Research

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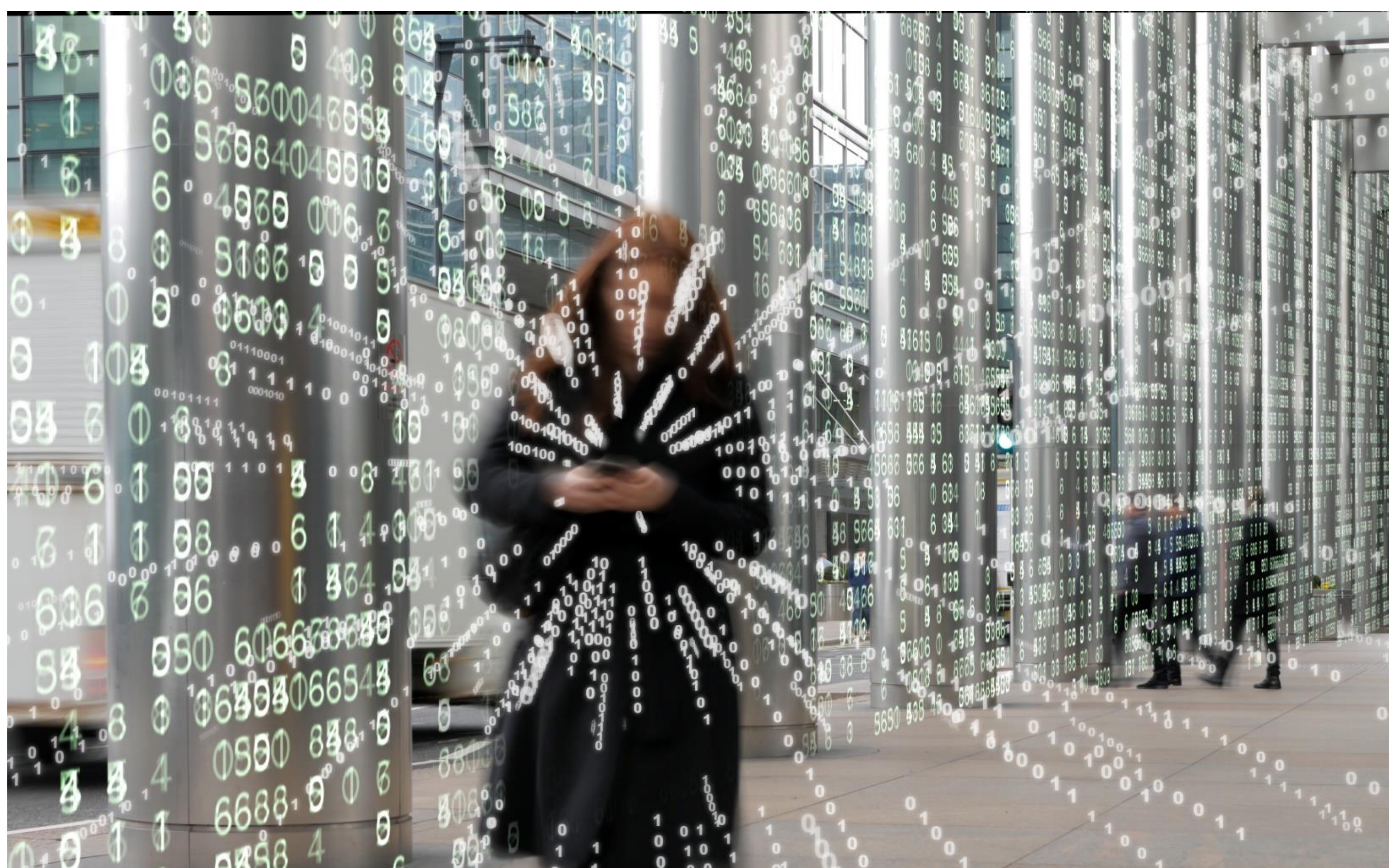
Tracking financial conditions

CRISIL's new Financial Conditions Index shows easing, and also pockets of stress

October 2020



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Financial conditions on the mend, our index shows

Financial conditions in India have staged a full-throttle recovery from the harrowing abyss they had been sent flailing into by the Covid-19 pandemic in April, our new Financial Conditions Index (FCI) shows.

