

# The impact of financial stress on consumer confidence: evidence from survey data

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## Abstract

**Purpose** – This paper explores the impact of financial stress (FS) on consumer confidence (CC) using survey data.

**Design/methodology/approach** – We use novel household-level survey data on CC by the Reserve Bank of India. FS data come from the financial stress index (FSI) released by the Tracking Asian Integration of Asian Development Bank. The sample period is 2015–2023. We align the lagged monthly values of FSI with the household-level data to uncover the impact of FS on household confidence in the economy.

**Findings** – Rising FS leads to increased pessimism among households regarding the state of the economy. Educated and well-off households are more sensitive to FS. Moreover, FS significantly impacts confidence regarding households' own consumption basket and economic scenarios. A disaggregated analysis reveals that FS related to foreign exchange and debt spread causes greater pessimism among households than in the equity market and banking sector. Additionally, the impacts of FS are asymmetric, with above-average FS lowering household attitudes, while below-average FS increases optimism about the economy's outlook.

**Originality/value** – To the best of our knowledge, this study is the first to examine the impact of FS on household CC using household-level data for an emerging economy such as India. Micro-level data allow us to explore the impact of FS on household perceptions of current economic situations and future outlooks. We also uncover the impact of FS on households' confidence in their own economic outcomes.

**Keywords** Household confidence, Financial stress index, RBI

**Paper type** Research paper

## 1. Introduction

The 2008 global financial crisis and subsequent recession have augmented the significance of the interlinkages between financial market vulnerabilities and the real economy. Financial stress (FS) has a detrimental effect on the economy (Cardarelli *et al.*, 2011; Park and Mercado, 2014). A macroeconomic crisis affects households differently than an individual-level crisis (Fonseca *et al.*, 2016). Households often perceive aggregate adverse economic shocks as more intense and long-lasting than individual shocks. Increased FS can result in reduced access to financing for firms and households as the economic outlook worsens and asset prices fall (Tng and Kwek, 2015). It can also lead to a decline in output and disruptions in the labor market

**JEL Classification** — E66, E71, G10

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(Wang and Su, 2024). Therefore, such FS can impact household expectations, such as job and income loss, which can impact consumer confidence (CC).

CC is a progressive measure of aggregate economic activity (Acemoglu and Scott, 1994). Therefore, exploring the factors (e.g. FS) that drive CC and economic activity is necessary. The financial stress index (FSI) has been used to measure FS in the aggregate economy (Park and Mercado, 2014; Ghosh, 2022). The FSI captures FS in four major sectors – banking, equity, debt and foreign exchange (Park and Mercado, 2014) – and therefore signals the financial system's health (Hakkio and Keeton, 2009; Hollo *et al.*, 2012; Misina and Tkacz, 2009; Yiu *et al.*, 2010). Each component can have substantial implications on the CC. Rising stress in the banking sector can create uncertainty in the financial system, undermining household confidence in banks, reducing credit availability and making consumers more cautious about spending and investing, which may lead to a decline in CC (Tng and Kwek, 2015). Furthermore, equity market returns and volatility can influence CC (Jansen and Nahuis, 2003; Karnizova and Khan, 2015); this can be explained by the wealth effects of stock prices on households (Ampudia *et al.*, 2016). Elevated stress in the foreign exchange market, marked by local currency devaluation and declining reserves, can increase inflation and borrowing costs, lowering household confidence and curtailing spending, which may hinder economic growth. Additionally, a widening debt spread tightens credit availability, making consumers more cautious and affecting their economic confidence.

In Figures A1 [1] and A2 [1], we plot the time-series evolution of CC and FSI for India. Current situation index (CSI) and future expectation index (FEI) capture the household-level CC measures from the Consumer Confidence Survey (CCS) released by the Reserve Bank of India (RBI). FSIIND is the composite FSI for India (at one month lag) obtained from the Asia Regional Integration Center, Tracking Asian Integration (ARIC), ADBI. The figures indicate significant variation in the CSI, FEI and FSIIND. Moreover, FSIIND negatively correlates with CSI and FEI, with CSI exhibiting a stronger relationship than FEI. However, this observation does not indicate whether FSI impacts households' confidence. Therefore, we examine this relationship using unit-level observations from RBI's city-level survey data on CC. The geographically disaggregated microdata allow us to examine the impact of FSI on households' perception of and outlook on the economy's overall state. Household-level data allow us to incorporate household-level heterogeneity and explore the heterogeneous impact of FSI on households' confidence based on demographic characteristics (Burke and Ozdagli, 2023).

