3

Retail Banking Sentiment Index

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3.1. Introduction

'Google' is the new verb for 'search'. Anecdotal evidence suggests that today when we seek information on anything, we google it. This in essence implies that the customer of the bank speaks to google first, sharing her questions, then approaches the bank branch. This understanding becomes important for the banking industry in general and retail credit segment in particular. It is imperative in today's scenario for banks to understand both customer queries and interest in retail banking products, and in this context, understanding what the consumer is looking for and how frequently, can help in designing the products and services being offered. Further when we are faced with unprecedented times like the one brought about by the coronavirus, the temporary disruptions caused in the demand and supply can be assessed and remedial actions can be initiated if the changing sentiments of people can be captured and assessed. The need of the hour is, therefore, to have 'fast indicators' (Haldane and Chowla, 2021), which are available on a daily basis for us to gauge customer sentiment and design policy actions.

This chapter looks at the development of a Retail Banking Sentiment Index (RBSI) for India based on the Google search terms. Google search-based indices have been used extensively for construction of investor sentiment indices but have limited application in banking sentiment indices. The construction of Retail Banking Sentiment Index from search-based indicators can help to get almost real time insights into changing moods of the retail banking customer cohort. Furthermore, with a US$ 2.67 trillion assets-worth banking industry (IBEF Report, 2022), it is high time for India to have a Retail Banking Sentiment Index. We focus on the development of Retail Banking Sentiment Index for India using search terms pertaining to four segments of the retail banking products: housing loan, education loan, vehicle loan and personal loans (credit card). The index is then traced over three significant timelines pre-Covid-19, Covid-19, and post Covid-19 periods to understand the trends in retail customer sentiment and present key takeaways for the banking business.

The rest of the chapter flows as follows. Section 3.2 presents recent evidence on the rapid growth in retail credit. Section 3.3 reviews the literature on sentiment indices in general and Google based search indices in particular. Section 3.4 provides the methodology behind calculation of the index. Section 3.5 presents the results. Section 3.6 summarizes the takeaways for the banking sector.

3.2. Stylized Facts

The RBI Report on Trends and Progress of Banking in India for the 2021-22 has highlighted that the growth in credit during 2021-22 was led by the growth in services and retail credit, in particular housing sector loans. This further reinforces, according to the report, the trend of credit moving from the industrial sec-

tor to retail sector[1]. Figure 3.1[2] shows the year-on-year growth in major sectors of non-food credit (excluding priority sector) from 2020 onwards, along with the bank credit growth. The major sectors included in non-food credit here are industrial sector credit, services sector credit, personal loans (including housing, vehicle, education, and credit card loans)[3] and priority sector credit. Bank credit growth started showing deceleration from late 2019, before the pandemic hit, and shows a recovery only in 2022. Fall in credit growth was sharpest for industrial credit and personal loans for the pandemic period. However, post the pandemic the personal loan and services have seen the strongest offtake. Interestingly, personal loan growth which saw a fall from late 2019, also marked the quickest recovery post the pandemic showing an increase in growth from early 2021 onwards.

Figure 3.2 compares the year-on-year growth of bank credit and personal loan growth. We can see from Figure 3.1 and 3.2 that while the early 2019 was driven by personal credit growth, and bank credit growth decelerated, the fall in personal loan growth was sharp from 2019 and through the pandemic. However, the recovery in growth has also been sharp post pandemic and bank credit closely maps the personal loan growth post pandemic. The growth registered by personal loan has exceeded that in bank credit growth, suggesting the deceleration on other sectors included in overall bank credit. Figure 3.3, iterates this fact from the point of view of the share of the three major sectors (industry, services and personal loan) in total bank credit. It can be seen that post the pandemic a greater portion of the bank credit is being contributed by the personal loan growth compared to industry and services. One of the key reasons for the strong movement in personal credit growth is the flow of credit to the housing sector, which has seen rising prices and also reflect the recovery in consumption (BIS Annual Report 2021). While the concentration in retail loan portfolios is a concern, the growth posited by the retail sector is also an opportunity for the banking industry in the post pandemic scenario. To effectively use this opportunity again, an in-depth understanding of the customer sentiment is required, which reinforces the need for Retail Banking Sentiment Indices.

The broad trend in the bank credit growth, and its composition clearly outlines that a major part of recovery post pandemic is driven by personal loan growth, or retail credit growth. This shows that we need to carefully consider the signals of demand in the personal loan growth sector, and over the years with growth in social media, the understanding of the search used by consumers has come to the forefront as a way of understanding their sentiment.

