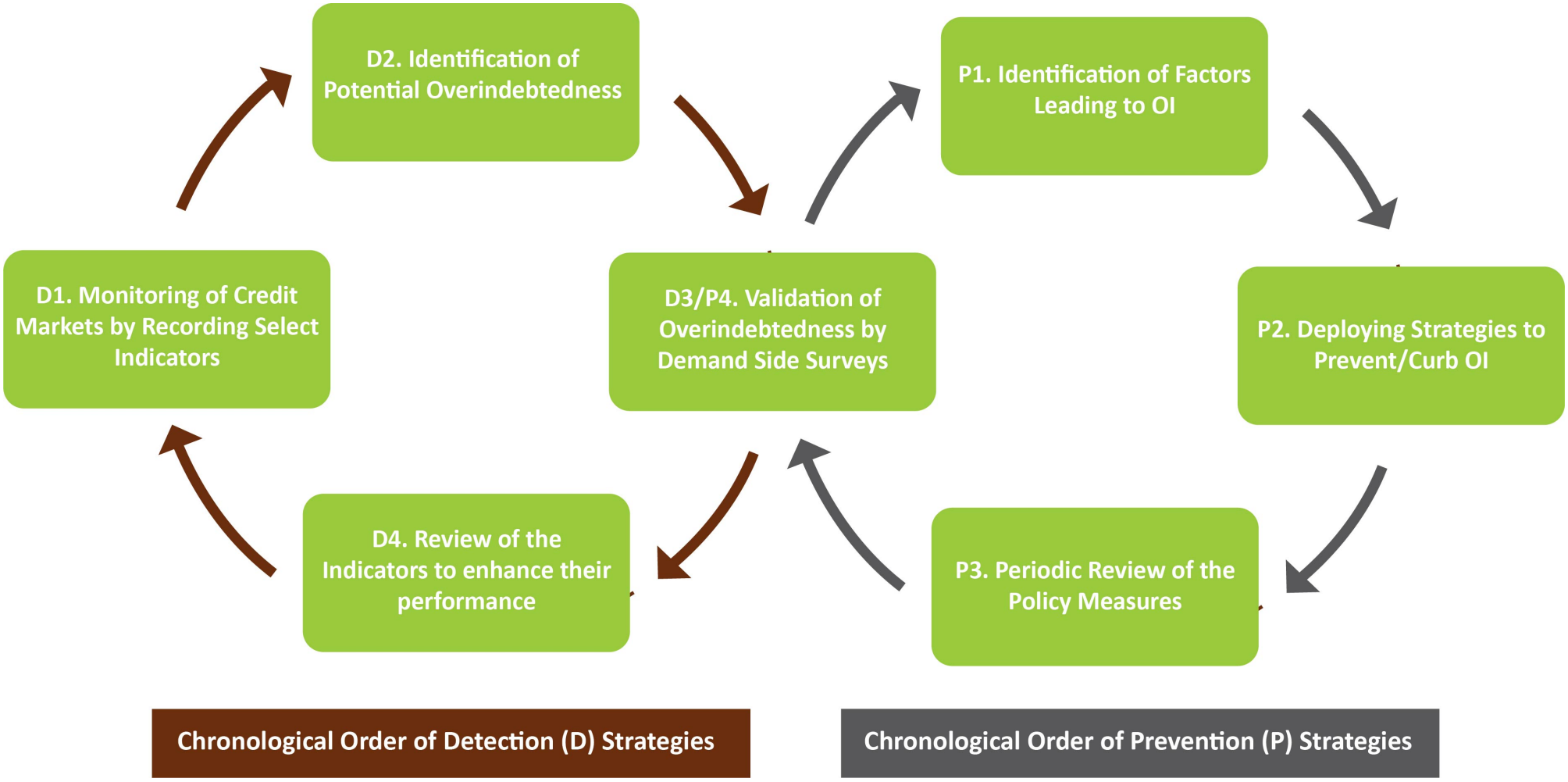
The result of the surveys, when read with the results from the algorithm deployed under the Monitoring and Detection Framework, would provide the regulator, clearer, more nuanced and sharper data regarding the levels of OI in the geography. Thus, the surveys are not merely validating the results of the Monitoring & Detection Framework but can serve as an extension to the framework itself, since the surveys are key to detecting true cases of OI. Since the surveys under the validation strategy are envisaged as an extension to the Monitoring & Detection Framework, the RBI can deploy the surveys in geographies where the detection framework suspects OI.

Finally, the scope of these surveys must also go beyond detecting true cases of OI and validating the detection algorithm. The surveys must include descriptive questions like "why did the borrower take out each credit contract", "did any event cause a change in repayment capacity, like death, loss of employment, business-related shocks, etc.", "were there expected or unexpected shock events, like marriage, death, illness, destruction of property due to natural disasters, in the family", "did the household discontinue their children's schooling in the near past", "did the household cut down on the quantity or quality of daily food intake", and so on. These will enable a more detailed study of factors that frequently lead to OI. However, it must be noted that any monitoring tool employed by the supervisor can only detect or predict OI cases when their drivers are caused by the regulated entities' actions at large scale and not isolated instances, like when the distress is caused by shocks to the consumer's life and income.

The validation strategy shall help mitigate the earlier discussed hurdles, of lack of oversight in the present system. As discussed earlier, the present state of monitoring of the status of OI across borrowers is dismal. Thus, the first step in the process, i.e. the Monitoring & Detection Framework, attempts to mitigate this issue of lack of oversight. Further, since these results could contain false positives and false negatives, (i.e. cases where the households are not over-indebted, but are identified and such and vice-versa, respectively), validation through demand-side surveys become instrumental in understanding the accurate levels of over-indebtedness.

The validation strategy also creates a feedback loop through which the efficacy of the detection algorithm may be enhanced and serves as a critical link in bringing together the detection and prevention process, since the results of the validation strategy are also expected to shed further light on factors leading to OI. Hence, the validation strategy can support more targeted policymaking. Finally, neither the Monitoring & Detection Framework, nor the validation strategy or the prevention policies are expected to be a one-time exercise, but a continuing process through which OI may be tracked. Though the complete design of such surveys are not discussed, given it is outside the scope of this note, in an ideal setup, the Detection Framework, validation strategy and (OI) prevention policies would work hand-in-hand, as depicted in Figure-6.

Figure 6: Process- flow Design for Detection, Validation, and Prevention Strategies



The proposed Detection Framework consisting of the select indicators, and the detection, validation and prevention strategies discussed in this chapter are not only critical in establishing the regulator's oversight over the state of indebtedness in the financial system, but also in enabling the regulator to undertake broader credit market monitoring. Presently, there are almost 170 different regular reporting formats that the RBI uses to capture data from its regulated credit disbursing entities. In addition to this, there are numerous ad-hoc reporting directives that the RBI requires its regulated entities to respond to and comply. Thus, the proposed Detection Framework is also intended to substantially strengthen the RBI's existing capacities for monitoring credit markets.

We undertake an assessment of the RBI's current regular off-site reporting formats for NBFCs and SCBs to understand to what extent credit markets can be monitored by the RBI (this is irrespective of whether the findings of such monitoring are made available by the RBI in the public domain), and to what extent the indicators laid out in the proposed Detection Framework are already being captured by these current reporting formats. This assessment and findings are discussed in detail in the next chapter.

Chapter-3: An Assessment of the RBI's Reporting Formats against the twin goals of Credit Markets Monitoring and Detection of Indebtedness and Over-Indebtedness

The RBI's visibility over the credit ecosystem comes from a combination of two regular sources, its on-site inspections, and its off-site reporting systems. We limit our analysis to only the data-intensive off-site reporting formats, as only these are publicly available and the raw data (which the off-site reporting formats capture) can be analysed to determine the inputs to the Monitoring & Detection Framework. Presently the RBI prescribes around 150 different regular reporting formats[45] for banks and 20 different reporting formats for NBFCs in India (See Annexure-3). Further, the RBI also requires (in an ad-hoc manner) regulated entities to report data that are in addition to what is required to be reported under these regular reporting formats discussed earlier[46].

From the data that the RBI releases to the public, it is difficult to conclude to what extent the RBI has visibility over the granular deployment of credit across the regions of the country and the sectors of the economy in a regular and updated manner. This is because the RBI does not publicly release all the data it collects from reporting entities. For instance, the RBI does not publish datasets for new disbursements of credit each quarter by the banking sector, though it partially collects the information[47]. The Box below discusses the data that are available from the RBI publicly, along with the periodicity of their updates.

Box 1: Picture of the Credit Market from the RBI's Published Data

In the credit market data published by the RBI, the greatest detail and granularity is of credit provided by the SCBs. Data on outstanding credit amounts, number of credit accounts and credit limits of the corresponding accounts is published every quarter, and at disaggregated levels of the district, occupation (such as agriculture, type of industry or trade), organisation type (i.e., towards government departments, co-operative sector, private corporate sector, household sector, micro-finance institutions among others), size of credit limit and interest rate range of the credit, among others. Sectoral deployment of bank credit (amount outstanding) is published every month, across sectors of agriculture, micro and small, medium, and large industries, services, personal loans and priority sector loans. While similar data on sectoral deployment of NBFC credit is published by the RBI, it is only on an annual basis, and other disaggregated data of NBFC credit at a regional or borrower organisation type is not published. In the case of co-operative banks, a limited picture of the credit market they serve is published by the RBI, largely of urban co-operative banks, on the outstanding advances to priority sectors such as agriculture, micro, small and medium enterprises, education, housing, and loans to weaker sections, among others, on an annual basis. The published RBI data has even less granularity on credit provided by rural co-operative banks (state co-operative and district central co-operative banks), with only state-level outstanding loans and advances published on an annual basis. In the case of regional rural banks, the credit data disaggregated by population group, state and credit limit is published annually, a periodicity less than the quarterly publication of SCBs' data. Additionally, NABARD's annual reports on RRBs has some more granularity including both amount outstanding and amount of loans issued towards sectors such as agriculture, housing, and education, including both priority sector lending (PSL) and non-PSL credit. Therefore, we see that the most granular data is that of sectoral bank credit in terms of the amount

[45] Primarily, the page on RBI's website, titled "List of Returns Submitted to RBI" (accessible at: https://www.rbi.org.in/Scripts/BS_Listofreturns.aspx) was used to ascertain the reporting formats. However, there are other lists under the "For Bankers" (accessible at: https://www.rbi.org.in/scripts/BS_ForBankers.aspx) section. There were significant overlaps between these lists and hence only the formats mentioned under the "List of Returns Submitted to RBI" were studied.

[46] The observation is based on various conversation with providers.

[47] Formats titled "NRLM" and "DRI" capture the data on new disbursements extended to SHG group members and members of the Scheduled Caste and Scheduled Tribes community, respectively.

outstanding at a monthly periodicity, and the published data does not have information on fresh disbursements in the corresponding sector/period. Disbursement data is important for building an accurate picture of current levels of credit in the market. Measures of market saturation/penetration too cannot be accurately constructed as geographical data on the number of credit providers, and their branches (other than bank branches) is not available. Similarly, as the GDP of the various economic sectors and districts is not published, disaggregated credit-GDP ratios too cannot be constructed. Additionally, data points at the producer and borrower level such as the number of new-to-credit accounts across economic sectors or geographies, or the disaggregation of data by borrower sub-categories (of occupation or income group), are not published, therefore not enabling a robust detection of the levels of borrower indebtedness in credit markets.

It is also unclear to what extent the RBI relies on ad-hoc reporting to monitor credit markets. Since only reporting institutions are privy to such requests for data, it was not feasible for us to analyse these.