Credit for this is due to the Reserve Bank of India (RBI), whose overtures to maintain easier financial conditions – in lockstep with central banks elsewhere – have helped mitigate the large and broad-based economic damage caused by the pandemic. While easy global monetary policies have helped, the RBI's accommodative stance has helped contain short-run pressures no less.

"The RBI stands ready to undertake further measures as necessary to assure market participants of access to liquidity and easy financing conditions," RBI governor Shaktikanta Das said at the October 2020 monetary policy meeting. It sure has, so far.

That said, pockets of stress remain, our FCI shows, as evident in weak bank credit growth, wider spreads on lower-rated corporate bonds, and fundamental pressures due to high government borrowing.

But what led us to construct this new index?

We believe the financial markets are an economy's critical plumbing system, through which funds flow to those in need. They become all the more important during economic crises, when incomes and cash flows are disrupted for businesses and households. Today, with the pandemic sparking off one of the biggest recessions, the functioning of the financial sector becomes critical – not only for its role of supporting borrowers, but also for policy implementation.

Monetary policy – which has done most of the heavy lifting so far – works its way to the economy through altering financial conditions. This time, a large part of fiscal stimulus is also in the form of credit-enhancing measures, which depend on the financial sector for implementation. Indeed, we estimate that ~65% of fiscal stimulus announced in May was in the form of liquidity and credit support[1].

Some important questions arise in this milieu: How have the financial conditions in India fared amid the pandemic? How does this period compare with earlier periods of stress? How have the RBI measures impacted financial conditions?

To answer these, we looked at movements in key parameters across various financial markets in India, including equity, debt, money and forex markets. We also took into account financing conditions for the broader economy by including variables such as bank credit growth, lending rates, and money supply. Finally, we evaluated the impact of monetary policy environment in the context of prevailing inflation conditions. We chose the indicators such that they reflect the availability of credit and the cost of credit.

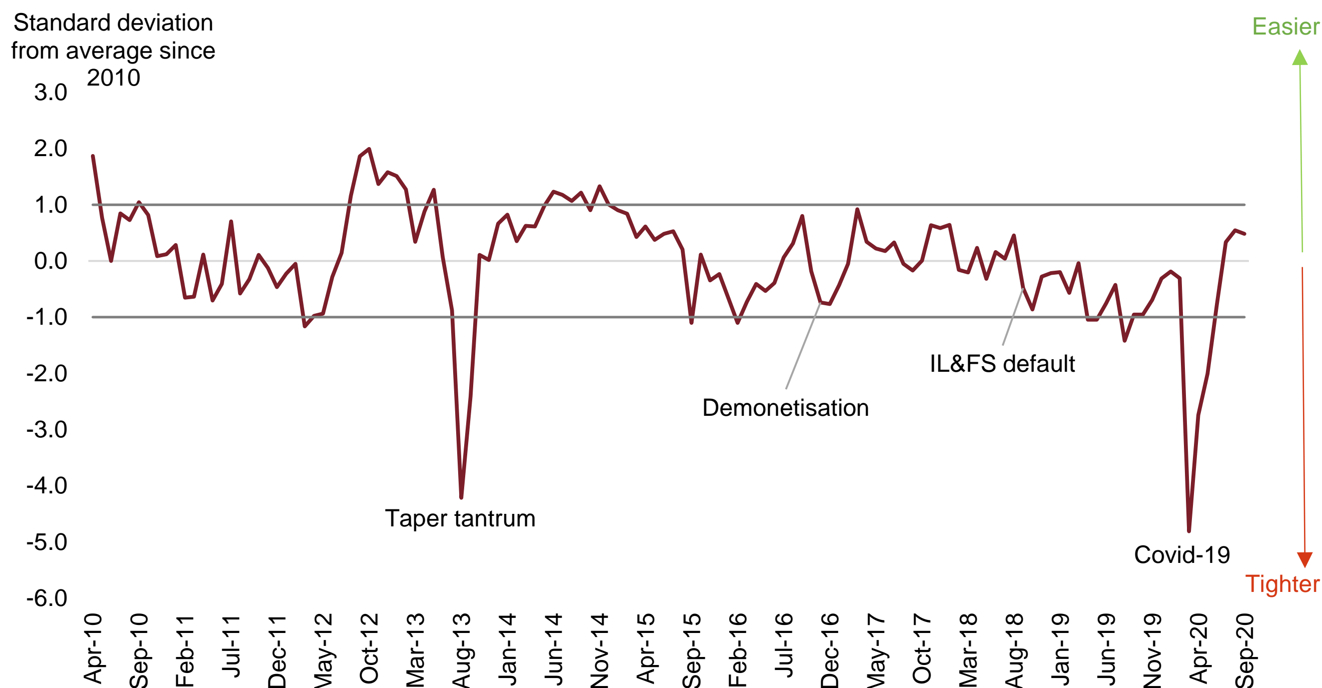
Then, we aggregated these variables into an index – the FCI – that can be used to track the state of financial conditions over time.