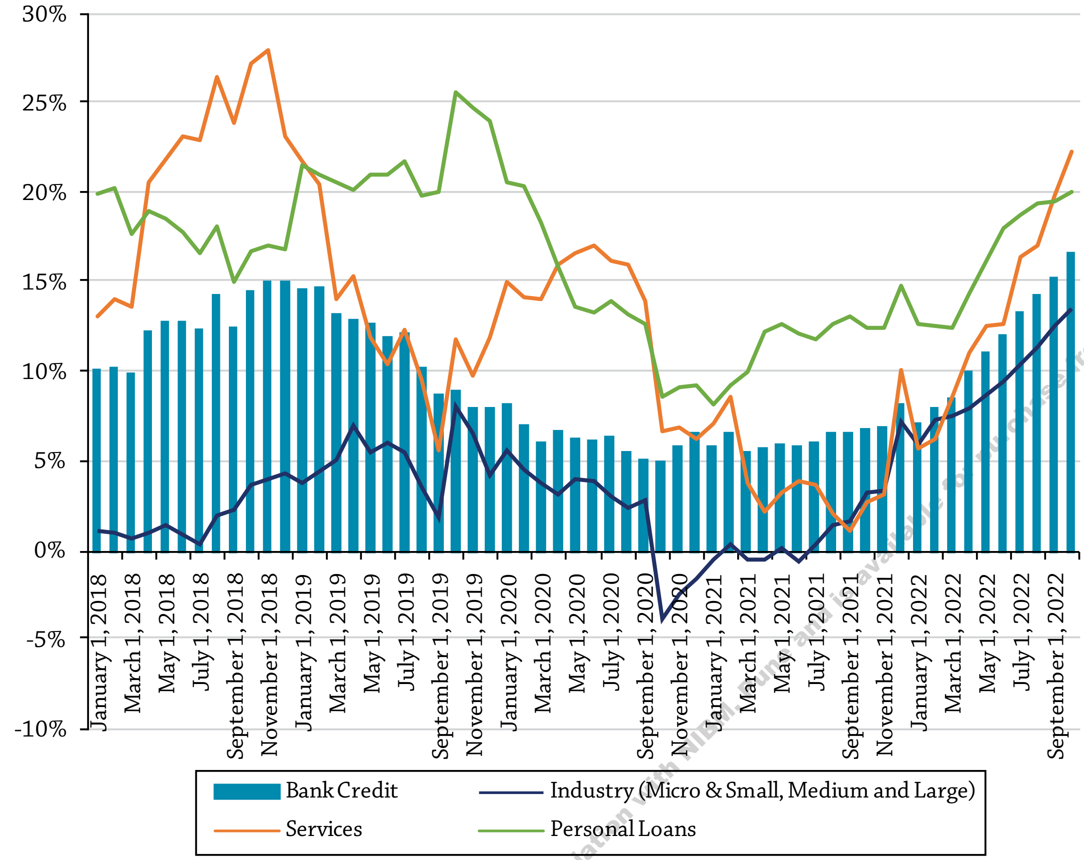
3.3. Bird's Eye View of Literature

The customer's presence on the internet can be ignored by a company today only at its peril. Understanding the sentiment on the internet (including on social media) is essential for a company now, including any financial institution[4]. Due to the increase in usage of digital media, customers are increasingly relying on the internet to make purchase decisions. Hence banks and financial institutions are also capitalizing on this trend by investing heavily in technology automation, machine-learning powered score cards and analytical models to grow their businesses (Transunion CIBIL/Google 2021).

1. The report sounds a word of caution on the same as "buildup of concentration in retail loans may become a source of systemic risk" (RBI, 2022).
2. For Figures 3.1 and 3.2, the raw data source used is RBI data on "Deployment of bank credit by major sectors" (New format). The new format data is given from 2019 onwards, and hence the year-on-year growth can be calculated from 2020 onwards.
   The old format and new format data show different values for the same data point and exact computations underlying those differences are not provided (in either the table or notes on tables) to the best of our knowledge. The old and new formats therefore could not be merged.
   For Figure 3.3, Old format data is used till Dec 2018 and New format data thereafter. As in Figure 3.3, the percentages with respect to bank credit are considered, the merging of the datasets do not cause any methodological problems.
3. Personal loans include Consumer Durables, Housing (Including Priority Sector Housing), Advances against Fixed Deposits (Including FCNR (B), NRNR Deposits etc.), Advances to Individuals against share, bonds, etc., Credit Card Outstanding, Education, Vehicle Loans, Loans against gold jewellery, Other Personal Loans
4. Number of social media users in India stands at 467.0 million in January 2022 (Digital India, 2022)

FIGURE 3.1

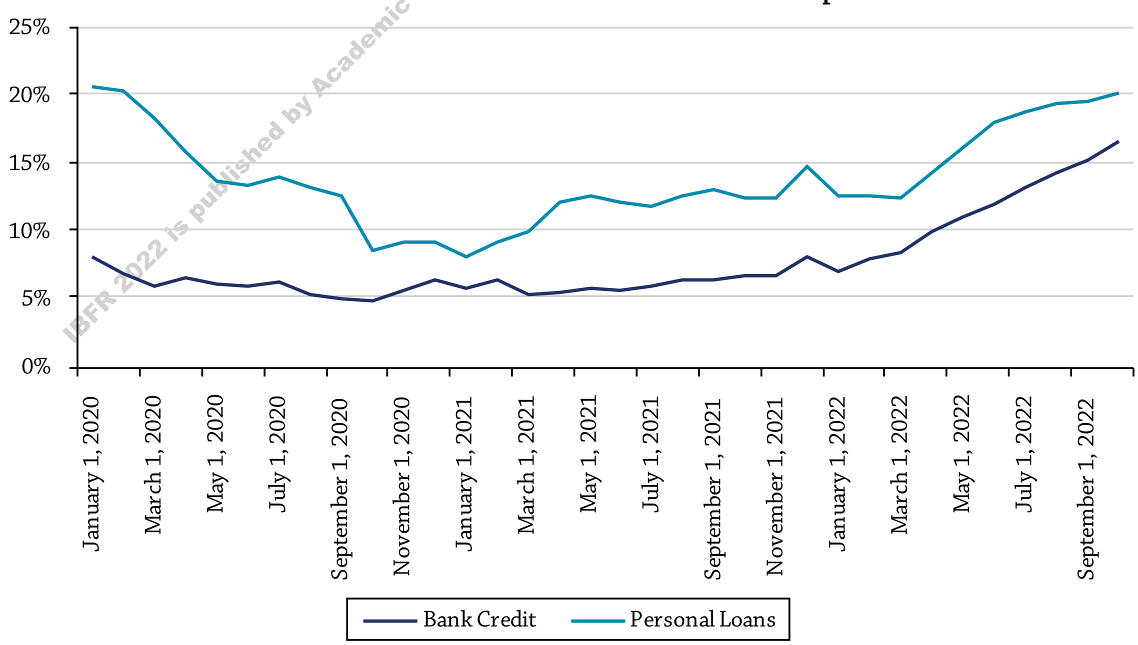
Non-Food (Excluding Priority Sector) Credit YoY Growth Comparison