Therefore, in this chapter, we analyse only the regular off-site reporting formats currently prescribed by the RBI for NBFCs and SCBs to identify whether these formats are adequate to capture the trends in the Indian credit system in accordance with the indicators proposed under the Monitoring & Detection Framework that were discussed in chapter 2. Specifically, we ask whether reporting formats presently in use by the RBI answer the following three questions:

1. **Availability of Asset Class Detail for entire/partial portfolio:**
   In analysing the formats, we ask whether the format captures the details of the asset book of the provider. Not all reporting formats are expected to capture asset level details of the provider, as some formats are dedicated to the number of branches, ATMs, payment transactions, etc. Thus, the question becomes the primary filter to determine the usability of the reporting format for the purposes of detection of OI.

2. **Granularity of Asset Class Details (for entire portfolio):**
   For reporting formats that capture the asset class details of the provider, we analyse the type of details captured and the level of granularity at which such data is captured. To exemplify, in a few cases, such as for non-SI NBFCs, the reporting formats only capture the total number and amount of loans disbursed across economic sectors, and no granularity is captured beyond this level. Conversely, in certain reports, in case of SCBs, the RBI requires the provider to report the number of loans outstanding at each district-level, as well as by the economic activity. Thus, it allows for enhanced geographical and sectoral granularity.

3. **Standalone and combination analysis possible for A, B and C below:**
   A. Whether the report has data for the Geo-Spatial Identification of a Loan (Intra-India). Since an important output of the Monitoring & Detection Framework is the identification of overheated geographies, the more granular the details on the geographical location of the asset, the more accurate the results it is expected to render.

   B. Whether the report has data on the Income Profile based Debt Serviceability of Borrowers. The amount of loan taken by an individual, by itself, is inadequate to identify whether the borrower is over-indebted or not. To understand OI, it is important to quantify the DSR of the borrower. Analysis was also carried out to check whether the existing reporting formats capture the *income profile-based debt serviceability* of borrowers, (whereunder the income is recorded either in absolute terms or according to income buckets, like INR 0-1,00,000).

C. Whether the report has data for Identification of the deployed sector: We use this indicator since only loans to individuals[48] ought to come under the purview of the Monitoring & Detection Framework and thus the presence of sectoral[49] granularity becomes pivotal in ensuring that the data being captured may be utilised in the framework. Further, beyond identifying the type of borrower (individual or otherwise), the sectoral data would shed light on the idiosyncrasies of respective sectors and allow the Monitoring & Detection Framework to capture the nuances, such as business cycles and seasonality, in the real economy.

In the following sections, we discuss our findings from the analysis.

Section-3.1: The Current State of Reporting by Providers

As discussed earlier, there are 20 reporting formats that NBFCs are required to fill and submit to the RBI. In most cases, each reporting format consists of more than one proforma, and each proforma, therefore, was studied separately. The details that are sought by the RBI with each format are summarised at the level of the format in Table-2, though each proforma (or excel sheet) is also discussed separately.

Table 2: Features of Data Captured by the RBI from NBFCs

Sl No	Name of the Return	Return Description	Whether Availability of Asset Level Detail (Y/N) (for entire portfolio)*	Whether Granularity of Asset Class Details Captured (for entire portfolio)**
1	NBS1	Quarterly Returns By deposit accepting NBFCs	Yes	1. Sectoral Deployment of Credit (Pt. 11 and Annex 6), 2. Split of Secured and Unsecured Loans (Pt. 3)
2	NBS2	Quarterly Statement of Capital Funds, Risk Assets etc. as required under the Non-Banking Financial Companies Prudential Norms (Reserve Bank) Directions 1998 By NBFCs and RNBCs	No	N/A
3	NBS3	Quarterly Return on Statutory Liquid Assets as per Section 45 IB of the Act By Deposit-Taking NBFCs	No	N/A
4	NBS4	Annual Return on Repayment of Deposits by the Rejected Companies holding Public Deposits	No	N/A

[48] By loans to individuals, we imply this to include loans taken by individuals for their businesses and those taken by non-business establishments too, whether or not they are incorporated

[49] Sectoral granularity refers to a combined indicator that captures the entity type of the borrower (e.g. household sector) as well as the deployed economic sector (e.g. agriculture)

5	NBS7	Quarterly Return of Capital Funds, Risk-Asset Ratio from NBFCs-ND-SI (Supervisory Return)	No	N/A
6	ALM	Asset-Liability Management (ALM) Return	Yes	1. Maturity pattern of assets
7	NDSI_500cr and above	Quarterly return submitted by NBFCs having asset size of Rs.500 crore and above	Yes	1. Split of Secured and Unsecured Assets (Pt. 2) 2. Sectoral Exposure (Pt. 10)
8	SC/RC	Quarterly Return on Assets acquired, securitised and reconstructed	No	N/A
9	NBS-ALM 1	Statement of Short Term Dynamic Liquidity (ALM 1)	No	N/A
10	NBS-ALM 2	Statement of Structural Liquidity (ALM 2) Interest Rate Sensitivity (ALM3)	Yes	1. Maturity pattern of assets
11	NBS-ALM3	Statement of Interest Rate Sensitivity	No	N/A
12	ALM-Yearly	Statement on Assets Liability Mismatch	No	N/A
13	Statutory Auditors Certificate (SAC)	Every NBFC shall submit a Certificate from its Statutory Auditor that it is engaged in the business of non-banking financial institution requiring it to hold a Certificate of Registration granted under section 45-IA of the RBI Act	No	N/A
14	Branch Information Return (for NBFC-D & NBFC-ND-SI	Branch Information submitted by NBFCs-ND-SI and NBFCs accepting/holding public deposits, every quarter	No	N/A
15	Certificate on compliance with FDI norms	NBFCs having Foreign Direct Investment are required to submit a Certificate from their Statutory Auditor on a half-yearly basis certifying compliance with the existing terms and conditions of FDI,	No	N/A
16	Overseas Investment Return	NBFCs (both deposit-taking and non-deposit taking) having overseas investment are required to submit the Overseas Investment Return every quarter	No	N/A
17	NBS-8 Return	NBFCs (non-deposit taking) with assets size between ₹100 crore to ₹500 crores on an annual basis.	Yes	1. Split of Secured and Unsecured Assets (Pt. 2) 2. Sectoral Exposure (Pt. 6)

18	NBS-9 Return	NBFCs (non-deposit taking) with assets size below ₹100 crores on an annual basis.	Yes	1. Split of Secured and Unsecured Assets (Pt. 2) 2. Sectoral Exposure (Pt. 5)
19	CRILC & SMA-2 Return	NBFCs-ND-SI, NBFCs-D and NBFC-Factors are required to report the CRILC return every quarter credit information on all the borrowers having aggregate fund-based and non-fund based exposure of ₹5 crores and above with them and the SMA status of the borrower	No (Reporting does not cover the entire portfolio)	N/A
20	Statement on Interest Rate Futures transaction	NBFCs participating in IRF exchanges for hedging their underlying exposures are required to submit the half-yearly statement	No	N/A

* Though few forms capture asset classification details (hence, provide visibility over the asset book), maturity pattern of the details, they are not usable for the discussed indicators, hence are marked as "no" in this column.

** Formats that capture asset classification details for the entire asset book are not discussed here since those details are not useful for OI analysis

As may be evident from columns 4 and 5 of the table, the data presently being collected from NBFCs prevents the RBI from having oversight with respect to various aspects simultaneously like average loan outstanding of a borrower, type of borrower, the economic activity of the borrower, the geography of disbursement, and the borrowers' *income profile based debt serviceability*. To exemplify, the Annexure-6 to the NBS1 return captures the disbursement (number of accounts, total advances outstanding, and the associated NPAs) for 14 different economic sectors (See the sheet titled "*Reporting Format Details_NBFC*" of the appended excel file titled "*Analysis of RBI Reporting Formats (Dvara Research)*" in Annexure-4). However, from this data, it is unclear what the number of small accounts or large accounts are, what the income profile-based debt serviceability of the borrowers are, what the geography of disbursement is, among others.

Similarly, other formats prescribed by the RBI also fall short, especially in the case of the NBFCs. These lacunae persist even in the case of reporting by Systemically Important NBFCs (NBFC-SI). The RBI's visibility over the asset book of NBFC-SIs has been found to be limited to a balance sheet level split of sectors, with no details of geography of disbursement/servicing, or income profile-based debt serviceability of the borrower, or the loan ticket amounts (See the sheet titled "*Reporting by NBFC_Analysis*" of the appended excel file titled "*Analysis of RBI Reporting Formats (Dvara Research)*" in Annexure-4). This stands in direct contrast with the visibility the RBI has over the asset level details for SCBs (which are discussed later).

While this lacuna may be addressed by ad-hoc requests for data from institutions, a continued and periodic oversight is lacking in the current reporting regime. This incomplete monitoring paradigm leaves the RBI severely ill-equipped when it comes to deploying any proactive measures to prevent over-heating of credit markets or even gauge the potential impact of regional climatic, political, or other shock events. Thus, the RBI's capacity to proactively avert a credit crisis is significantly limited,

and it is the need of the hour to rectify this failing[50]. Even more concerning is that these issues persist in case of SCBs as well, though they were not found to be as pronounced there as in the case of NBFCs.

Section 3.1.1: The Case of Banks

In the case of banks, the visibility that the RBI has over the debt extended by them is significantly better than that in case of NBFCs. From our analysis of all the reporting formats used by the RBI, it emerges that primarily the Basic Statistical Return-1 (BSR-1) format is used to generate much of the needed insight into the portfolio of banks. Some of the details that are presently being captured are also useful for the analysis of the levels of over-indebtedness. The BSR-1 format comprises of two reports, BSR-1A and 1B, though the reporting format present on the RBI's website does not make that distinction in the linked format, but in the associated handbook. The BSR-1A format is applicable for loans exceeding INR 200,000, whereas the BSR-1B format applies to loans up to INR 200,000[51].

The BSR-1B format captures district-level details of loans given to each occupational and organisation category by their credit limits (up to INR 25,000 and between INR 25,000 and 2,00,000). Further, the format also captures the number of accounts, amount outstanding, the rate of interest, type of interest (fixed or floating), and whether the loan is secured or not for such accounts. However, given that these aggregates are generated separately, there is no way of ascertaining the number of accounts under two different parameters simultaneously[52]. To exemplify, it is possible to know the number of accounts from, say, the agricultural sector in the district of Bangalore, Karnataka. However, it is not possible to ascertain the number of such agricultural accounts which have a floating rate of interest[53].