We believe this summary variable can be used to track the state of financial conditions over time. This can be used as an input in understanding the state of the economy, the impact of policy and, eventually, for assessing the future path of the economy.

[1] CRISIL (May 2020). Minus five : India's GDP growth outlook for fiscal 2021

How the pulse ticks for India

The past decade on our Financial Conditions Index



Source: CRISIL

Key takeaways

- Financial conditions had been tightening since the IL&FS default in 2018, which triggered a liquidity crisis for non-banking financial companies (NBFCs). This is indicated by the negative values of FCI since then.
- The Covid-19 pandemic only magnified this. Consequently, India's financial conditions were the tightest in a decade in April this year, once the lockdown to stem the Covid-19 pandemic began – the FCI value was far below one standard deviation from the long-term average, implying significant tightening[2]. The only time when FCI dipped to a similar level earlier was in 2013, during the Fed taper tantrum
- The FCI has been improving since then, and has turned positive since July. Currently, the financial conditions are the easiest seen in two years
- The RBI's sharp rate cuts and unconventional measures have helped ease financial conditions
- However, some pockets still have tighter conditions than their long-term averages, particularly credit growth by banks. This could delay transmission of policy easing to the broader economy

[2] see page 7 for further details regarding methodology and interpretation of the index

Explaining the fluctuations in the FCI

- In September 2018, when the IL&FS crisis broke, India was facing external headwinds. The US Federal Reserve had hiked rates four times and crude oil prices were rising. The rupee was depreciating, forcing the RBI to hike repo rate at a time when inflation was falling. Thus, real interest rates rose. This, coupled with the IL&FS crisis, led to rising money market rates and wider corporate bond spreads
- Term premium of 10-year G-sec has been over 100 bps since 2018, due to the rising fiscal stress over ~60 bps in the preceding five years
- Bank credit growth has been falling since 2019 and the spreads on lower-rated corporate bonds have been widening, reflecting heightened risk perception
- In March this year, conditions tightened sharply across market segments. A sudden tightening of global financial conditions led to record-high foreign portfolio investor (FPI) outflows and sharp rupee depreciation. Equities tanked, with their volatility hitting a record high. Corporates faced an acute liquidity crunch, as reflected in sharp rise in spreads for commercial paper and corporate bonds. Term premium spiked further
- Starting June, however, FPI flows have returned and the exchange rate has stabilised, even appreciating over the past three months. Equities have almost erased the losses suffered post February. Interest rates eased across most segments – including for lending rates and bond yields. Overall, money supply has risen as well
- A swift, large-scale monetary policy easing by the RBI and other major central banks has driven the improvement in financial conditions
- However, the extent of easing has not been uniform. Short-term money market rates have fallen more than long-term bond yields. Among bonds, safe-haven G-secs and AAA-rated public sector benchmarks have eased more than lower-rated corporate bonds. The spreads of lower-rated corporate bonds (such as AA paper given below) over government benchmark remain much higher than long-term averages. Bank credit growth remains weak