We add to the pool of studies on survey-based CC indicators. CC can forecast economic activity (Ludvigson, 2004). Similarly, it can forecast households' consumption expenditure (Barsky and Sims, 2012; Carroll *et al.*, 1994; Carroll and Wang, 2022). Lahiri and Zhao (2016) found that macroeconomic indicators drive households' perceptions of and outlook on economic conditions. Moreover, news-based media reports on uncertainty negatively impact the CC with regard to future economic expectations (De Boef and Kellstedt, 2004; Hester and Gibson, 2003).

The existing literature on FS primarily focuses on the development of the index and its aggregate effect on the economy or financial markets (Apostolakis and Papadopoulos, 2015; Balakrishnan *et al.*, 2011; Cardarelli *et al.*, 2011; Cevik *et al.*, 2016; Illing and Liu, 2006; Park and Mercado, 2014; Roncagliolo and Blas, 2022). For instance, Ahir *et al.* (2023) created a quarterly financial index for 110 countries from 1967 to 2018 and showed that a higher FS lowers economic output, and the effect is more profound for emerging economies than for developed economies. In India, Guru (2016) uses banking, stock market and currency market data to construct a financial sector stress index (FSSI). Sahoo (2021) also constructs an FSI index and finds that it negatively impacts economic growth but has no significant impact on inflation.

While several studies examine the role of FSI in various economic outcomes, studies on its impact on CC are limited. For example, Ghosh (2022) analyzes CCI data from Japan (1995–2018) and demonstrates that FSI affects CC, noting a stronger negative impact on CCI from rising FSI compared to the positive impact of a similar decline. The asymmetries in response to FSI on CC indicate that households may react more strongly to bad news than to good news, which is consistent with the idea that households display reference-dependent

preferences; this manifests into loss aversion, where people react more strongly to losses than to gains (Kahneman and Tversky, 1979). Dimmock and Kouwenberg (2010) found that loss aversion affects households' equity market participation and household portfolio choice. Similarly, Santoro *et al.* (2014) show that loss-averse preferences in a general equilibrium model can explain the asymmetric impact of monetary policy on output and that monetary policy has stronger effects on the gross domestic product (GDP) during contractions than expansions. Ciccarone *et al.* (2019) argue that when financial instability increases, it raises the impact of loss aversion. As the likelihood of experiencing loss increases, agents become more cautious about their consumption choices. We explore whether FS has an asymmetric impact on household confidence, adding to the literature that empirically examines the asymmetric impact of the macroeconomic and financial shocks on household behavior in several ways.

First, this study departs from previous research and focuses on examining the relationship between FS and CC at the household level rather than at the aggregate level. It examines how FS can affect household confidence in the economy's overall state by utilizing micro-level survey data for India, an emerging economy. Micro-level data allow us to examine the impact of FSI on households' perceptions of current economic situations and future outlooks. Second, household-level data allow us to explore the heterogeneous impact of FSI on CC based on consumers' demographic characteristics. Furthermore, we examine the impact of FSI on households' perception and outlook on their own economic outcomes as well as the role of the FSI's subcomponents on household confidence indicators. Finally, we explore the asymmetric implications of such shocks on household confidence.

A rise in FSI dampens households' confidence in the economy, with higher-income groups showing more sensitivity to current conditions. Increased education heightens sensitivity to FS shocks for future economic expectations. Moreover, FSI affects households' economic outcomes (e.g. income, spending and employment). The disaggregated impact of FSI components explains variations in its effects on CC. Furthermore, our asymmetric analysis shows that households perceive a below-average FSI to be positive news for the economy's future.

## 2. Data and methodology

We combine the household-level information on CC from the CCS conducted by the RBI with the FSI index, which is an initiative to collect data on CC from 2010. Initially focused on six cities, the CCS was later expanded to 19 cities [2], capturing insights from approximately 5,000 households in each round, including information regarding households' confidence in general economic conditions compared to a year ago and their expectations a year ahead. Our sample covers data from March 2015 (round 23) to July 2023 (round 73).

Moreover, the survey collects information on consumers' perceptions and expectations of various household economic outcomes, including income, spending on essentials and nonessential goods and services, outlook on employment and price levels. All these responses are captured using a three-point scale (i.e. improve, remain the same and worsen). In our analysis, we use two measures of CC: the first one captures how households perceive current aggregate economic conditions compared to one year ago (GECPER), and the second one captures their outlook on the aggregate economic condition a year ahead (GECOTL). Following the literature (Andrade *et al.*, 2021; Buchheim *et al.*, 2020; Rooj *et al.*, 2024), we define  $GECPER = 1$  if respondents perceive their present general economic condition as having improved compared to a year ago, 0 if it has remained the same and  $-1$  if it has worsened. Similarly, we define  $GECOTL = 1$  if respondents expect the outlook on the future general economic condition to improve a year ahead, 0 if it will remain the same, and  $-1$  if it will worsen.