Another feature of BSR-1B is the homogenous treatment of all accounts having a credit limit of up to INR 25,000. Similarly, the homogenous treatment continues for the accounts in the much wider reporting band, of loans with a credit limit between INR 25,000 and 200,000. Since the reporting format prescribes aggregate reporting, it becomes impossible to ascertain the number of agricultural accounts having outstanding dues less than, say, INR 125,000, which is also the maximum permissible indebtedness level of an NBFC-MFI borrower[54]. This prevents the RBI from constructing customised

[50] The RBI Working paper, authored by A. Karunagan (2011), titled "Inter-connectedness of Banks and NBFCs in India: Issues and Policy Implications" acknowledges the issue, and had suggested (in 2011) that "It is advisable to introduce the return relating to balance sheets on a monthly basis and a more detailed returns encompassing the whole operations of the companies on completion of their annual accounts, as against the quarterly, half yearly annual returns to be filed by the deposit taking NBFCs"; Accessible at: https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/21WPN020112.PDF

[51] See The RBI handbook of Instructions for BSR-1, accessible at: https://www.rbi.org.in/Scripts/OccasionalPublications.aspx?head=Handbook%20of%20Instructions%20Basic%20Statistical%20Returns%201%20and%202

[52] The observations are drawn from the published formats in The RBI handbook of Instructions for BSR-1, accessible at: https://www.rbi.org.in/Scripts/OccasionalPublications.aspx?head=Handbook%20of%20Instructions%20Basic%20Statistical%20Returns%201%20and%202

[53] The reporting format present on the RBI's website (see: Sl. 17 of List Of Returns Submitted to RBI, accessible at: https://www.rbi.org.in/Scripts/BS_Listofreturns.aspx) only displays partial details of BSR-1A and not details of BSR-1B format. Such details had to be located separately from the Handbook of Instruction (Basic Statistical Returns 1 and 2), dated March 2008, accessible at: https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/83850.pdf

[54] See the RBI notification dated November 08, 2019, titled "*Qualifying Assets Criteria - Review of Limits*", accessible at: https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=11727&Mode=0

classes based on the credit limit of the account. Since over 58%[55] of personal loan accounts with the SCBs have credit limits between INR 25,000 and 200,000, this lack of visibility is a severe bottleneck. Though the BSR-1B format is a step in the right direction, it is presently inadequate, since the income profile-based debt serviceability of the borrowers is not captured. This prevents any meaningful analysis of OI to be carried out using the data captured in the BSR-1B format. Though the issue of a lack of reporting of income-profile-based debt serviceability continues in case of BSR-1A, it fares much better in other regards.

The BSR-1A format is used for accounts with credit limits greater than INR 200,000. In this format, the RBI, instead of seeking aggregate figures for earlier discussed categories, requires the banks to share the details of each account[56]. Since the details of each account, like the deployed sector, rate and type of interest, etc. are captured simultaneously, the data captured in the format allows for analysis that incorporates more than two parameters[57]. Thus, the type of bottleneck cited earlier gets mitigated under the BSR-1A format. Further, since the reporting happens on an individual account basis, the RBI may, at its discretion, increase or decrease the level of granularity. Thus, unlike BSR-1B where the loan-size bucket ranges from INR 25,000 to 200,000, the RBI can construct loan-size buckets ranging from, say, INR 200,000 to 250,000 to larger buckets such as INR 200,000 to 2,000,000, depending on the requirements.

In light of the analysis, it becomes imperative that the existing BSR-1B format is amended to allow for more detailed, and granular reporting for all loans, especially since the household sector has over 204 million accounts (representing, 77.5% of all accounts) having a credit limit of up to INR 200,000[58]. This is because, low-income individuals each with many small-ticket loans could become severely over-indebted and yet fall outside the current radar of the RBI. Further, when the analytical framework discussed earlier in the chapter is applied, it emerges that geospatial identification of loans, along with the borrowers' occupational categories, is feasible under both BSR-1A and 1B formats. However, due to the lack of data on the income profile-based debt serviceability of the borrowers, the RBI's visibility over potential levels of indebtedness remains incomplete. A detailed discussion of the BSR-1 and other reporting formats for SCBs is present in the sheets titled "*Reporting by Banks_Analysis*" and "*Reporting Format Details_Banks*" of the appended excel file titled "*Analysis of RBI Reporting Formats (Dvara Research)*" in Annexure-4, and is not reproduced in the report due to the paucity of space.

Despite this marked granularity in the case of SCBs, and the RBI having significantly more visibility when it comes to loans disbursed by banks[59], there are still important data that we conclude are not available to the RBI. As discussed earlier, the data on the income profile-based debt serviceability of borrowers is pivotal in estimating the levels of indebtedness and the prevalence of over-indebtedness. To reiterate, since income is an integral part of the earlier discussed DSR calculations (which capture

[55] See the RBI publication of data on DBIE titled, *Table no. 2.5 - Size of Credit Limit and Interest Rate Range-Wise Classification of Outstanding Loans and Advances of Scheduled Commercial Banks,* available at: https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications#!12

[56] Though the RBI report suggests that the reporting branch mention the name of the borrower and her account number while filling the format, the RBI circular suggests that the RBI does not keep a record of such information, See: Pt. 4 and 5 of the chapter titled BSR-1, Part- A of the Handbook of Instructions (Basic Statistical Returns 1 and 2), accessible at: https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=10216

[57] See the BSR 1A format, accessible at: https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/83864.pdf

[58] See the RBI publication of data on DBIE titled, *Table no. 1.11* - Outstanding Credit of Scheduled Commercial Banks According to Organisation, March - 2020*,* accessible at: https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications#!9

[59] See the detailed analysis of the reporting formats present in appended excel file titled "*Analysis of RBI Reporting Formats (Dvara Research)*" in Annexure-4

income profile-based debt serviceability), the verification of income being reported by the borrower (to the provider) becomes of extreme importance. Typically, in micro-finance loans, there is seldom any verification of income, since the borrower is rarely salaried or would be filing an Income Tax Return. The MFI instead takes a self-declaration from the borrower instead of taking the effort to make estimates of her income or use proxies. This lack of verification was also, more generally, noted by the RBI's High-Level Task Force on Public Credit Registry for India[60], and must be remedied at the earliest. Further, the report suggests that the recorded income should be updated on an annual basis, rather than it being just static[61]. Thus, ideally, the RBI should require reporting institutions to upload the DSR levels of loans across income categories for not only new disbursements, but also for older accounts. However, till such transitions are made, it is pivotal that income profile-based debt serviceability is captured for all new accounts. Annexure-5 details out how such reporting may be made, whereunder the RBI can seek the DSR distribution across income profiles of all new credit accounts.

Apart from the income profile based DSR distribution, the presence of multiple lending is a key indicator which may indicate over-indebtedness of a borrower. Often, borrowers undergoing stress resort to "churning of loans" whereunder they contract a new line of credit to repay their older credit. This phenomenon is unfortunately quite common in case of micro-finance and Kisan Credit Card[62] borrowers. Thus, if the provider is lending to an individual with already existing loans, such data would be critical in detecting the possible prevalence of OI. Presently the CICs have visibility over multiple lending, but not the RBI. Hence, it is advised that the RBI require reporting of the information (on multiple lending) urgently. However, due to legal hurdles discussed in the next section, such data should be collected from providers directly, instead of from CICs. Presently, providers are required to query the CICs before making a credit decision, thus providers at the time of credit decision making would be aware of the number of credit accounts the potential borrower has. This data (on the number of loans a new borrower had at the time of disbursement) can then be used to compute the prevalence of multiple lending in a geography. Annexure-6 lists an indicative format for such reporting by providers.

Before discussing the case of CICs, it is important to highlight another major finding from the study of 148 reporting formats of the SCBs. Presently, there is a large amount of duplication that exists across reporting formats. In certain cases, identical details are being sought in more than three reporting formats. To exemplify, details of ATMs, like their location, the number of transactions, operational status, etc., are being sought in four different formats, titled "ATM Deployment", "ATM Failed Borrower Complaints", "ATM Transaction Decline", and "Monthly Return: Statement on Number of Branches/Offices/ATMs" (See Sl. 3, 5, 6 and 127 of the sheet titled "*Reporting Format Details_Banks*" of the appended excel file titled "Analysis of RBI Reporting Formats (Dvara Research)" in Annexure-4).

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[60] See Paragraph 4.11, which partially reads, "*Currently there is a lot of self-certified data taken from customers and relied upon e.g. client KYC, Income details, financial details (assets & liabilities), networth, contact numbers, nationality etc. These details especially financial details are important parameters for lending. In case of companies these details are available through audited financials; however the same does not provide a holistic view regarding the paying capacity of the client*" and Annexure 2B of The Report of the High Level Task Force on Public Credit Registry for India (2018), accessible at: https://rbidocs.rbi.org.in/rdocs//PublicationReport/Pdfs/PCRRR09CF7539AC3E48C9B69112AF2A498EFD.PDF

[61] See Pg. A48 of the Report of the High Level Task Force on Public Credit Registry for India (2018), accessible at: https://rbidocs.rbi.org.in/rdocs//PublicationReport/Pdfs/PCRRR09CF7539AC3E48C9B69112AF2A498EFD.PDF

[62] Pg.48, Study on Implementation of of Kisan Credit Card Scheme, Occasional Paper 64, 2016; accessible at: https://www.nabard.org/auth/writereaddata/tender/3103171130OP-64_Study%20on%20Implementation%20of%20KCC%20Scheme_wb.pdf

Thus, before the necessary additional indicators are added, it is of urgent importance that the RBI rationalises these reporting formats.

Section 3.1.2: The Case of CICs

To further enhance the RBI's oversight over the deployment of credit, the RBI may utilise the records kept with the CICs. Presently the Credit Information Companies (Regulation) Act, 2005[63], allows the RBI to specify entities with access rights (section 2(l) of the Act). However, the delegated legislations[64] under the Act do not include the RBI as a "specified user". Thus, under the present legislative framework, the RBI is prevented from using such data. Further, even if one is to assume that such a notification may be introduced by the RBI, since the Act empowers the RBI to issue regulations, the data presently being captured by the CICs are inadequate for the purposes of detecting the prevalence of over-indebtedness, and to achieve the proposed levels of credit market monitoring capacity.

Currently, providers rarely share data on the income or occupation of the borrower with CICs, hence the RBI would not be able to seek income-profile-based DSR profiles of borrowers in a geography or customer segment from CICs. Further, details like whether a borrower is new to the formal credit system, or an existing borrower from the banking system, etc. are difficult to validate due to the absence of any unique customer identification system that can be used[65]. Table 3 lists the various data fields that are presently recorded by the CICs.

Table 3: Features of the data being collected and recorded by the CICs as provided by reporting entities

Sl No	Theme	Recorded Information
1	Demographic Details of Applicant	Name, Sex, Date of Birth, Government Issued ID Number, Address (including PIN code), income, etc.
2	Demographic Details of Co-Applicant(s)	-do-
3	Loan Application Details	Amount Applied for, Type of Loan, name of the provider to whom the application was made, etc.
4	Loan Account Details (if Loan is approved)	Amount Disbursed, Type of Loan, Rate of Interest, tenure, etc.
5	Loan Servicing Details	Whether the repayments are on time, amount repaid, etc.
6	Delinquency	If the account is not serviced regularly, DPD of account is calculated by the CIC

[63] See: The Credit Information Companies (Regulation) Act, 2005, accessible at: http://legislative.gov.in/sites/default/files/A2005-30.pdf

[64] See Sub-regulation 3 of The Credit Information Companies Regulations, 2006, accessible at: https://upload.indiacode.nic.in/showfile?actid=AC_CEN_2_11_00003_200530_1517807317795&type=regulation&filename=the_credit_information_companies_(regulation)_2005_-_regulations.pdf

[65] Data on existing to banking system (ETB) customers, new to banking system (NTB) customer, etc. can be expected to add value to the monitoring capacity of the RBI regarding whether the lending institutions are serving their mandate of financial inclusion and provision of offerings to previously unserved segments. Presently, different CICs are using analytics to estimate these figures. See, MSME Pulse, October 2020. Accessible at: https://www.transunioncibil.com/resources/tucibil/doc/insights/reports/report-msme-pulse-october-2020.pdf

7	Legal Proceedings	If the provider (or the borrower) has initiated legal proceedings against the account (includes cases of insolvency and bankruptcy)
8	Closure	If the loan is closed, type of closure (full payment, pre-payment, written-off, etc.)