Drivers of financial conditions this year

Covid-19 becomes a pandemic (Mar-20)

		Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
Policy rate	Repo rate (%)	5.15	5.15	4.4	4.4	4	4	4	4	4
	Repo rate, inflation-adjusted (%)	-2.4	-1.4	-1.4	-2.8	-2.3	-2.2	-2.7	-2.7	-3.3
Liquidity conditions	Net absorption(-)/injection(+) under LAF (Rs bn)	-3178	-3162	-3902	-6852	-7504	-6175	-6012	-6071	-5084
Money market	Call money rate (%)	4.9	5.0	4.9	4.0	3.6	3.5	3.4	3.4	3.4
	CP 6month spread^ (%)	1.0	0.8	2.3	1.9	1.5	0.6	0.0	0.0	0.0
	91 day T-bill (%)	5.1	5.1	4.8	3.9	3.4	3.3	3.2	3.3	3.3
Debt market	10 year G-Sec (%)	6.6	6.4	6.2	6.3	5.8	5.8	5.8	6.0	6.0
	Term premium (%)	1.4	1.3	1.8	1.9	1.8	1.8	1.8	2.0	2.0
	AAA bond spread' (%)	0.8	0.7	1.0	0.9	1.0	0.8	0.5	0.5	0.5
	AA bond spread" (%)	3.7	3.7	4.6	4.9	4.9	4.5	3.1	2.7	2.5
Lending rates	MCLR (6 month) (%)	8.1	8.1	8.0	8.0	7.8	7.6	7.5	7.4	7.3
	Housing loan rate (%)	8.4	8.4	8.4	7.9	7.8	7.6	7.5	7.5	7.5
	Auto loan rate (%)	8.9	8.9	8.8	8.4	8.4	8.2	8.2	8.2	8.2
Credit availability	Bank credit growth (y-o-y,%)	8.5	7.3	6.8	7.4	7.0	6.9	6.9	5.5	5.1
Money supply	M3 growth (y-o-y %)	11.2	10.2	8.9	10.8	11.7	12.3	13.2	12.6	12.2
Equity market	Sensex (%*)	18.6	11.6	-12.1	-28.2	-12.5	-2.4	6.4	7.2	8.4
	NSE VIX	14.9	15.4	53.1	45.0	37.0	30.3	25.2	21.2	21.1
Forex market	Rs/USD (m-o-m %)	0.2	0.2	4.0	2.5	-0.8	0.1	-1.0	-0.4	-1.6
Foreign capital	Net FPI (USD bn)	0.1	1.3	-15.9	-2.0	-1.0	3.4	0.5	6.7	-0.2
Global conditions	S&P500 (%*)	13.0	17.0	-4.2	-5.6	-1.9	10.2	9.5	16.8	11.8
	US 10Y Treasury yield (%)	1.8	1.5	0.9	0.7	0.7	0.7	0.6	0.7	0.7
	Brent ($/barrel)	63.6	55.0	33.0	23.3	31.0	39.9	42.8	44.3	41.1

Favourable | Adverse | Neutral

Note: LAF is liquidity adjustment facility, ^10 year G-Sec's spread over repo rate; 'spread over 10-year G-Sec; "spread over 5-year G-Sec; *% change with respect to two-year moving average, a positive % rupee change implies depreciation against US $ and vice-versa; Bank credit growth is until September 25, 2020