Raw data source: RBI data on deployment of bank credit by major sectors

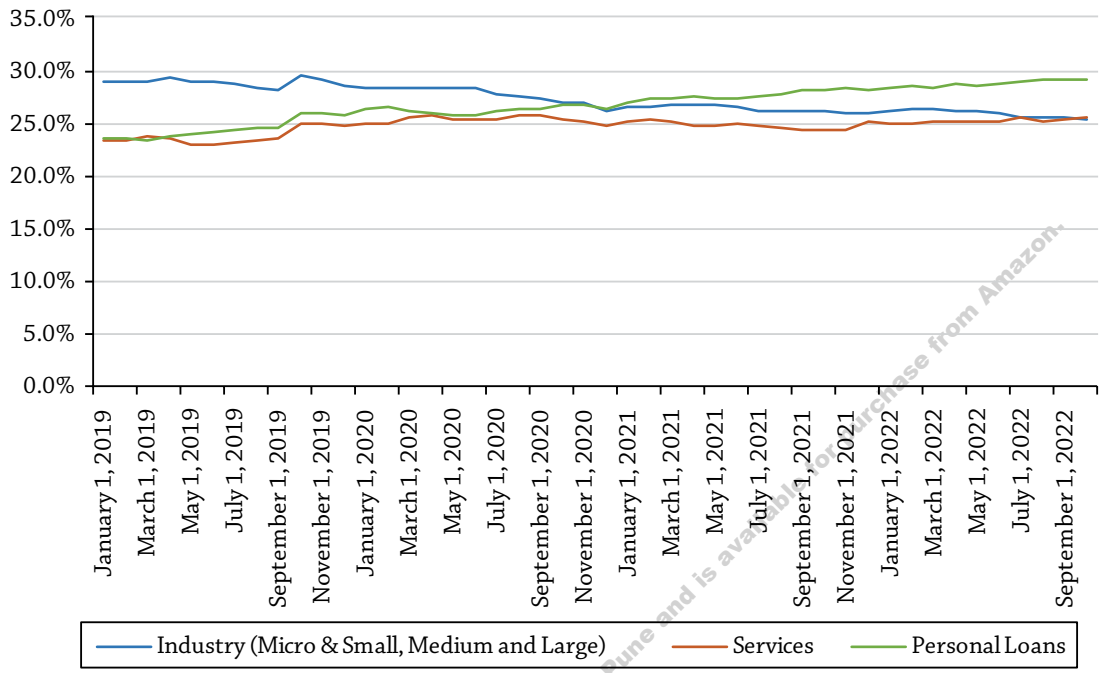
FIGURE 3.2

Bank Credit and Personal Loans YoY Growth Comparison



Raw data source: RBI data on deployment of bank credit by major sectors

FIGURE 3.3
Percentages of Different Sectors in Total Bank Credit



Raw data source: RBI data on deployment of bank credit by major sectors.

There is an increase in collaboration of banks and financial institutions with search engines to understand the interest/ requirement of the borrower by deciphering their search queries. Search queries can have negative connotations as well which are a source of reputational risk and can impact the return and volatility of stock prices both in long and short term.

Till date, emphasis has been given to social media sentiment in constructing bank-based sentiment indices, and we find Banking sentiment indices based on twitter comments have been constructed for various countries. For instance, the UAE Banking Sentiment Index, Saudi Arabian Banking Sentiment Index or the CSBS Community Bank Sentiment Index, USA to name a few gives deeper insights into the perception of customers about the services provided, ranking banks on the basis of positive or negative remarks made on social media platforms. These help to gauge the market pulse for products and services. Furthermore, banking sentiment indices constructed on the basis of majorly twitter conversation on banking products show strong opinions emerging on various products and services, which is likely to influence the performance of banks as well. Illia et al (2023) shows a negative tweet regarding a bank becomes part of a larger conversation significantly influencing a bank's outcomes, which can extend up to six weeks. KPMG Brands Eye Joint Report (2022) on UAE Banking Sentiment Index highlights the negative feedback on banks less responsiveness in attending to customers complaints on fraudulent activities. Table 3.1 presents a bird's eye view of the major banking sentiment indices. Customers also actively dissuaded others through the platform from availing services of certain banks based on their experiences.

It may be argued here that not only social media sentiment but also the internet searches of customers can give important clues about sentiment. Da et al. (2015) presents one of the oft-cited internet search behavior-based index. The paper aggregates the volume of Internet search

TABLE 3.1

Banking Sentiment Indices: Major Studies

Authors	*Title & Year*	*Key Findings*
Urvi Patel & Charles Luo Partner, 2022	Kenya Banking Sentiment Index, 2022	Reputational and regulatory matters impacted Kenyan banks' public sentiment. Operational performance of Kenyan banks was negatively impacted by downtime, digital experience and customer service and the social media responsiveness of banks required attention
James Lappeman, Michaela Franco, Victoria Warner, Lara Sierra-Rubia	What social media sentiment tells us about why customers churn, 2022	Seven factors identified as most significant for churn are turnaround time, accusations of unethical behavior, billing or payments, telephonic interactions, branches or stores, fraud or scams and unresponsiveness.
Abbas Basrai, Goncalo Traquina, Maryam Zaman	UAE Banking Sentiment Index 2022	Slow customer service and downtime identified as a major drawback of banks
Raul Fernandez Brenda Palma Guizar Caterina Rho	A sentiment-based risk indicator for the Mexican financial sector,2021	Index captures the impact of sources of financial stress not included in quantitative risk measures like financial frauds, failures in payment systems, and money laundering. The sentiment index correlates positively with growing financial market risk, stock market volatility, sovereign risk, and foreign exchange rate volatility.
Julia Ahlfeldt	South African Banking Sentiment Index, 2017	Drivers of loyalty amongst customers include fees, look and feel of branches, reward programmes and technological innovations, only if brands live up to their promise to consumers
Hind Hamza Fadul Modwey, Eltyeb Elsamani Abd Elgabar Elsamani	Using sentiment analysis technology to analyze bank customers' textual comments,2022	Bank customers' textual comments analysed to measure the quality of banking services as also detect customer complaints
Richard Kalas	GFT Banking Disruption Index, Q3 , 2022	Expectation of greater levels of digital self-serve capability from their banks, just from mobile banking app by consumers

queries (such as "recession," "bankruptcy," and "unemployment") from U.S. households to construct a Financial and Economic Attitudes Revealed by Search (FEARS) index. Search term-based indices form an important sub-category of the sentiment index, but regretfully, there are no banking indices to the best of our knowledge using the same. In recent years, Priyaranjan and Pratap (2020) constructed three uncertainty based sentiment indices, one of which uses search data from Google trends. The paper finds uncertainty shocks impact both the real and financial sector in India, and investment activity and real GDP growth marks a deceleration in response to increased uncertainty.