Source: Author's Representation based on the RBI's circular: RBI/2014-15/128RPCD.RRB.RCB.BC.No.13/ 03.05.33/2014-15[66]

While data on income profile based DSR distribution is one lacuna of the present paradigm, another issue arises when one attempts to identify the final economic sector(s) where the credit is being utilised. Especially in the case of natural persons, since the economic sector where the credit is deployed is expected to be a leading indicator for measuring the prevalence of OI, such data is crucial, but not available with the CICs. To exemplify, the Monitoring & Detection Framework is expected to account for sectoral trends in the real economy to estimate changes in the income earning capacity of the borrowers, as diminished disposable income-generating capacity is often the sole cause of over-indebtedness.

Further, as discussed in the previous chapter, there is a widespread prevalence of duplicate records with the CICs. The duplication is caused due to the lack of any unique customer identifier being assigned across all providers and CICs. Thus often, any given CIC can have two or three different records for a given borrower, since the borrower may have used different KYC identification documents at the time of their loan application. Thus, even in a scenario where the RBI can mandate the CICs to report aggregated data for each geography, if the present issues of borrower identification and lack of indicators are not resolved, the data being reported will be inaccurate, and hence often counterproductive.

While the proposed PCR may significantly strengthen the RBI's abilities to monitor credit markets, it is presently unclear when (if) the registry would become operational. Further, the PCR will not emerge as a repository for all proposed indicators under the Monitoring & Detection Framework. To exemplify, the number of complaints to the provider's internal Ombuds will not be covered in PCR, neither will the income profile based DSR distribution of borrowers, since even if the PCR has data on borrowers' income, it is not designed to house data on the expenditure profile of the borrowers. Hence, even when PCR becomes operational, providers are expected to be a key source of data for the proposed Monitoring & Detection Framework.

Section-3.2: A More Robust Monitoring System

There are several lacunae that the RBI must address to capture the indicators that are a pre-requisite for the Monitoring & Detection Framework. While these indicators and their efficacy in detecting OI have been discussed earlier, these indicators are also capable of serving another critical function, that of enhancing the RBI's monitoring capacity with respect to the health of the Indian credit market. As identified in earlier sections, there are broadly four categories of indicators that are required to have comprehensive oversight of the credit market. This section, therefore, is further divided along the lines of the indicators are discussed in detail.

[66] See: RBI's circular titled "Data Format for Furnishing of Credit Information to Credit Information Companies and other Regulatory Measures" for the full formats;
Accessible at: https://rbidocs.rbi.org.in/rdocs/Notification/PDFs/FIC150714FCS.pdf

Section 3.2.1: Measuring Market Saturation

Given India's low credit to GDP ratio, it is likely that the credit demand of the real economy is not being met. To exemplify, the Bank for International Settlements (BIS) reports that India's total credit (to the private non-financial sector) to GDP ratio for Q1 2020 stood at 57.8% which was the fourth-lowest (after Argentina, Indonesia and Mexico, with 19.8%, 39.7% and 41.5% respectively), compared to the average reported ratio of 155% across 43 reporting jurisdictions[67]. Thus, there is a clear need to enhance the credit supply to the real economy. However, such a move may result in credit getting deployed into over-saturated geographies, while under-served geographies stay lacking.

Though the issue has been noted by several RBI expert committees, including the RBI Committee on Comprehensive Financial Services for Small Businesses and Low-Income Households, 2014 (Chairman: Dr Nachiket Mor)[68], the present reporting frameworks prevent the RBI from monitoring even the state-level credit to GDP ratios, let alone district-level, since RBI's regular reporting frameworks do not capture the geographical details of disbursements by NBFCs. Thus, it is crucial to ensure that the monitoring capacity of the RBI is enhanced in this regard, something which the proposed indicators for detection of OI achieves, as it captures the following details.

Table 4: Indicators Proposed for Detection of Credit to GDP Ratios

Sl. No	Proposed State			Present State	
	Indicator	**Periodicity**	**Reporting Entity:**	**Indicator in Use?**	**Details of Available Data**
1	Non-financial private sector consumer credit	Bi-Annually	Providers (Banks, NBFCs)	Yes, partially	District-level data on bank credit is available, but not for NBFCs.
2	District level GDP	Bi-Annually	MOSPI/Individual State statistics departments/Private agencies	Yes, partially	While, data on Gross State Domestic Product (GSDP) is available, district level data is often unavailable from official sources. However, private databases from organisations engaged in market research may also be used for this purpose.

(See appended excel file titled "*List of Indicators for OI Supervision (Dvara Research)*" in Annexure-4, for details)

It is, however, not adequate to just measure credit to GDP ratios to estimate the state of credit markets in each geography. It is also important to understand the levels of market saturation in the

[67] See: Credit-to-GDP ratios (actual data) [Based on total credit to the private non-financial sector, as % of GDP] released by the Bank for International Settlements (BIS) accessible at: https://stats.bis.org/statx/srs/table/J?c=&p=20201&m=A

[68] See the Report of The Committee on Comprehensive Financial Services for Small Businesses and Low Income Households; Accessible at: https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/CFS070114RFL.pdf

geography, thus indicating which borrowers are being served, and how are they being served. Similarly, details of rejection rates of institutions in any given geography could shed further light on the lending behaviour of institutions in such areas and hence should be captured too. The following table captures the proposed indicators that would enhance the RBI's visibility over the subject.

Table 5: Indicators Proposed for Detection of Market Saturation

Sl. No	Proposed State			Present State	
	Indicator	**Periodicity**	**Reporting Entity:**	**Indicator in Use?**	**Details of Available Data & Comments**
1	District-level number of operating bank branches	Regular update upon commencement of operations (e.g. Monthly)	Provider (Bank/NBFC)	Yes, partially	Number of operational bank branches is present, but data on district-level banking operations through Business Correspondents are absent.
2	District level number of operating non-banks/MFI branches	Regular update upon commencement of operations (e.g. Monthly)	Provider (Bank/NBFC)	Yes, partially	District-level data on the number of branches of NBFCs and NBFC-MFIs is reported. However, no other branch level data are being reported.
			MFIN (For NBFC-MFIs)	Yes	
			Sa-Dhan (For NGO-MFIs)	Yes	
3	District-level number of borrowers	Regular updates upon sanction of loan (e.g. Monthly)	Provider (Bank/NBFC/ MFI)	Yes, partially	Data for bank borrowers is available through BSR formats, but not for NBFCs.
4	District-level number of applicants	Real-time update upon application for a loan	Provider (Bank/NBFC/ MFI)	No	Data is captured by the provider but are not required to be reported.

(See appended excel file titled "*List of Indicators for OI Supervision (Dvara Research)*" in Annexure-4, for details)

While the primary data needed to construct all the discussed indicators are currently being captured, often there is no onward reporting to the RBI, and hence the RBI's capacity to monitor the health of the credit markets remains limited. Thus, it is expected to be an easy task for the RBI to amend appropriate reporting formats to incorporate the aforementioned indicators.

Section 3.2.2: Monitoring the Providers

Another important aspect of monitoring the credit market is that of monitoring the providers. As discussed in the earlier chapters, there are many tools available to the RBI to carry out such monitoring. While the few options available are significantly more robust than the RBI's off-site reporting, e.g., on-site inspections or audits, these are generally not in a frequency that is more than once a year and understandably does not cover all entities. Thus, it is important to ensure that the banking sector regulator has periodic and comprehensive oversight over the activities of its regulated

entities. The indicators captured under the theme of "Provider Profile" of the Monitoring & Detection Framework affords such visibility (see Table 6).

Table 6: Indicators Proposed for Monitoring Providers' Activities

Sl No.	Proposed State			Present State	
	Indicator	**Periodicity**	**Reporting Entity**	**Indicator in Use?**	**Details of Available Data & Comments**
1	Amount of new loans disbursed	Monthly	Provider (Bank/NBFC)	No	The data is present with the provider, but not reported to the RBI. Exceptions are in case of loans to SHG group members (reported under the *NRLM* format) and underserved sections of the society (under the *DRI* format)
2	Loan type	Monthly	Provider (Bank/NBFC)	Yes, partially	Only available for accounts with credit limit exceeding INR 2,00,000
3	Number of new loans disbursed	Monthly	Provider (Bank/NBFC)	No	The data is present with the provider, but not reported to the RBI. Exceptions are in case of loans to SHG group members (reported under the *NRLM* format) and underserved sections of the society (under the *DRI* format)
4	Terms of contract	Real-Time, (in case of changes)	Bank via its Core Banking Solution	No	Terms of contract, like change in the rate of interest, repayment schedule, etc. that have a material impact on the repayment of the loan may be recorded to ensure adequate and updated visibility with the RBI.
5	Total number of loans per borrower/applicant	Monthly	Provider (Bank/NBFC)	No	The data is present with the provider, but not reported to the RBI. The number of loans per borrower which shows multiple lending can be used to indicate (not identify) over-lending, which could lead to over-indebtedness. At a provider level, this detail can be provided for both the applicants as well as the borrowers. Analysis of the distribution of this figure can be used to identify potential over-lending. Additionally,

					these details need to be provided alongside a district code so that geographic analysis may be done.
6	Complaints made to the provider's internal Ombuds	Monthly	Provider (Bank/NBFC)	No	Complaints made to providers regarding over-lending can be used to indicate debt stress faced by borrowers. To identify geographic levels of debt stress, these details need to be provided at a district- level.

(See appended excel file titled "*List of Indicators for OI Supervision (Dvara Research)*" in Annexure-4, for details)

As may be evident from the table, analysing these proposed indicators (though, at an aggregate level) would allow the RBI to have enhanced visibility over the operations of a provider. Thus, if from the reported data it emerges that the activities of one provider stand out in comparison to others in a geography, the RBI may investigate the matter further to obtain a real-time understanding of how credit is being disbursed in the economy and intervene, if needed. These data may also be used for other purposes as well, including as an early warning system to detect over-heating of select geographies, as done in Zambia (see Box-2) and Peru (see Box-3).

Box-2: The Case of Zambia

Bank of Zambia (BoZ), Zambia's central bank, set up an initiative called the Credit Market Monitoring Programme (CMMP)[69], under which regulated credit providers (both commercial banks and non-banking financial institutions) submit data on their loan book to BoZ. This program which commenced in 2014 required the collection of data to be done through quarterly returns, called the credit market monitoring programme returns, which are supplemental to the returns that providers already submit. This information is then aggregated, analysed and published in the form of annual reports[70].

One of the prominent features of the data to be reported under CMMP is that providers need to report the amount of credit disbursed per quarter and this is further disaggregated by aspects such as income category of the borrower, purpose of borrowing, and the province. This is in addition to reporting on credit outstanding, which by itself does not help in understanding the quantum of fresh credit going into the economy (see tables 8-10, section 1 of Annexure-2 for details on the disaggregated aspects). Such granular data helps in determining the health of the credit market. For instance, in the 2018 CMMP report[71], the state of financial distress of low-income households was intuited from a combined analysis of two aspects: that higher disbursement of credit that had gone towards products with shorter tenure, in addition to their purpose stated as utilisation for living expenses[72].

Another prominent feature of the data to be reported under CMMP is that it captures demand for credit through the number of applications. This allows for analysis by proxy of aspects such as level of market saturation and overheating in specific end-user categories.