Source: RBI, National Securities Depository Ltd (NSDL), US Treasury department, CEIC, CRISIL

RBI's measures have helped ease financial conditions significantly…

- The RBI's policy was accommodative even before the pandemic hit, with several conventional and unconventional measures such as Operation Twist and Long-Term Repo Operations (LTROs), implemented in January and February
- In March, the RBI accelerated the easing measures with sharp rate cuts and stepped up unconventional measures (given in table below). A number of measures on regulatory relaxation were also undertaken to ease the pain in the financial sector, including permitting moratoriums and debt restructuring by banks
- Since March, the RBI has cut the repo rate by 115 bps and the reverse repo rate by 155 bps. It has also purchased Rs 1.9 trillion of G-secs (on a net basis) until September, compared with Rs 0.9 trillion in the corresponding period last year. Systemic liquidity has increased significantly, as indicated by the RBI net-absorbing ~Rs 6 trillion on average every month, compared with ~Rs 0.5 trillion in the same period last year

- This has helped reduce the interest rates in money and debt markets and has even got transmitted to bank lending rates to some extent. Equities also benefited from improving investor sentiment
- In the latest monetary policy meeting in October 2020, the RBI reiterated maintaining accommodative stance and announced additional asset purchases and liquidity-enhancing measures
- Real interest rates (implied by the repo rate, adjusted for CPI inflation) have been negative this year

Timeline of RBI's actions this year

Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Operation twist	Removal of liquidity limits 2 LTRO	Rate cuts 3 LTROs 1 TLTRO Moratoriums	Reverse repo rate cut 3 TLTRO 1 TLTRO 2.0 Operation twist Refinancing facilities Increased ways &means advances for states	Rate cut Extension of moratorium		Operation twist	Operation twist Loan restructuring	3 Operation twists Increased limit for securities under held to maturity (HTM)	Increased size of OMOs and Operation Twists OMOs for SDLs On-tap TLTROs

Source: RBI, CRISIL

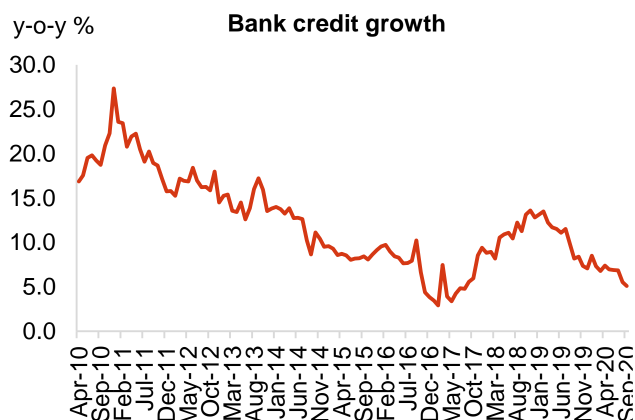
…but pockets of stress persist

The financial sector continues to have fundamental vulnerabilities:

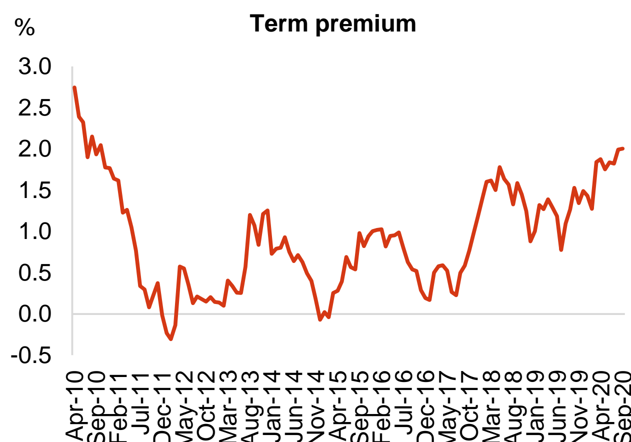
- **Weak credit growth:** Bank credit growth, which was already weakening before Covid-19, has fallen even further in the recent months. CRISIL estimates bank credit growth to slow down to a multi-decadal low of 0-1% this fiscal[3]
- **High government borrowing:** G-sec yields are fundamentally under pressure because of high government borrowing. Even though the 10-year G-sec yields are easing, their term premium over the repo rate remains rigidly above 100 bps, reflecting uncertainty and the fiscal risks factored in by investors
- **Stress in the corporate bond market:** While the RBI's measures eased corporate bond yields, spreads of lower-rated corporate bonds (from AA+ to A- rated) over G-sec benchmarks remain higher than the long-term averages, reflecting risk aversion among investors