The Kenya Banking Sentiment Index (2022) tracked twitter posts for seven banks for a period of one year using 81 phrases related to the sample banks to segment the research population. Quarterly breakdown of net sentiment index in this paper has opened up opportunities for banks to get instantaneous feedback on their services. Table 3.1 details the key findings of major banking sentiment index studies.

3.4. Search Term-Based Sentiment Indices: Methods and Data

We use the Google based search terms for the development of the Retail Banking Sentiment

Index. Google search terms reflect the sentiment of the cohort using these terms, and can indicate not only the interest in retail banking products, but also what are the popular products or providers, and suggests the kind of information being searched for by the retail customers.

For this study we focus on four categories of retail banking products: Home, Education, Vehicle and Personal Loans (Credit card). The data on the search terms is availed from Google trends. For the corpus of search terms, we follow Da et al. (2015) in identifying first the primitive terms in each category. In this case, we used the following four terms as the primitive term for searching for the four categories: 'home loan,' 'education loan', 'vehicle loan' and 'personal loan'. To add to the primitive terms, we used Google trends "related queries", and identified the "top" related queries for each search term. For example, 'home loan' as a search term gives 'SBI home loan interest," "HDFC home loan interest", "home loan EMI" and so on, as top searches, which are added on to the primitive list. For each primitive term, thus "top related queries" are used to create the corpus of search terms. We remove close matches in arriving at the final list. For example, 'home loan interest rate' would also be searched with 'home loan interest', in which case the first term would be kept. The final list has 94 search terms (Appendix A).

The data is collected for 1st Jan 2018 to 26th November 2022. The period from January 1st 2018 to 30th January 2020 is taken as the pre-pandemic period[5], the period from 1st February 2020 to March 2022 is categorized as the pandemic and the period April 2022 to November 2022 as the post pandemic stage. We opt for January 27, 2020 (first cases reported in India) instead of March 11, 2020 (official declaration of the pandemic) for the selection of pandemic date given the India specific nature of study, as the date of the first case and the rise in cases thereafter will be more relevant in reflecting sentiment of the Indian cohort under study.

As iterated earlier, for all the 92 search terms, Search Volume Index (SVI)[6] data for the above-mentioned periods is obtained from Google trends. However, the maximum window period for which daily search data can be downloaded from Google trends is six months. For more than six months data, weekly or monthly data is given, as shown in Figure 3.4, which shows search 'Interest over time (last 5 years)' for the term "Home loan" given as an example of how the raw data is presented by Google trends. Therefore, for collecting the data, we had to choose time period blocks of six-month or less.

It may be noted here that the Google Trends data is given in context of a period and daily SVIs in a particular quarter is therefore presented as scaled by the time series maximum SVI in that quarter. To address this issue, we use the change in SVI in construction of the index, as this normalization does not impact the daily change in SVI calculated in the particular period. However, the change in SVI cannot be used for the first and last dates of a particular period used for downloading the data, as comparing it with the previous segment is not meaningful. Therefore, as in Da et al. (2015), who also highlight this methodological issue, we do not use the first and last of the dates in every time block used for downloading the data.

The collected raw data represents SVI for 94 original terms selected. The geographical region is restricted to India for collecting the data. However, for many terms it was found that substantial data points are missing. This implies while these 94 are the most common search terms for retail banking products in India, but may not have continued interest over the time period 2018 to 2022. For our analysis, we therefore drop the terms where more than half of the data points (in a series of 1751) are zero or missing and are left with 59 terms.

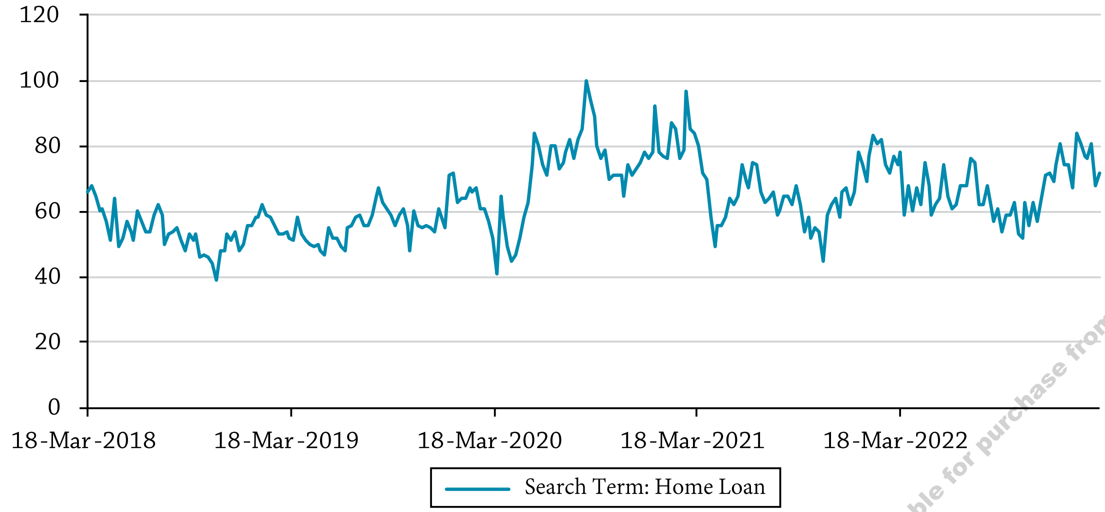
We broadly follow the methodology of Da et al. (2015) in cleaning and treatment of the search

5. The first case of Covid 19 was reported in India on Jan 27th, 2020 (Andrews et al. 2020), and hence the onset of pandemic is taken to be Feb 1st, 2020, for the study.