Furthermore, the survey captures information about households' specific demographic variables, such as age, gender, professional categories, income, education level, number of earning members and family size. Households from a specific city are selected based on a fresh list of polling booths for every round. Therefore, as the same respondents are unlikely to be

interviewed in every round, we can conceive the unit levels of data as a repeated cross-section of observations [3].

The primary explanatory variable of this analysis is the FSI. FS is defined as episodes with large shifts in asset prices, unexpected rises in risk or uncertainty, a rise in the financial system's illiquidity and apprehensions in the banking sector's health (Balakrishnan *et al.*, 2011). The FSI index is a composite index based on stress in the four major domains of financial markets, such as banking, equity markets, debt and foreign exchange (Park and Mercado, 2014). Banking stress is captured through bank  $\beta$ . It measures the ratio of the covariance of the return of the banking sector's stock price index and the overall stock price index with respect to the variance of the overall stock price return. Higher values of  $\beta$  indicate greater banking sector stress. Similarly, equity market stress is captured by the time-varying volatility of stock returns using a Generalized Auto Regressive Conditional Heteroskedasticity (GARCH) (1, 1) specification. It also includes month-on-month stock market returns as a component of equity market stress. The yield differentials between long-term (10-year) local government bonds and US Treasuries capture the debt market stress; a wider spread indicates higher stress. Finally, stress in the foreign exchange is defined as periods of substantial devaluations, losses in foreign exchange reserves and/or defensive interest rate hikes. This component is captured through the exchange market pressure index (EMPI), which tracks the local currency's depreciation with respect to the US dollar and the reduction in foreign exchange reserves (Balakrishnan *et al.*, 2011). The final FSI is then constructed by aggregating the five individual measures using the variance-equal weights and principal component analysis (Park and Mercado, 2014) [4]. Monthly data on the FSI are available from the ARIC's website [5]. Table A1 [1] provides a detailed description of the variables used in our analysis.

### 2.1 Identification strategy

Household data on CC are gathered from a city-based survey, conducted bi-monthly as of December 2016. The field survey is generally conducted during the first and second weeks of the survey months, whereas the FSI is a monthly composite index released after the month ends. Therefore, we align the household-level survey data with a lag of FSI. We can think of the estimating equation as how variations in  $FSI_{t-1}$  (LFSI) impact households' perception and outlook, conditional on household control variables (Bertrand *et al.*, 2004; Binder and Makridis, 2020; Gillitzer *et al.*, 2021). The estimating linear regression equation takes the following form:

$$HHCCS_{icmt} = \alpha + \beta FSI_{m-1} + \gamma Z_{icmt} + \varnothing_c + \delta_m + \Theta_t + \epsilon_{icmt}$$

$i$ ,  $c$ ,  $m$  and  $t$  represent survey households, city of residence, month and year, respectively.  $Z$  indicates a vector of household demographic-level covariates, such as age, gender, level of education, income level and occupational categories. We include the year-fixed effects ( $\Theta_t$ ), which should flexibly incorporate the omitted variations in the macroeconomic outcomes across the nation that might impact household decisions. The  $\delta_m$  denotes the monthly effects likely to control cyclical fluctuations across the households' beliefs. Furthermore, city-fixed effects ( $\varnothing_c$ ) mitigate the disparity that might arise owing to the non-random choice of households across locations with heterogeneous market conditions, economic growth rates and varying sentiments likely to influence how households process information (González, 2022). The inclusion of city and time-fixed effects helps to account for endogeneity that can arise from owing to unobserved factors. Moreover, including year- and month-fixed effects also helps control for COVID-19 periods. Further, confidence in the economy is captured at the household level, and  $FSI_{m-1}$  captures the effect of changes in FS-related information in the preceding survey month. Moreover, FSI is an *ex-post* measure of financial instability (Park and Mercado, 2014). Therefore, it is unlikely that consumer confidence at the respondent level can impact the FSI in the preceding month and hence can be assumed to be exogenous.

Unobserved shocks across the households are uncorrelated with variations in lags of FSI, contingent upon the control variables. Therefore,  $FSI_{m-1}$  captures the effect of changes in FS-related information in the preceding month of the survey period. Thus, the FSI's lagged values help mitigate the reverse causality concerns and *potential* endogeneity between FSI and CC (Bellemare *et al.*, 2017; Park and Mercado, 2014) [6]. The  $\epsilon_{icmt}$  denotes the error term. The variable  $HHCCS_{icmt}$  alternatively indicates households' perception of and outlook on general economic conditions. Standard errors are clustered at the city level to account for any arbitrary correlation across households in the same location (Bertrand *et al.*, 2004) [7]. We hypothesize the estimated coefficient of  $\beta$  to be negative.