[3] For further details, refer to CRISIL's Ratings Round-up for the first half of fiscal 2021: *Lock, shock, and a barrel of ifs and buts* (September 2020).

Credit growth continues to weaken



Term premium above historical averages



Source: RBI, CEIC, CRISIL

In the context, the monitorables

To reiterate, the multitude of steps taken by the RBI, coupled with global easing have helped ease the financial conditions in India visibly since April, though weak bank credit growth, wider spreads of lower-rated corporate bonds, and fundamental pressure imposed by high government borrowing indicate that some stress persists.

Also, while the central bank's accommodative stance should help in the short-run, it remains to be seen until when and to what extent will these pressures be masked.

We intend to update our FCI on a monthly basis to keep track of the evolving financial conditions.

Creating the Financial Conditions Index

The considerations

The financial sector provides avenues for savers to invest and borrowers to access funds. Hence, the state of financial conditions would be dependent on prices of financial assets, availability of financing options and the cost of borrowing through those options.

We aim to capture these aspects across the following financial markets:

1. Money market
2. Debt market
3. Equity market
4. Foreign exchange market
5. Banking sector

Movements in asset prices and interest rates across these markets would reflect the changes in financial conditions. In general, rising prices imply better/ easier financial conditions. Rising prices correspond to lower interest rates and vice versa. Hence, lower interest rates correspond to easier financial conditions.

Supply of funds also needs to be considered to assess the financial conditions. Lower the supply of funds, tighter are the financial conditions. As noted in a European Central Bank paper[4], supply variables become more important for assessing financial conditions in imperfect markets. Even with low interest rates, there can be credit rationing, indicating financial stress. Moreover, the unconventional liquidity-enhancing measures of central banks can have a greater impact on supply of funds than on cost of funds.

Interest rates and financial flows are influenced by monetary policy measures, such as rate cuts and open-market operations. In addition, investor risk sentiment and volatility prevailing in the markets influence financial conditions.

Constructing the FCI

With the above considerations in mind, we combined various parameters across financial markets to construct the FCI. The index is constructed on a monthly frequency, starting from April 2010, and we believe the summary statistic can be used to track the changes in financial conditions over time.

[4] Angelopoulou E, Balfoussia H, Gibson H (2013). *Building a Financial Conditions Index for the Euro Area and Selected Euro Area Countries: what does it tell us about the crisis?* European Central Bank Working Paper Series

Variables used

A total of 15 variables have been considered:

- For evaluating **monetary policy conditions**, repo rate – i.e., the policy rate set by the RBI – has been taken. To gauge the extent of tightness implied by this rate, its difference over headline CPI inflation has been included in the index. The higher (lower) the value of this 'real' policy rate, the tighter (easier) the financial conditions
- In the **money market**, the interbank call money rate spread over the repo rate is included. Lower call money rates relative to the repo rate indicate easier liquidity conditions, and vice versa. In addition, yields on 91-day treasury bill (T-bill) and commercial paper (CP) have been included in the form of spreads over the repo rate. Higher (lower) spreads indicate tighter (easier) conditions
- In the **debt market**, the yield on the benchmark 10-year government security (G-Sec) has been included in the form of its spread over the repo rate (also called term premium). Corporate bond spreads are taken for CRISIL's AAA-rated public sector (PSU) benchmark (long term) and AA-rated medium-term bonds. The spreads are over G-Secs of corresponding tenors
- **Equity** price movements are considered by taking growth in the BSE's Sensex relative to its two-year moving average. To measure equity volatility, NSE's India VIX index is included
- **External financing conditions** are captured by taking into account the change in the rupee's value relative to the US dollar. A rupee depreciation (appreciation) is assumed to tighten (ease) financial conditions. Further, the quantum of foreign portfolio investor (FPI) inflows are included, with higher (lower) inflows implying easier (tighter) financial conditions
- **Bank lending conditions** in the economy are considered by taking overall credit growth. In addition, lending rates for auto and home loans are included in the form of spreads over the repo rate. A wider (narrower) spread implies tighter (easier) lending conditions
- Finally, **money supply** in the overall economy is gauged by including M3 growth

Method of construction

Various FCIs constructed across economies have used a diverse set of measures – ranging from simple averaging, averaging based on weights derived from econometric models, and principal component analysis[5].

Based on literature review, we chose the principal component analysis (PCA) for constructing our index *(see box below for a detailed description of this method).*

The PCA basically gives weights for variables, giving the best fit for our data. We use these weights to aggregate the variables into the index. The usage of PCA enables us to use information in data itself for creating the index, which is better than assigning arbitrary weights.

[5] Hatzius J, Hooper P, Mishkin F, Schoenholtz K, Watson M (2010). *Financial Conditions Indexes: A Fresh Look After The Financial Crisis*. National Bureau of Economic Research.

Our FCI is designed such that a higher (lower) value denotes easier (tighter) financial conditions. The index is also standardised (by subtracting from the mean and dividing by the standard deviation of the entire time period). Therefore, if the magnitude of the FCI value is greater than one, it is more than one standard deviation away from the long-term average; we interpret that as a significantly easier/ tighter financial conditions

Hence, our FCI gives a comprehensive measure of financial conditions for the Indian economy by capturing price and supply variables across financial markets, along with prevailing risk sentiments. Not only does it capture the extent of monetary policy transmission across various financial market segments, but also evaluates the policy stance itself in the context of prevailing inflation conditions.

Using principal component analysis to construct the FCI

Principal component analysis (PCA) is a useful technique to analyse a large number of variables together. It helps reduce the dimensionality in data by giving the best linear combinations of variables that explain the underlying data.

These linear combinations are referred to as principal components (PCs). The number of PCs produced by the PCA equals the number of variables. The first PC explains the maximum variation in data, the second PC second highest variation, and so on.

For constructing our FCI, we use the first three PCs, which cumulatively explain 63% of the variation in the underlying data. A weighted average of these three PCs is taken, with the weights being the proportion of variance explained by each PC.

Each PC gives coefficients for variables, which are also known as 'loadings'. In other words, these are the weights given to variables in the index. After averaging the first three PCs, the resultant weights we get are given below:

Weights of variables in FCI

	Variable	Weight
Real interest rate (7.8%)	Repo rate-CPI inflation	7.8%
Money market (22.9%)	Call money rate*	8.0%
	91D T-bill yield*	7.2%
	CP spread*	7.7%
Debt market (16.8%)	Term premium*	5.2%
	AAA PSU spread*	6.0%
	AA spread^	5.7%
Lending rates (16.1%)	Auto loan rate*	8.7%
	Home loan rate*	7.4%
Credit availability (8.7%)	Bank credit growth	8.7%
Money supply (7.1%)	M3 growth	7.1%
Equity market (11.5%)	Sensex	5.0%
	VIX	6.5%
Forex market (9%)	Rupee/USD	5.5%
	FPI inflows	3.6%

*spread over repo rate; spread over corresponding tenor G-Sec

Before combining into an index, each variable is standardised by subtracting from the mean and dividing by the standard deviation.

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