6. Google, the most dominant search engine in the world, shares the Search Volume Index (SVI) of search terms on Google Trends. When a search term is given in Google trends, search volume history for that term is given by Google trends "scaled by the time-series maximum" (Google Trends http://www.google.com/trends/, Da et al. 2015).

FIGURE 3.4

Raw Data from Google Trends Showing Search Interest Over Time* for the Term "Home Loan"



Note: * The search 'interest over time' as shown in Figure 3.4 are numbers representing "search interest relative to the highest point on the chart for the given region and time". Thus, a value of 100 is the peak popularity while a value of 50 means that the term is half as popular.

Source: Google Trends.

terms, though there are few important points of departure. For each step we highlight the methodological similarity or difference and the reason behind the same[7]:

First, daily change in search term j calculated for time period t, is defined as:

$$\Delta SVI_{j,t} = \ln(1+SVI_{j,t}) - \ln(1+SVI_{j,t-1})$$

Instead of taking the natural log of the terms as in Da et al. (2015), we take the natural log of (1+ SVI). This is because theoretically, for certain days, the SVI could be zero, and in that case taking the natural log of 1+ the SVI mitigates concerns of an infinite value.

Second, to mitigate any concerns about outliers and to address the issues of seasonality and heteroscedasticity in the data, we adjust the raw data in the following way:

- To address seasonality concerns, the data is deseasonalized by regressing on weekdays and monthly dummies and the residuals are kept.
- To address heteroscedasticity and make each of the series comparable, the data is standardized (dividing by the standard deviation for each series)

Third, the deseasonalized and standardized daily change is the final Adjusted SVI (ASVI). Fourthly, in the final step we calculate the RBSI using two different methodologies:

I. The ASVI is weighted by the sectoral weights (number of terms from each sector by the total number of terms) for constructing the RBSI_R (Retail Banking Sentiment Index_ Raw)[8]. For each sector, the index is calculated separately so that we have a RBSI_ Education (RBSI_E), RBSI_ Home (RBSI_H), RBSI_ Vehicle (RBSI_V), and RBSI_ Personal Credit (RBSI_C).

II. We regress the deseasonalized SVI values on the NIFTY 50 returns by doing back-

7. We do not winsorize the data as in Da et al. (2015), as we would like to retain the extreme movement in the data

8. We also calculate the unweighted average of the ASVI for each of the 59 terms for each day, RBSI_U (Retail Banking Sentiment Index_ Unweighted). As RBSI_U mirrors RBSI_R, with correlation of 0.99 we present results for RBSI_R only.

ward rolling regression (as in Da et al. 2015) using a period of 200 days. We use the 't statistic values' of the statistically significant (5%) terms and derive the unweighted average to give the RBSI_M (Retail Banking Sentiment Index_ Modified). As we are using a 200 period backward rolling regression, we have this series from October 2018 only. The next section presents the two indices and major takeaways. Thus, the second index considers terms which have a statistically significant impact on NIFTY 50 for each day and hence reflects part of the retail banking sentiment linked to the financial market.

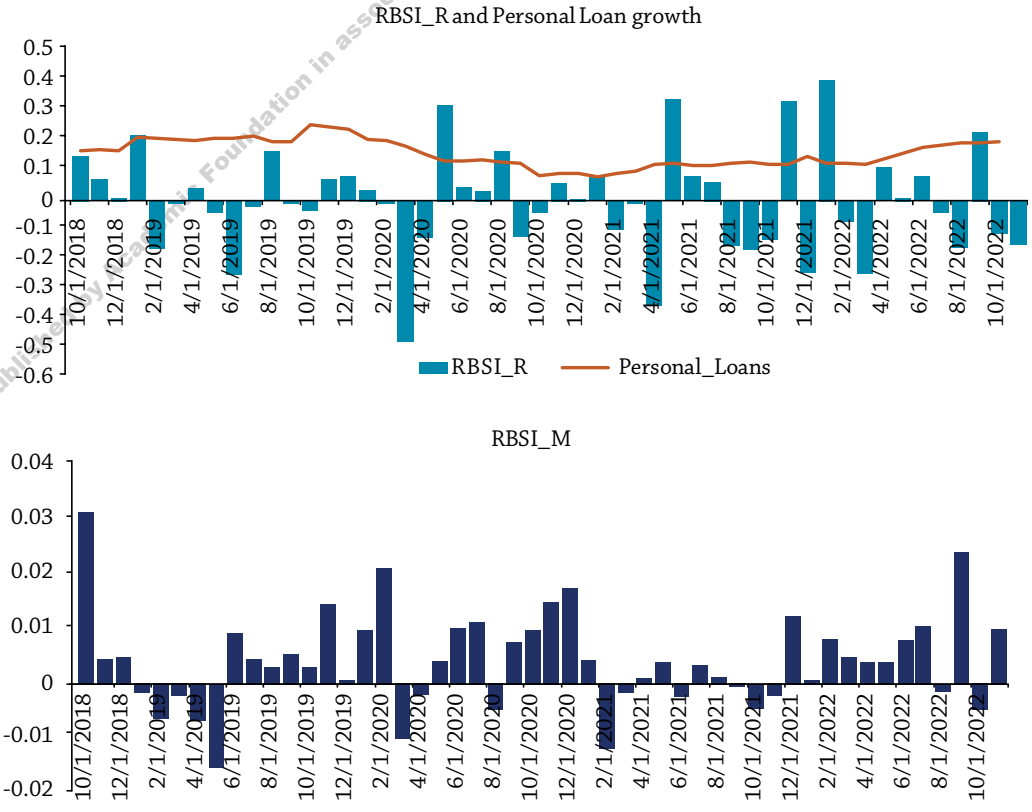
3.5. Results

The RBSI_R and RBSI_M averaged monthly is presented in Figure 3.5A and 3.5B, with the personal loan growth juxtaposed with RBSI_R for comparison. We see a sharp fall in both the sentiment measures in Feb-March 2020, which is expected and seen in the sharp fall in personal loan growth during this period. However, from May 2020, there is a recovery in the sentiment shown in both the indices, as also reflected in a small upturn in personal loan growth. Post this the modified sentiment index shows higher numbers (end 2020), before a fall from Jan 2021. Personal loan growth has remained largely stagnant before the fall in early 2021. RBSI_R shows a sharp fall from March 2021 onwards. We see a recovery in both the sentiment indices from end 2021 again. RBSI_M shows a consistent recovery while RBSI_R shows more uneven recovery. This recovery is reflected in personal loan growth as well.