[69] https://www.fsdzambia.org/wp-content/uploads/2019/04/FSD-Africa-Press-Release-Zambia-MoU-signing-FINAL-00000002.pdf

[70] https://www.boz.zm/BOZCMMRreport2018FINAL.pdf

[71] Point 24, Households and Individuals, Credit Supply, Credit Market Monitoring Report 2018, Bank of Zambia. p32. Accessible from: https://www.boz.zm/BOZCMMRreport2018FINAL.pdf

[72] *ibid.*

Box-3: The Case of Peru's Extensive Supervisory Dashboards

Peru's supervisory authority, Superintendencia de Banca, Seguros y AFP (SBS), is an autonomous public institution in charge of regulating and supervising banks, micro-finance institutions, non-bank financial institutions, insurance and private pensions. SBS has several regulatory policies in place for addressing over-indebtedness, such as credit concentration limits mandated against counterparties – both individually and by economic group, the mandatory requirement of the credit service providers to assess repayment capacity of the borrower, to identify quantitative and qualitative early warning indicators that suggest a negative evolution of the debtor or the market in which it operates, to anticipate risks, and to assess over-indebtedness at the entity level.

In addition to the regulatory policies, SBS places multiple credit-related regulatory reporting requirements on the credit institutions. The reports contain credit information disaggregated by several criteria and are sent monthly by all financial institutions as part of their reporting requirements to SBS. The aggregated information is used by the SBS to develop internal dashboards at several frequencies to support different teams and entity supervisors to assess, among others, credit risk, sectoral analysis, research and market conduct. One of the credit-related regulatory reports required by the SBS is the Debtor-Creditor Report (RCD) which is a monthly report containing information on credit balances at the debtor level.

One of the items reported in the RCD is the 'over-indebtedness condition' of the debtor, which is determined as per the methodology of the reporting financial institution. Further, in the RCD, the debtor is uniquely identified by debtor codes assigned by both the financial institution and the SBS. This information in the RCD goes to the SBS' credit registry team, which receives, validates, processes, consolidates the data and then produces the consolidated file that goes back to financial institutions. The SBS updates the credit registry itself, and then feeds into internal reports, external reports (e.g. some statistical tables), and also for any person to be able to check their credit profile -or that of a potential borrower. Other databases, such as vintage analysis, sector concentration report, over-indebtedness report, and defaults rate report, are also required of the financial institutions for supervisory purposes. Another important source of data in the supervisory monitoring process is the additional databases required to be provided by the financial institutions during the annual supervisory inspections. These databases contain borrower-level details such as their income and risk score (if any). One of the noteworthy features of the SBS's reporting regime is that considerable detail on credit providers' loan book is reported every month, including balance sheets of the banks.

Moreover, SBS publishes on its website several of these reports and dashboards at several frequencies and of individual institution types, to help improve credit market understanding and transparency, which in turn helps in the market monitoring by other actors too. The credit data which is published is of both the monthly quantum of disbursement as well as the outstanding amount. The balance sheets of the banks are too published as part of 'Multiple Banking Statistical Information[73]' (See section 2 of Annexure-2, for a list of other provider-level data points relevant for credit monitoring).

Other credit monitoring aspects such as the credit-GDP ratio are discussed in the SBS's Financial Stability Reports (FSRs), but only at the national level and does not extend to the region level. However, given that data on the GDPs of economic sectors is published, the sectoral credit-GDP can be calculated. Additionally, the FSR contains an analysis of credit risk of micro and small debtor companies, which is done considering several factors such as migration analysis and transition analysis.

Therefore, as Peru collects and publishes extensive information at all levels of the detection framework, a robust picture of borrower indebtedness can be built from publicly available data.

[73] Multiple Banking Statistical Information, SBS Peru. Retrieved from: https://www.sbs.gob.pe/app/stats_net/stats/EstadisticaBoletinEstadistico.aspx?p=1

Section 3.2.3: Monitoring the Borrowers

The consolidated profiles of the borrowers are expected to be a corollary of the providers' asset book (and asset profile), though it would also capture other finer details. Thus, the proposed indicators under the OI Detection Framework would invariably lead to greater oversight by the RBI over the borrowers' liability profiles, including the levels of over-indebtedness. Before discussing the features of such proposed reporting, it is important to note that the data being sought by the RBI must adhere to stringent privacy standards. Though a detailed discussion is outside the scope of the report, it may be noted that with a few additions (as highlighted by Dvara Research in the past), the Personal Data Protection Bill, 2019, is well suited for the task[74]. Since the features of the proposed reporting formats are already discussed at length in the earlier chapter, further discussion is avoided here, but the proposed indicators are reproduced below (Table-7).

[74] See: Dvara Research (2020), "*Comments to the Joint Parliamentary Committee (JPC) on the Personal Data Protection Bill 2019 introduced in the Lok Sabha on 11 December 2019*"; Accessible at: https://www.dvara.com/research/wp-content/uploads/2020/03/Dvara-Research-Final-Submission-Comments-to-the-Joint-Parliamentary-Committee-on-PDP-Bill.pdf

Table 7: Indicators Proposed for Monitoring Borrowers' Profile

Sl No	Indicator	Desired State			Present State	
		Periodicity	Reporting Entity(ies)	Comments	Indicator being reported to the regulator?	Indicator being captured by the provider?
1	Principal (I)	One Time with Updates at Trigger	Provider (Bank/NBFC)	I: Indirect Indicators, which may be used to compute the instalment amounts Trigger here refers to an event that would change the terms of the liability profile, including contracting a new loan, re-negotiation, part payment, etc.	No	Yes
2	Interest (I)	One Time with Updates at Trigger	Provider (Bank/NBFC)		No	Yes
3	Tenure (I)	One Time with Updates at Trigger	Provider (Bank/NBFC)		No	Yes
4	Type of Loan	One Time with Updates at Trigger	Provider (Bank/NBFC)		Yes	Yes
5	Service History	Monthly	Provider (Bank/NBFC)		No	Yes
6	Actual Instalment	One Time with Updates at Trigger	Provider (Bank/NBFC)		No	Yes
7	Repaid Instalment	Monthly	Provider (Bank/NBFC)		No	Yes
8	Outstanding	Monthly	Provider (Bank/NBFC)		No	Yes
9	DSR (along with data on income segment)	One Time with Updates at Trigger	To be calculated by the provider (Bank/NBFC)	With the provider submitting borrower DSRs aggregated in buckets of income and across geographies, the distributions of these DSRs can be analysed to identify regions/borrower segments facing stress.	No	Uncertain
10	Consumer Profile Identifier (CPI)	One Time	Information Utilities (IU)	Acting as a lagging indicator, when reported at a high frequency, the number of	No	Not Applicable
11	Type of Case	One Time with Updates at Trigger	IU		No	

12	Expected Amount in Default	One Time (to be pulled from CIC using CPI)	IU	such cases can act to identify debt stress levels.	No	Not Applicable
13	Actual Amount in Default	One Time with Updates at Trigger	IU		No	
14	Admitted Amount in Default	One Time with Updates at Trigger	IU		No	
15	Factors Leading to the case	One Time	IU		No	
16	Consumer Profile	One Time	RBI Internal Tracking System	1. Time of registering of the complaint may not be the same as when the complaint arose, thus capturing both may help 2. Status of the complaint may shed light on the complexity around remedying such issues, an indirect indicator to detect the duration of prolonged stress	Yes	Not Applicable
17	Type of Complaint(s)	One Time with Updates at Trigger			Yes	
18	When and Why the issue emerged?	One Time			Yes	
19	Institution(s) involved	One Time with Updates at Trigger			Yes	
20	Status of Complaint(s)	Trigger Updates			Yes	
21	Time taken for resolution	Trigger Updates			Uncertain	

As noted in the table, most of the proposed indicators are already being captured by the providers, even though most of them are not being reported. However, the data related to insolvency and bankruptcy (Sl 10-15 of the table) are not recorded, since India is transitioning to a new insolvency and bankruptcy regime for natural persons. Hence, with minor modifications to existing data reporting formats, the RBI may require the providers to report all of the earlier discussed data, to ensure that it has higher visibility over the profile of borrowers in the credit markets. Given the data is already being recorded internally by the providers, the transition to the new reporting paradigm is expected to be easy.

In the case of DSR, whether the providers are presently capturing it for all borrowers, there remains an uncertainty. However, it must also be noted that presently, the repayment capacity of middle-income and high-income borrowers are generally assessed by the providers during the disbursement of loans. Since the providers may easily verify key parameters like the income of the borrower from reliable sources like salary slips and income tax returns, the credit decision-making process can easily incorporate indicators like the DSR. However, under certain categories of loans, like, gold loans, loans against shares, etc, such assessment is avoided by many providers. It has been pointed out by practitioners that the providers have (and should continue to have) a right to make these loans and devise their business strategies without any interference from the RBI. Placing the requirement on providers to record income and calculate DSR may seemingly lead to the RBI getting higher visibility over the credit decision-making process of the providers, hence leading to concerns of micro-management.

We posit that if the RBI begins to prescribe what is a right or wrong DSR, it would be overstepping in its role of critiquing bad underwriting practices. Further, as discussed in chapter 2, the RBI should only direct providers to use a uniform calculation methodology when reporting to the RBI, and thus, in no way such proposal is expected to undermine the proprietary lending practices of the providers. When the RBI insists that such data (on DSR) be computed by the provider and later shared with the RBI, it would greatly enhance the RBI's visibility over the credit markets, as well as its capacity to discharge the customer protection mandate. Thus, the RBI should mandate all institutions to report DSR distributions across income categories.

It must also be noted that concerns of regulatory over-reach through the collection of data may emerge in the present paradigm as well, since the RBI may ask for such data either through ad-hoc offsite requests, or during on-site inspections. Hence, the proposed framework does not necessarily lead to any additional erosion of providers' credit decision making autonomy. Further, even if such harms materialise, they are easily addressable using either of two pathways. The first pathway is the data masking that is inherent in district level aggregation of borrower's data. The second pathway would place legal prohibitions on the RBI to not access the borrower level data, akin to the protections afforded to the biometrics dataset of Aadhaar.

Presently, the loans against liquid security (like gold, shares of a listed company, etc.) assumes that even if the individual defaults, the loss given default (LGD) would be negligible for the provider if the loan to value (LTV) of the asset is below a specific threshold. Thus, the present mechanism adopted by the provider is prudent to ensure its own interests are protected. However, when it comes to customer protection, these loans may cause over-indebtedness if the decision to lend was not based on income assessment and repayment capacity analysis of the borrower. Therefore, information on the borrower's income, the existing level of indebtedness, etc. ought to be captured for all categories of loans.

These indicators, apart from representing the underlying borrower profile in India, are expected to also lead to a better understanding of the possible directions that the credit market is taking. To exemplify, a continuing increase in borrowers' DSR (and regional GDP) may lead to a higher demand for credit in the future. Thus, the indicators on the borrower profile may be leading indicators for data being captured under the section of Providers' Profile. (See appended excel file titled "*List of Indicators for OI Supervision (Dvara Research)*" in Annexure-4, for details)

Finally, the proposed Framework for Monitoring Credit Markets and Detection of Over-Indebtedness not only includes key data from the borrowers, but also aggregate data regarding the operations of providers and the impact on the real economy. Such consolidated data would therefore allow the RBI to move from the present paradigm of disjointed analysis, to a paradigm where the linkages between various market participants and market outcomes are clearer. This enhanced visibility can significantly empower the RBI to design targeted policies to tackle not only issues of over-indebtedness but also others like disparity in credit distribution and its varying elasticity across geographies[75].