The reason for this difference in RBSI_R and RBSI_M is inherent in the way they are constructed. RBSI_M considers terms which are found to have a statistically significant impact

FIGURE 3.5A AND 3.5B

RBSI_R and RBSI_M (Monthly Averages) with Personal Loan Growth

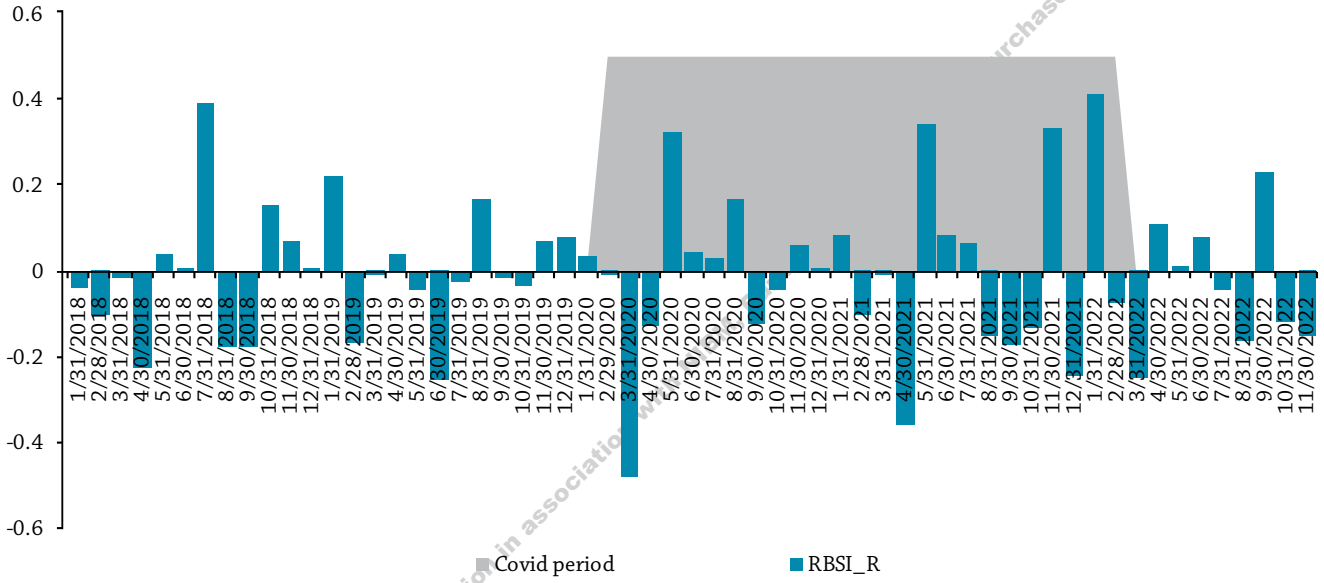


Source: Authors.

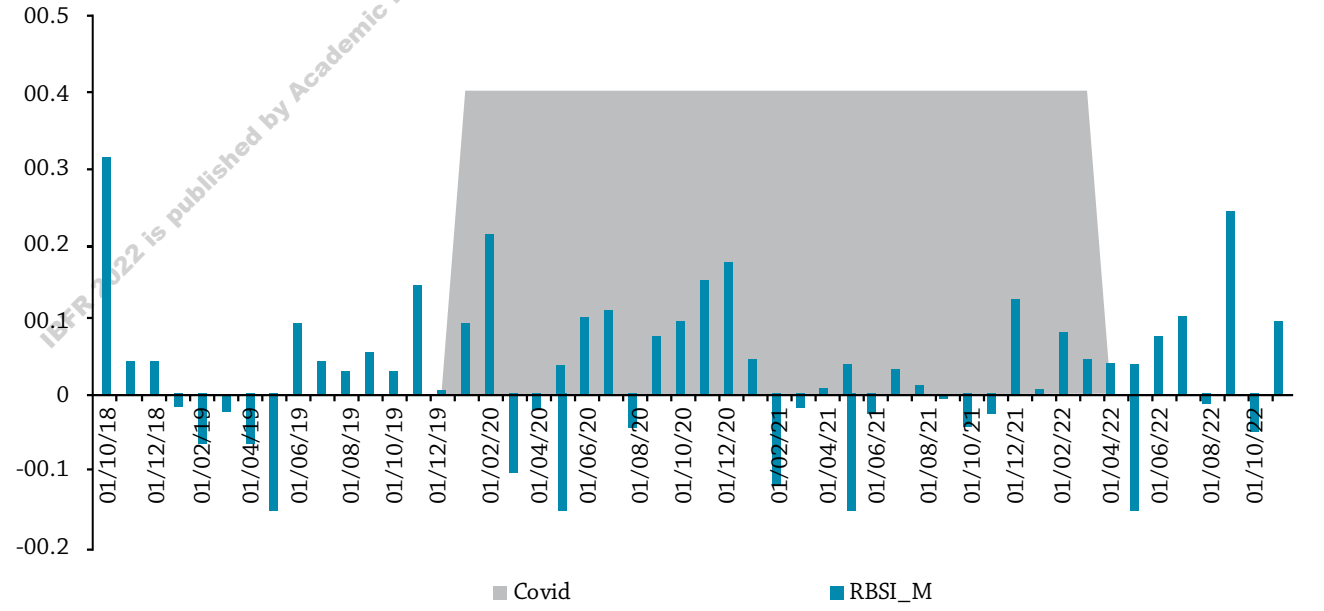
on the market returns. We see the recovery in the post pandemic period to be reflected consistently both in RBSI_M and the personal loan growth, which can be attributed to the index being able to capture the future expectations, given the forward looking nature of financial markets. The use of RBSI_M therefore would allow the incorporation of the market movement based search terms.

The pre-Covid period, Covid and post Covid periods for RBSI_R and RBSI_M are shown in Figure 3.6A and 3.6B. For RBSI_R there was a fall in sentiment from early 2018 to late 2018, and a recovery in 2019, showing a mild increase

FIGURE 3.6 (A & B)
RBSI_ R and RBSI_M: Pre-Covid; During Covid and Post-Covid

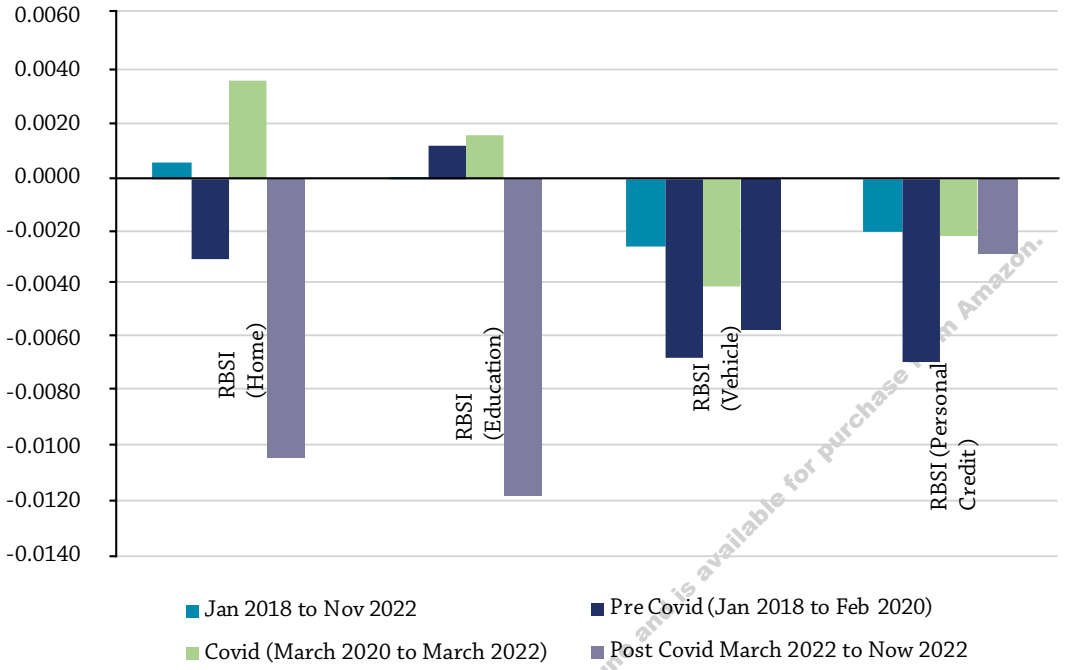


Source: Authors.



Source: Authors.

FIGURE 3.7
Sector Wise RBSI_R Comparisons



Source: Author.

in sentiment for retail banking products. The sharp fall at the beginning of the covid period is expected, and we see a buoyancy of the sentiment from May 2020, which continued till the September 2020, followed by sharp fall in end-2020 and a recovery thereafter. Sentiment shows strong growth in end-2021 to beginning of 2022, a mellowed move thereafter. The covid period marked by an accommodative phase unsurprisingly saw a heightened interest in the retail banking products, and the period from April 2022, marked by the tightening phase has seen mellowed sentiment. The RBSI_M which differs from RBSI_R in focusing on those terms which are linked to the market returns, shows a recovery in 2019, and a sharp fall at the beginning of the covid period, as in case of RBSI_R. The recovery in the sentiment in RBSI_M starts like in RBSI_R from May 2020, but in contrast to RBSI_R the dips come only in early 2021. End 2021 sees a recovery in both which is reflected in 2022 as well. RBSI_M as expected do not show a close linkage to the accommodative and contractionary phases, as does RBSI_R.

Figure 3.7 compares the RBSI_R of four sectors across the three time periods under study. We calculate for this separately the RBSI_R, using terms pertaining to a particular sector. We can see that RBSI for all sectors is higher during the covid phase than otherwise, suggesting both the shift of customers to internet-based searches during this period as also an increase in queries on retail products during this period. Housing loans had seen a strong positive sentiment in the covid period, as also education loans, but there has been sharp fall in the 'searches' in these segments in the post covid period. Vehicle and personal loans have registered more negative sentiment in the post covid period than otherwise. It may be noted that for every sector the covid period has seen an improvement in the sentiment and the post covid period has shown a reduced search for the retail banking products.

3.6. Concluding Observations

Internet search-based indices are here to stay. The need for the banking sector is to move towards 'fast indicators' which can ascertain the changes in retail consumer sentiment and design products and services in keeping with the changing requirements. The data on sentiment, needless to say, in this case, is required at weekly or monthly intervals to allow for the planning in keeping with quarterly targets.

RBSI_R and RBSI_M address these requirements. The sentiment data can be seen at daily, weekly or monthly intervals allowing banks to design products and services in keeping with what the consumer is searching for. This can range from providing information about a certain banking product (say in response to the increased search on 'home loans'), to stepping up the advertising of the product in view of people's interest (in response to the 'bank specific products' being searched). It would allow for comparison between the interest in different bank's products in the same category as also other ancillary requirements of the customer, say the CIBIL score. The applications of such banking sentiment indices are multifarious.

The key takeaways emerging from the present analysis on the retail banking sentiment can be summed as follows:

First, internet-based search from India shows a growing interest in retail banking products in the covid and post covid period. This is in sync with the data from retail credit growth suggesting a better performance of personal loan growth vis-à-vis industry and services loan growth post March 2020. This trend is also shown sector–wise and especially pronounced for the housing and education loan sector.