[75] See (Nishanth K and Irene Baby, 2016): "*Determining Optimal Credit Allocation at a District Level*"; accessible at: https://www.dvara.com/research/wp-content/uploads/2016/12/Determining-Optimal-Credit-Allocation-at-a-District-Level.pdf

Chapter-4: Concluding Remarks

Financial Inclusion, especially credit inclusion in India has made tremendous strides over the past few decades, thus, allowing households, often low-income, easier access to credit. This easy access to credit has undoubtedly helped several households manage their cash-flow, smoothen their consumption, etc. However, it has also led to an over-reliance on credit, whereunder households have opted for credit to mitigate expenses arising out of shock events, like natural calamities, health shocks, etc. While the root cause of this over-reliance on credit may be due to the underdeveloped markets for traditional risk mitigation products, and other suitable financial products, the impact of the over-reliance on credit has often exposed fault-lines in the market. These fault-lines, originating out of over-indebtedness, have mostly presented themselves in the micro-finance sector, which lends to the most vulnerable households. The 2010 micro-finance crisis in Andhra Pradesh, or the on-going crisis in Assam in 2020-21, have highlighted that there is an acute need to balance *the access to credit* against *an excess of credit*.

This balancing act falls squarely under the purview of the RBI, and over the last few decades, the RBI has indeed taken cognisance of the matter and put in policies to prevent over-indebtedness. These policies include mandatory repayment capacity assessments to be undertaken by certain providers for certain categories of loans[76], limits on the number and amount of loans, etc. However, these policies have been far from perfect. Instead of ensuring that borrowers' interests are served, these policies have created artificial divides between the regulated entities and have just changed the channels through which over-indebtedness may arise. The policies on limits on the number of loans and the amount of loan serve as a classic example of this phenomenon. Given the regulations, the borrower may be protected from the over-lending by NBFC-MFIs, but they remain vulnerable to over-borrowing from other channels like SFBs and other banks, since such limits do not apply to these latter entities. Further, these policies also have artificially limited access to credit for households that may need larger loans but are not able to obtain them, given the RBI's regulation.

It is, therefore, evident that there is a clear need to rethink the approach adopted by the RBI to prevent over-indebtedness. There is also a need to acknowledge that the occurrence of over-indebtedness is not necessarily limited to households that are micro-finance borrowers. Any borrower may become over-indebted, and thus, effective policies must exist that go beyond the realm of micro-finance. In this report, we posit that three critical pillars ought to co-exist to tackle the issue of OI. These pillars include:

1. Detection of Over-indebtedness: A robust mechanism to detect the overall health of borrowers in the financial system is a key pre-requisite to estimate the scope of over-indebtedness in the country, thus allowing for targeted prevention.
2. Validation of Over-indebtedness: Though the number of over-indebted borrowers is a key indicator that would help the RBI design effective policies, another aspect of such design is an accurate understanding of what the factors are that lead to OI. The validation strategy, therefore, becomes a key factor in the pathway towards prevention of OI.
3. Prevention of Over-indebtedness: The final stage in the prevention of OI is the targeted design of policies that safeguard borrowers against the perils of OI and the unacceptable sacrifices made by over-indebted households.

[76] A mandatory repayment capacity analysis requirement is not universal, but is applicable only on NBFC-MFIs and through the aegis of MFIN, the industry's SRO

This report mostly focuses on the first pillar, i.e. strategies that would allow for better detection of levels of indebtedness and over-indebtedness, if any. From the analysis, it emerges that the situation is dismal when it comes to reporting by NBFCs, thus preventing the RBI from having visibility over the position of their borrowers. In the case of banks, the RBI does collect extensive amounts of data, especially in the BSR-1 format. The captured data under the BSR-1 formats allows the RBI to monitor the geography and sector of credit deployed according to the credit limit. However, due to the aggregation used in the BSR-1B format, the RBI's visibility over the features of loans amounting up to INR 200,000, remains impaired. In the case of BSR-1A, given the data is recorded for each loan, rather than at an aggregate level, richer analysis is feasible, compared to BSR-1B. However, since neither BSR-1A nor BSR-1B collects data on the income profile-based debt serviceability of the borrower, significant changes are required in order to ensure that the RBI has visibility over the levels of OI in the country.

Since the proposed approach requires a greater supervisory capacity at the RBI, it would be necessary to make changes to the existing reporting frameworks, and such changes would impose adaptation costs. However, it is also important to acknowledge that any concerns that such costs (of revamping the reporting systems of providers) would put providers out of business are utterly false. Presently almost all providers rely on automated reporting by their Loan Management Systems (LMS) or Core Banking Systems (CBS), as the case may be. Since the requirement to report is going to be universally applicable, the vendors of such LMS or CBS would simply have to add new queries to their existing databases and the providers then share their results with the RBI through suitably updated reporting formats. Since the work is not resulting in the creation of a new system altogether, the additional cost is expected to be within levels that can be borne by providers. Further, given the economies of scale, i.e., the vendor may write the code once, and deploy it across all subscribing providers, the cost borne by each provider is expected to be further reduced. Even for the RBI, it is expected to be easy to incorporate the additional indicators in existing formats. The sheet titled "Additional Indicators_NBFC", in the excel file titled, "Analysis of RBI Reporting Formats (Dvara Research)" in Annexure-4, presents a sample approach through which existing reporting formats may be used to add the indicators discussed in the report.

It is the solemn duty of every nation-state and its regulatory apparatus to ensure that the basic dignities of its citizen are protected. A situation where a household is forced to choose between debt repayment and food on the table is an unacceptable proposition. India has acknowledged this over the past few years, and strides have been made to minimise these sacrifices. Legislations like the Insolvency and Bankruptcy Code, 2016 do provide relief to over-indebted households. However, presently, such relief is not operational, as the relevant sections of the legislation are yet to be notified. Even if one is to assume that such sections are notified, the relief mechanism in IBC would irredeemably impair the credit history of the borrower and in all likelihood take away their capacity to borrow for a few years. Thus, existing legislative remedies are not appropriately suited to address the issue of over-indebtedness, and policy changes at the RBI are necessary.

Finally, apart from detecting the level of over-indebtedness in credit borrowers, the additional indicators proposed in the report would also enhance the RBI's capacity to monitor and effectively supervise providers in India. It would allow for the identification of over-heated pockets in the real economy and allow for better identification of under-developed markets. When compared to many other developing nations, there exist clear and well-documented lacunae in the supervisory capacity of the RBI, and it is important to correct these at the earliest. It is therefore posited that the framework would develop the credit market monitoring capacity of the regulator. By doing so, the regulator will now be more equipped to intervene and address any issues brewing in localised or regional or sector-

level credit markets, instead of responding in a reactionary manner. This has implications for enhancing the systemic stability of the financial system. Similarly, such interventions, when designed to target over-indebtedness, can arrest the growth of over-indebtedness in a geography, hence protecting financial consumers.

Annexure-1: Criteria for a common definition of over-indebtedness in the EU

A study carried out for the European Commission to develop a common definition across the EU put forward a set of criteria to be applied[77]:

- The unit of measurement should be the household because the income of individuals can be pooled – and indeed, is usually assumed to be pooled – between household members.
- Indicators need to cover all financial commitments of households – borrowing for housing purposes, consumer credit, paying utility bills, meeting rent and mortgage payments and so on – and not be confined to just one aspect.
- Over-indebtedness implies an inability to meet recurring expenses and, therefore, it should be seen as an ongoing rather than a temporary, or one-off, state of affairs.
- It is not possible to resolve the problem simply by borrowing more.
- For a household to meet its commitments requires it to reduce its expenditure substantially (or find ways of increasing its income)

[77]Feb 2008. *Towards a Common Operational European Definition of Over-indebtedness.* European Commission. Retrieved from: http://www.oee.fr/files/study_overindebtedness_en.pdf

Annexure-2: Monitoring Paradigms in Select Jurisdictions

This section discusses details of the supervisory monitoring regimes for credit markets in a few select jurisdictions. These jurisdictions have been chosen based on the commonalities we found in their frameworks with the framework proposed in this report. The characteristics of these regimes are examined below:

1. Zambia

Shown below is the categorised list of the available indicators published in Bank of Zambia's (BoZ) Credit Market Monitoring Programme report (CMMP)[78], against the Detection Framework presented in Section 2.2. These indicators are from the publicly available CMMP reports, and do not include any additional points of data that BoZ may be collecting through returns from the financial institutions.

Table 8: Categorisation of Indicators published by BoZ, as per the Detection Framework

Category	Indicator	Frequency
Regional Credit	Total disbursements (number and amount) by: i) Province[79] ii) Rural/urban	Quarterly
Market Saturation Measures	Number of loan disbursements	Quarterly
	Number of loan applications	Quarterly

While details on borrower profile are not directly present in the CMMP report, some insight into the borrower details can be gleaned from the data on disbursements disaggregated by the borrower's income category.

Table 9: Disaggregated Data on Credit Disbursement, Published by BoZ

Category	Indicator	Frequency
Disaggregated Credit Disbursement Data	Disbursements by product type: • Leases and other asset-backed loans • Mortgages • Revolving credit facilities • Unsecured loans	Quarterly
	Disbursements by end-user type: • Agriculture – Large • Agriculture – Small and emergent • Business – MSME • Government • Households and individuals • Other end-users	Quarterly
	Disbursements (number and amount) by income category	Quarterly
	The proportion of disbursements (number and amount) by institution type • Banks • Building societies	Quarterly

[78] Credit Market Monitoring Report 2018, Bank of Zambia. Retrieved from: https://www.boz.zm/BOZCMMRreport2018FINAL.pdf

[79] Provinces are the first level of sub-national division. Each province is further divided at the second level into districts.

	• Consumer lending MFIs • Enterprise lending MFIs • Other NBFIs	
	Disbursements (number and amount) of unsecured credit by: i) loan tenure ii) loan size and iii) Purpose of borrowing	Quarterly
	Disbursements (number and amount) by the size of: i) Enterprise ii) Farm iii) Business	Quarterly

In addition to several levels and combinations of disaggregation of the credit data, the CMMP data also has details on the quality and features of the loan book. The table below presents these details.

Table 10: Information on Quality of Loan Book published by BoZ

Category	Indicator	Frequency
Quality of Loan Book	Age analysis (categorisation of the asset book based on the number of days past due) by: i) End-user ii) Institution type iii) Product type	Quarterly
	Non-performing loans by: i) End-user category ii) Product type	Quarterly
	Outstanding Loans (number and amount) by: i) Product type ii) End-user	Quarterly
	Provisions for losses by: i) End-user ii) Institution type iii) percentage of Product type's gross book	Quarterly

Additionally, the CMMP data also includes details relevant to the BoZ's financial inclusion strategies such as credit disbursement towards women and youth. The CMMP report includes a discussion on the credit-GDP ratio of the country but does not go beyond to include any analysis at the regional/sectoral level.

Therefore, the BoZ publishes detailed information at the borrower and provider level, and to some extent, at the market level. These publicly available indicators help market participants to use the detection framework to assess the level of borrower indebtedness.

2. Peru

Peru's supervisory authority, Superintendencia de Banca, Seguros y AFP (SBS), publishes several reports and dashboards at several frequencies and of different institution types, capturing a good view of the credit market. Shown below is a categorized list of published indicators against the detection framework. These indicators are from the publicly available reports and tables, and do not include any additional points of data that SBS may be collecting through returns from the financial institutions.

Table 11: Categorisation of Indicators Published by SBS as per the Detection Framework

Category	Indicator	Frequency
Regional Credit	Direct credits by geographical region	Monthly
Market Saturation Measures	Market share of financial institutions by: • Total direct credits • Type of credit • Geography of offices	Monthly
Provider Profile	Details on personnel according to labour category: • Managers • Officials	Monthly

	▪ Employees ▪ Others	
	Financial institution-level details of asset book including: ▪ Loans ▪ Credit cards ▪ Discounts ▪ Factoring ▪ Financial leasing ▪ Home mortgages ▪ Refinanced and restructured overdue	Monthly
	Financial institution-level details of number and amount of loans disbursed by type of credit and economic sector	Monthly
	Financial institution-level details of the number of debtors by type of credit	Monthly
	Financial institution-level liquidity ratios	Monthly
	Financial institution-level asset quality ratios including: i) Proportion of overdue credits ii) Proportion of refinanced and restructured credits iii) Proportion of provisions	Monthly
	Financial institution-level credit risk details: ▪ Amount of assets per different risk weights ▪ Direct credits according to the situation (current, restructured, overdue and judicial collection) ▪ Direct credit by type of credit and situation ▪ Direct and indirect credit by risk category of the debtor (normal, with potential problems, poor, doubtful, loss) ▪ Delinquency ratios per days of default ▪ Credits by type of guarantee ▪ Loans to business activities by economic sector ▪ Loan write-off by type of loan and bank company ▪ District-level total credit	Monthly
Borrower Profile	Condition of over-indebtedness of retail debtors reported in the Debtor Credit Report (RCD)	Monthly

All of the above data points (where relevant) are separately published for each of the financial institutions such as multiple banking companies, state entities, financial companies, investment banks, municipal boxes, specialised companies, rural boxes, complementary and related services companies, edpymes (an acronym for 'small and microenterprise development entity'), and other supervised companies[80].

2.1 The Case of Peru's extensive Supervisory Dashboards

Peru's supervisory authority, Superintendencia de Banca, Seguros y AFP (SBS), is an autonomous public institution in charge of regulating and supervising banks, micro-finance institutions, non-bank financial institutions, insurance, and private pensions. SBS has several regulatory policies in place for addressing over-indebtedness, such as credit concentration limits mandated against counterparties – both individually and by economic group, the mandatory requirement of the credit service providers to assess repayment capacity of the borrower, to identify quantitative and qualitative early warning indicators that suggest a negative evolution of the debtor or the market in which it operates, to

[80] Information by Type of Financial Institution, SBS Peru. Retrieved from: https://www.sbs.gob.pe/estadisticas-y-publicaciones/estadisticas-/sistema-financiero

anticipate risks, and to assess over-indebtedness at the entity level. In addition to the regulatory policies, SBS places multiple credit-related regulatory reporting requirements on the credit institutions. The reports contain credit information disaggregated by several criteria and are sent monthly by all financial institutions as part of their reporting requirements to SBS. The aggregated information is used by the SBS to develop internal dashboards at several frequencies to support different teams and entity supervisors to assess, among others, credit risk, sectoral analysis, research and market conduct. One of the credit-related regulatory reports required by the SBS is the Debtor-Creditor Report (RCD) which is a monthly report containing information on credit balances at the debtor level. One of the items reported in the RCD is the 'over-indebtedness condition' of the debtor, which is determined as per the methodology of the reporting financial institution. Further, in the RCD, the debtor is uniquely identified by debtor codes assigned by both the financial institution and the SBS. This information in the RCD goes to the SBS' credit registry team, which receives, validates, processes, consolidates the data and then produces the consolidated file that goes back to financial institutions. The SBS updates the credit registry itself, and then feeds into internal reports, external reports (e.g. some statistical tables), and also for any person to be able to check their credit profile - or that of a potential borrower. Other databases, such as vintage analysis, sector concentration report, over-indebtedness report, and defaults rate report, are also required of the financial institutions for supervisory purposes. Another important source of data in the supervisory monitoring process is the additional databases which are required to be provided by the financial institutions during the annual supervisory inspections. These databases contain borrower-level details such as their income and risk score (if any). One of the noteworthy features of the SBS's reporting regime is that considerable detail on credit providers' loan book is reported every month, including balance sheets of the banks.

Moreover, SBS publishes on its website several of these reports and dashboards at several frequencies and of individual institution types, to help improve credit market understanding and transparency, which in turn helps in the market monitoring by other actors too. The credit data which is published is of both the monthly quantum of disbursement as well as the outstanding amount. The balance sheets of the banks are too published as part of 'Multiple Banking Statistical Information[81]' (See the following section, 2.2, for a list of other provider-level data points relevant for credit monitoring).

Other credit monitoring aspects such as the credit-GDP ratio are discussed in the SBS's Financial Stability Reports (FSRs), but only at the national level and does not extend to the region level. However, given that data on the GDPs of economic sectors is published, the sectoral credit-GDP can be calculated. Additionally, the FSR contains an analysis of credit risk of micro and small debtor companies, which is done considering several factors such as migration analysis and transition analysis.

Therefore, as Peru collects and publishes extensive information at all levels of the detection framework, a robust picture of borrower indebtedness can be built from publicly available data.

2.2 Provider Level Reports in SBS' Multiple Banking Statistical Information

1. Direct credits by geographical region: monthly, by the financial institution (in percentage)

Institution's Name	Geographical region 1	(…)	Geographical region 26	Total (in 000 PEN)
Institution A				
(…)				
Institution Z				

[81] Multiple Banking Statistical Information, SBS Peru. Retrieved from: https://www.sbs.gob.pe/app/stats_net/stats/EstadisticaBoletinEstadistico.aspx?p=1

2. Direct Credits according to Type of Credit and Situation: monthly, by the financial institution within a category (in thousands PEN)

Institution's name	Corporate			(…)	Mortgage loans			Total Direct Credits
	With out delay	Refinanced and Restructured	Past due	(…)	Without delay	Refinanced and Restructured	Past due	
Institution A								
(…)								
Institution Z								
Total Category								

3. Direct Credits by Situation: monthly, by financial institution within a category (in thousands PEN)

Institution's name	Without delay		Restructured	Refinanced	Past due	Judicial Collection	Total Direct Credits
	Short term	Long term					
Institution A							
(…)							
Institution Z							
Total Category							

4. Direct Credits by Type of Guarantee: monthly, by the financial institution within a category (in percentage)

Institution's name	Preferred Guarantees					Credits with Subsidiary responsibility	Financial Lease credits	Credits With Non-preferred guarantees	Unsecured credits	Total Direct Credits (000 PEN)
	Self-liquidating	Very fast realization	First mortgage on real estate	Other preferred guarantees	Total					
Institution A										
(…)										
Institution Z										
Total Category										

5. Credits by type, modality and currency: monthly, by the financial institution within a category

Concept	Institution A	(…)	Institution Z
Corporate			
Current account overdrafts			
Credit cards			
Discounting			
Loans			
Factoring			
Leasing y Lease-back			
Trade			
Other corporate Loans			
Big Enterprises			
Current account overdrafts			
Credit cards			
Discounting			
Loans			
Factoring			
Leasing y Lease-back			
Trade			
Other Big Enterprises Loans			
Medium Enterprises			
Current account overdrafts			
Credit cards			
Discounting			
Loans			
Factoring			
Leasing y Lease-back			
Trade			
Other Medium Enterprises Loans			
Small Enterprises			
Current account overdrafts			
Credit cards			
Discounting			
Loans			
Factoring			
Leasing y Lease-back			
Trade			
Other Small Enterprises Loans			
Micro Enterprises			
Current account overdrafts			
Credit cards			
Discounting			
Loans			
Factoring			
Leasing y Lease-back			
Trade			
Other Micro Enterprises Loans			

Consumer Loans			
Current account overdrafts			
Credit cards			
Loans			
-Revolving Loans			
-Non Revolving Loans			
Automobile loans			
Leasing y Lease-back			
Pledge			
Other consumer loans			
Mortgage Loans			
Loans			
Mivivienda Loans			
Other Mortgage loans			
Total			

6. Delinquency rates by type of credit and modality: monthly, by the financial institution within a category (in percentage)

Concept	**Institution A**	**(…)**	**Institution Z**	**Total Category**
Corporates				
Credit Cards				
Discounting				
Loans				
Factoring				
Financial Lease y Lease-back				
Trade				
Bug Enterprises				
Credit Cards				
Discounting				
Loans				
Factoring				
Financial Lease y Lease-back				
Trade				
Medium Enterprises				
Credit Cards				
Discounting				
Loans				
Factoring				
Financial Lease y Lease-back				
Trade				
Small Enterprises				
Credit Cards				
Discounting				
Loans				
Factoring				
Financial Lease y Lease-back				
Trade				

Micro Enterprises				
Credit Cards				
Discounting				
Loans				
Factoring				
Financial Lease y Lease-back				
Trade				
Consumer Loans				
Credit Cards				
Loans				
-Revolving Loans				
-Non-revolving Loans				
-Automobile loans				
Financial Lease y Lease-back				
Mortgage Loans				
Loans				
Mivivienda Loans				
Total				

7. Delinquency rates according to days of default: monthly, by the financial institution within a category (in percentage)

Institution's name	**More than 30 days of default**	**More than 60 days of default**	**More than 90 days of default**	**More than 1200 days of default**
Institution A				
(…)				
Institution Z				
Total Category				

8. Direct Corporate, Big, Medium, Small and Micro-Enterprises Loans by Economic Sector: monthly, by financial institution within a category (in thousands PEN)

Economic Sector	**Institution A**	**(…)**	**Institution Z**	**Total**
Agriculture, Livestock, Hunting and Forestry				
Fishing				
Mining				
Manufacturing industry				
Electricity, Gas and Water				
Construction				
Trade				
Hotels y Restaurants				
Transportation, Storage and Communications				
Financial Intermediation				
Real Estate, Business and Rental Activities				
Public Administration and Defense				

Teaching				
Social Services and Health				
Other Community Services Activities				
Private Homes with Domestic Service and Extraterritorial Bodies				
Total				

9. Flow of Written-off Loans by type of credit: monthly, by the financial institution within a category (in thousands PEN)

Institution's name	**Flow of write-offs**					**Consumer loan**	**Mortgage loan**	**Total**
	Corporates	**Big enterprises**	**Medium enterprises**	**Small enterprises**	**Micro enterprises**			
Institution A								
(…)								
Institution Z								
Total Category								

10. New Corporate, Big Enterprises, Medium Enterprises, Small Enterprises and Micro Enterprises loans by economic sector: monthly, by the financial institution within a category (in number and amount of disbursed credits)

Institution's name	**Agriculture, Livestock, Hunting and Forestry**			**(…)**	**Total**		
	Number of New Disbursed Credits	**Amount of New Disbursed Credits in National Currency (In 000 PEN)**	**Amount of New Disbursed Credits in Foreign Currency (In 000 USD)**	**(…)**	**Number of New Disbursed Credits**	**Amount of New Disbursed Credits in National Currency (In 000 PEN)**	**Amount of New Disbursed Credits in Foreign Currency (In 000 USD)**
Institution A							
(…)							
Institution Z							
Total							

11. New mortgage loans: monthly, by the financial institution within a category (in number and amount disbursed)

Institution's name	**Number of new disbursed credits**	**Amount of New Disbursed Credits in National Currency (In thousands of soles)**	**Amount of New Disbursed Credits in Foreign Currency (In thousands of dollars)**
Institution A			
(…)			
Institution Z			
Total			

12. Number of debtors with direct credit: monthly, by the financial institution within a category

Institution's name	Corporate	Big enterprises	Medium enterprises	Small enterprises	Micro enterprises	Consumer loans	Mortgage loans	Total
Institution A								
(…)								
Institution Z								
Total								