Second, the search terms show the dominance of top banks for home and education loans, while for vehicle and personal loans, along with banks, customers are increasingly searching for details on NBFC products.

Third, an interesting feature is the tilt towards search terms like eligibility and credit score etc for personal (credit card) loans, not unexpected during a health crisis such as the pandemic. Importantly, RBI had allowed banks to launch special loan schemes to help people tide over any cash crunch during the COVID-19 pandemic, with relaxed repayment norms, which has also likely supported the growth in this segment of credit.

Fourth, the search terms suggest the requirement of information on products and interest rate for each segment, suggesting the banks can design their websites or internet banking portals to contain such information and encourage customer interest.

The index provides valuable insights into customer search behavior and the factors responsible for it. Banks and Financial Institutions can create the index or get it created and become proactive in understanding the customer expectations resulting in improved offerings today and design effective strategies for future growth.

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Appendix A

	Corpus of Search Terms for Which Data is Collected			
	Home	*Vehicle*	*Education*	*Personal*
1	Home Loan	Vehicle Loan	Education Loan	Personal loan App
2	Home Loan Calculator	Vehicle Loan Interest	Education Loan Interest Rate	BOB Digital Personal Loan
3	Home Loan Emi	Commercial Vehicle Loan	Education Loan Collateral	Navi Personal Loan Interest Rate
4	Home Loan Interest Rate	Car Loan	EMI Education Loan	Paytm Personal Loan Customer Care
5	HDFC Home Loan	Vehicle Loan Calculator	Co Borrower	Preapproved Personal Loan
6	SBI Home Loan	HDFC Vehicle Loan	Education Loan SBI	Best Personal Loan App in India
7	ICICI Home Loan	Vehicle Loan SBI	HDFC Education Loan	L&T Personal Loan
8	Canara Bank Home Loan	80 EEB	Abroad Education Loan	Bajaj Personal Loan
9	HDFC Home Loan Interest Rate	Mahindra Finance Vehicle Loan	Education Loan Canara Bank	Axis Personal Loan
10	SBI Home Loan Interest Rate	Kotak Mahindra Finance	Bank Of India Education Loan	Personal Loan Interest Rate
11	LIC Home Loan Interest Rate	Two-Wheeler Loan Interest Rate	Education Loan ICICI	IDBI Personal Loan Interest Rate
12	Bank Of Maharashtra Home Loan Interest Rate	Sri Ram Finance	Janasamruddhi Education Loan	IIFL Personal Loan
13	Canara Bank Home Loan Interest Rate	Federal Bank Vehicle Loan	IDFC First Bank Education Loan	Personal Loan Calculator
14	All Bank Home Loan Interest Rate	Electric Vehicle Tax Exemption	IDBI Education Loan Interest Rate	Personal Loan Salary Less Than 15000
15	Home Loan Subsidy	How To Check Vehicle Loan Status Online	Yes Bank Education Loan	Personal Loan
16	HDFC Home Loan Portal	Regional Transport Office	Education Loan Calculator	PNB Personal Loan
17	Home Loan Calculator	Sundaram Finance	Education Loan Portal	Personal Loan EMI Calculator
18	Home Loan Documents	Vehicle Details	How To Get Education Loan After 12th	Navy Personal Loan
19	Pradhan Mantri Awas Yojana Home Loan Subsidy	CarWale	Education Loan Tax Benefit	Pay Sense
20	Home Renovation Loan	Hero FinCorp	Non-Collateral Education Loan	ICICI Personal Loan
21	Bank of Baroda Home Loan	CIBIL Score Check*		HDFC Personal Loan
22	Sip Calculator*			Online Personal Loan
23	Repo Rate*	Fixed Interest Rate Loan*		SBI Loan*
24	Credit History*	IDFC First Bank*		CIBIL Score check*
25		Axis Bank Customer Care*		IDFC first bank personal loan interest rate

Note: * denotes words which are included based on related search suggestions by google.

Appendix B

Top Twenty Search Terms

1	Personal Loan	Personal Credit
2	HDFC Home Loan	Home
3	SBI Loan (Personal)	Personal Credit
4	Kotak Mahindra Finance (Vehicle)	Vehicle
5	IDFC First Bank	Vehicle
6	HDFC Education Loan	Education
7	Personal Loan Interest Rate	Personal Credit
8	Personal Loan Emi Calculator	Personal Credit
9	Repo Rate	Home
10	Car Loan	Vehicle
11	Axis Personal Loan	Personal Credit
12	Home Loan	Home
13	ICICI Home Loan	Home
14	Education Loan	Education
15	HDFC Home Loan Interest Rate	Home
16	Home Loan Interest Rate	Home
17	Vehicle Loan	Vehicle
18	Personal Loan Calculator	Personal Credit
19	Education Loan SBI	Education
20	Online Personal Loan	Personal Credit

The above table gives the top twenty search terms used. We can see that home and personal (credit card) loan terms dominate the RBSI, as most searched terms pertain to these two sectors. The search terms for home loans show that queries on the EMI to be paid (and therefore the calculator) dominate as customers plan their home loans. The bank specific queries show queries on interest rate and products in general are dominant. Queries on HDFC and ICICI home loans are predominant and hence feature in the index. Interestingly customers search for repo rate and sip calculator details as they plan for home loan products. In the personal segment, we find other than details on personal credit, EMI and interest rate dominate. Customers searching for personal loan information not only have queries on products from banks like SBI, Axis Bank, but also Non-Banking Financial Company (NBFC). In the Vehicle loan segment similarly NBFCs feature. In the education loan segment, we find SBI education loan and education loan product information crucial. A key point to be noted here is that search for product details and bank specific details still forms the thrust of the internet-based searches. Further, Appendix A suggests that while products from banks dominate the queries, NBFC products are also searched for while not all of them may have been consistently appearing in searches for the entire period.