13. Ranking of direct credits by type of credit: monthly, by the financial institution within a category

Institution's name	Type of credit		
	Amount (000 PEN)	Share (%)	Cumulative percentage
Institution #1			
(…)			
Institution #X			

14. Ranking of main modalities of direct credits: monthly, by the financial institution within a category

Institution's name	Modality of direct credit		
	Amount (000 PEN)	Share (%)	Cumulative percentage
Institution #1			
(…)			
Institution #X			

15. Structure of direct and indirect credits by Debtor's risk category: monthly, by the financial institution within a category (percentage)

Institution's name	Normal	With Potential Problems	Deficient	Doubtful	Lost	Total Direct and Indirect Credits (in 000 PEN)
Institution A						
(…)						
Institution Z						

16. Structure of direct and indirect credits by Type of Credit and Debtor's risk category: monthly, by the financial institution within a category (percentage)

Institution's name	Corporates					(…)	Mortgage Loans				
	0	1	2	3	4	(…)	0	1	2	3	4
Institution A											
(…)											
Institution Z											
Total Category											

Annexure-3: List of Reporting Formats Studied

Table 12: List of Reporting Formats Studied (NBFC)

Sl No	Name of the Return
1	NBS1
2	NBS2
3	NBS3
4	NBS4
5	NBS7
6	ALM
7	NDSI_500cr and above
8	SC/RC
9	NBS-ALM 1
10	NBS-ALM 2
11	NBS-ALM3
12	ALM-Yrly
13	Statutory Auditors Certificate (SAC)
14	Branch Information Return (for NBFC-D & NBFC-ND-SI
15	Certificate on compliance with FDI norms
16	Overseas Investment Return
17	NBS-8 Return
18	NBS-9 Return
19	CRILC
19	SMA-2 Return
20	Statement on Interest Rate Futures transaction

Table 13: List of Reporting Formats Studied (Banks)

Sl No	Name of the Return
1	Yen holdings of Government of India
2	ECCS Cheque Clearing Data
3	ATM deployment
4	Cards Statistics
5	ATM failed borrower complaints
6	ATM transaction decline
7	PPI Statistics
8	PPI borrower grievances
9	Mobile Banking Transactions
10	IBS return
11	NRD-CSR
12	ECB-2 return
13	FETERS (R-return)
14	BAL statement
15	CPIS - Survey Schedule
16	ITBS - Survey Schedule

17	Banking service price index
18	FIIs Return
19	FII Weekly
20	Data on facilities to NRI / PIOS foreign nationals - liberalization
21	Statement of inflow / outflow on account of remittance received / made in connecting with transfer of shares / convertible debentures, by way of sale
22	Details of remittances made by NRO account
23	Form ODI (Part I to III)
24	Investment by mutual fund in overseas securities
25	Reporting of portfolio investments by Indian companies
26	FLM-8 (Sale and purchase of foreign currency)
27	List of equity and convertible debentures (LECFII)
28	List of equity and convertible debentures (LECNRI)
29	Liberalised Remittance Scheme
30	Remittances under RDA (E-statement)
31	Statement on guarantees /LOU/LOC
32	Import of gold by EOUs, units in SEZ/EPZ and nominated agencies
33	EBW statement
34	Details of guarantee availed and invoked of from non-resident entities
35	Investment by AIF/ VCF/ DVCF in overseas securities
36	LO/BO/PO
37	KCC
38	NRLM
39	Collateral Loan
40	Composite Loans
41	Credit to Women
42	Credit facilities to SC/ST
43	Credit to Minority Community
44	DRI Advances
45	Special Return II (Recovery of Direct Agriculture Loan)
46	National Urban Livelihood Mission (NULM) Target
47	National Urban Livelihood Mission (NULM) Progress
48	G-Sec ownership pattern
49	Report on issue of Subordinated Debt, raising of Upper Tier II Capital, Perpetual Debts and Equity Capital (Qualified Institutional Placements-QIP, Preferential issue to Promoters, GDR issue) together with copy of document
50	Report on issue of Subordinated Debt, raising of Upper Tier II Capital, Perpetual Debts and Equity Capital (Qualified Institutional Placements-QIP, Preferential issue to Promoters, GDR issue) together with copy of document
51	Certificate regarding continuance of the “fit and proper” status of all major shareholder

52	Statements showing the progress made in the implementation of scheme regarding reservation of posts for SC / ST
53	Copy of Annual Report with audited Statements of accounts
54	Statement of chest slips
55	Statement of link offices
56	RBI note refund rules - statement of defective notes adjudicated at all bank branches
57	Format for furnishing addresses etc., particulars of Forged Note Vigilance Cell (FNVC) to RBI
58	Statement showing details of counterfeit bank notes detected by the branch during the month
59	FNVC to submit status report covering certain important aspects of the functions required to be undertaken by it.
60	Counterfeit Currency Report
61	Foreign Exchange Turnover (FTD)
62	Gaps, Position, and Cash Balances (GPB)
63	Cross Currency Derivative Transactions
64	Exposure in Foreign Exchange and Amount of Exposure Hedged
65	FCY-Rupee Option Transactions
66	Outstanding Foreign Currency Borrowings (OFCB)
67	Holding of Foreign Currencies
68	Details of Forward Cover undertaken by FPI Clients
69	Booking of Forward Contracts on Past Performance Basis
70	Details of Forward Contracts/Options Booked and Cancelled
71	Derivative Transactions undertaken by Non-Resident Importer/Exporter
72	List of Offices/Branches of AD Bank Maintaining Rupee Accounts of Non-Resident Banks
73	Suspicious Transactions undertaken by Non-Resident Importer/Exporter
74	Report on Asset Liability and off Balance Sheet Exposures (ALE)
75	Report on Asset Liability and off Balance Sheet Exposures (ALE)
76	Report on Capital Adequacy Basel-1 (RCA-1)
77	Report on Operating Results (ROR)
78	Report on Operating Results (ROR)
79	Report on Asset Quality (RAQ)
80	Report on Ownership and Control (ROC)
81	Risk Base Supervision Report (RBS)
82	Liquidity Return (LR)
83	Report on Interest Rate Sensitivity- (IRS)
84	Balance Sheet Analysis (BSA)
85	Report on Large Credits (RLC)
86	Central Repository of Information on Large Credits CRILC - Main
87	Red Flagged Account/Fraud Borrowers Return (RFA)
88	Report on Subsidiaries/JV/Associates
89	Consolidated Prudential Reports
90	Report on Asset Liability and Off Balance Sheet Exposures (ALO)

91	Report on Problem Credits and Investments (PCI)
92	Report on Large Exposures
93	Report on Country Exposures and Maturity (CEM)
94	Report on Profitability (ROP)
95	Equity Investment in Capital Market
96	Leverage Ratio Statement
97	LCR - BLR
98	VMR-I
99	VMR-II
100	VMR-III
101	Financial Soundness Indicators
102	Return on Offshore Banking Units (OBUs)
103	Statement on bad debts written off.
104	Half-Yearly Review of Investment Portfolio
105	Return on Defaulted Borrowers (RDB)
106	Return on Investment Portfolio
107	Return on Information on Business Correspondents
108	Additional Data on Loan portfolio, Branch Profile and Financial Inclusion
109	FMR 1
110	FMR 3
111	FMR 4
112	Report of Commodity Hedging in Overseas Market (w.e.f April 01, 2018)
113	Return on Internet Banking
114	Proforma
115	Liberalised Remittance Scheme
116	Form I
117	Form II
118	Form III
119	Annual Certificate
120	Statement of Half yearly performance
121	Interest Rate Risk Positions for clients
122	Cross-border remittances arising out of Rupee interest rate derivatives transactions undertaken by non-residents
123	FX- Transactions- Retail platform
124	Basic Statistical Return - 1 (BSR1)
125	Basic Statistical Return - 2 (BSR2)
126	Basic Statistical Return 7
127	Monthly Return: Statement on Number of Branches/ Offices/ ATMs
128	Priority Sector Advances–Quarterly
129	Priority Sector Advances– Annual
130	FIP Progress
131	Framework for Revival and Rehabilitation of Micro, Small and Medium Enterprises (MSMEs)
132	Sector-wise and industry-wise deployment of bank credit (SIBC)
133	Special Fortnightly Return-II

134	Supplementary return on daily SLR
135	Special Monthly Return (SMR)-VI-AB on interest rates of commercial banks
136	Payment of dividend
137	Form - VIII (Sec. 24 of the BR Act, 1949)
138	Form IX (Sec. 26 of the BR Act, 1949)
139	Form-A (Sec.42, RBI Act, 1945)
140	Balance Sheet of SCBs (Sec. 31 of the BR Act, 1949)
141	Form-X – statement of assets and liabilities
142	Transfer Pricing Reconciliation Statement - Domestic Operations
143	FMR-I
144	FMR-III
145	FMR-IV
146	Whole Bank Long Form Audit Report and Compliance thereof
147	Return on Connected Exposure
148	Large Exposure Framework (LEF)

Annexure-4: Appended Files

1. List of Indicators for OI Supervision

2. Analysis of the RBI reporting Formats

Annexure-5: Indicative Reporting Format for DSR

State	District	Income Category	DSR: 0.0-0.2	DSR: 0.2-0.4	DSR: 0.4-0.6	DSR: 0.6-0.8	DSR: 0.8-1.0	DSR: 1.0-1.2	DSR: 1.2-1.4	DSR: 1.4-1.6	DSR: 1.6-1.8	DSR: 1.8-2.0	DSR: 2.0+	Total (Sum Row)
1	1	Income Slab 1 (0-1L)	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	
		Income Slab 2 (1-2.5L)												
		Income Slab 3 (2.5-5L)												
		Income Slab 4 (5-8L)												
		Income Slab 5 (8L-12L)												
		Income Slab 6 (12L-20L)												
		Income Slab 7 (20-30L)												
		Income Slab 8 (30-50L)												
		Income Slab 9 (50L-1 Cr)												
		Income Slab 10 (1Cr+)												
		Total (Sum Column)												
	2	Income Slab 1 (Decile 1)	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	N. A/C	
		Income Slab 2 (Decile 2)												

		Income Slab 3 (Decile 3)												
		Income Slab 4 (Decile 4)												
		Income Slab 5												
		Income Slab 6												
		Income Slab 7												
		Income Slab 8												
		Income Slab 9												
		Income Slab 10												
		Total (Sum Column)												

Note:

1. N A/C here refers to Number of Accounts
2. Income Slabs here are for reference only

Annexure-6: Indicative Reporting Format to Capture Instances of Multiple Lending

State	District	Income Category	N/D with 0 A/C	N/D with 1 A/C	N/D with 2 A/C	N/D with 3 A/C	N/D with 4 A/C	N/D with 5 A/C	N/D with 6 A/C	N/D with 7 A/C	N/D with 8 A/C	N/D with 9 A/C	N/D with 9+ A/C	Total (Sum Row)
1	1	Income Slab 1	N A/C											
		Income Slab 2												
		Income Slab 3												
		Income Slab 4												
		Income Slab 5												
		Income Slab 6												
		Income Slab 7												
		Income Slab 8												
		Income Slab 9												
		Income Slab 10												
		Total (Sum Column)												
	2	Income Slab 1												
		Income Slab 2												

		Income Slab 3												
		Income Slab 4												
		Income Slab 5												
		Income Slab 6												
		Income Slab 7												
		Income Slab 8												
		Income Slab 9												
		Income Slab 10												
		Total (Sum Column)												

Note:

1. N A/C here refers to Number of Accounts