### 3. Empirical results

#### 3.1 Impact of FSI on household confidence

This section presents findings from our baseline empirical exercise using two specifications. Model I shows the impact of LFSI on CC indices without household control variables, while Model II includes all household control variables. Table 1 presents the findings from the baseline ordinary least squares (OLS) specification with fixed effects. For GECPER, the estimated coefficients of LFSI are negative and statistically significant for both specifications. A one-unit rise in FSI leads to a decline in respondents' perception about their current economic condition by 3.6%.

Similarly, FSI has a negative and statistically significant effect on GECOTL; a one-unit rise in LFSI leads to a decline in GECOTL by 1.4%. Such findings are consistent with the literature (de Mendonça and Almeida, 2019; Ghosh, 2022). Rising FS increases household pessimism about the economy, with a stronger effect on current perceptions than on future outlooks. Households perceive the rise in FSI to have a larger short-term rather than long-term impact.

#### 3.2 Exploring the heterogeneous effects

The impact of FSI on household economic behavior can vary based on socioeconomic characteristics, as the household's coping mechanism varies based on the structure, nature and resources available (Ampudia *et al.*, 2016; Fonseca *et al.*, 2016). Moreover, CC can vary based on households' socioeconomic characteristics (Binder and Makridis, 2020). Therefore, we also explore the heterogeneous impact of FS on household confidence based on household

**Table 1.** Baseline regression

Variables	GECPER	Model II	GECOTL	Model II
	Model I		Model I	
	Coeff.	Coeff.	Coeff.	Coeff.
	(SE)	(SE)	(SE)	(SE)
LFSI	-0.036***	-0.036***	-0.014***	-0.014***
	-0.006	-0.006	-0.004	-0.004
Household controls	No	Yes	No	Yes
City, month and year fixed-effects	Yes	Yes	Yes	Yes
Observations	275,764	275,763	275,764	275,763

**Note(s):** This table presents the impact of financial stress on general economic confidence. GECPER = 1 if the respondent's perception towards their present general economic condition compared to a year ago has improved, 0 if it remained the same and -1 if it worsened. Similarly, GECOTL = 1 if the respondent's outlook on the future general economic condition a year ahead will improve, 0 if it will remain the same and -1 if it will worsen. LFSI is the first lag of the financial stress index. Standard errors clustered at the city level are reported in parentheses. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1%, respectively

**Source(s):** Authors' own work

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characteristics. The estimations are based on the interaction of LFSI and respective moderating socioeconomic variables (Binder and Makridis, 2020).

*3.2.1 Heterogeneous effect based on household income.* Household income is a prime determinant of how families cope with FS. Therefore, we explore the impact of the FSI on household confidence based on their income categories. The evaluated coefficient of the interaction term (INCOMEG\*LFSI) shows a negative impact across all income groups for GECPER (Table A2 [1]). The magnitude is highest for high-income groups. However, for GECOTL, such an impact is negative and statistically significant for low-income groups only. Households from the higher income group perceive FS to have a stronger effect on the economy and hence exhibit greater sensitivity with respect to the present economic scenario. Higher-income households in India have greater exposure to formal financial markets, including participation in the stock market and access to formal credit (Rampal and Biswas, 2022); therefore, they may react more intensely to FS. This view is also consistent with Ampudia *et al.* (2016), who show that FS emanating from asset prices is greater for income-rich households. However, over the longer term, it does not impact their optimism about the economy's future outlook.

*3.2.2 Heterogeneous effect based on education level.* To explore heterogeneity across different education levels, Table A3 [1] shows our regression estimates. GECPER, the estimated interaction term coefficients (EDUG\*LFSI), are negative and statistically significant across all the education categories, barred for the respondents with primary and matriculation levels. Further, for GECOTL, respondents with primary education, followed by undergraduates, are most pessimistic about their expectations for the future economy. Education is correlated with employment and income. Therefore, with increased education, respondents became more sensitive to FS shocks for GECPER. However, this does not translate into pessimism for future outlook, except for those who are marginally educated or not graduates. The implications of FSI for education align with our previous findings on income, as higher educated and income groups likely have better access to financial products, which makes them more sensitive to increases in FS.

### *3.3 Impact of FSI on households' own economic conditions*

In our baseline models, FS negatively impacts both the perceptions and outlook on the aggregate economy. In this section, we explore how FS impacts households' perceptions of and outlooks on their own economic conditions. Although we cannot examine the direct implications of FSI on households' income, spending and employment, we utilize the information provided in the survey about the households' perception and expectations of household income (HIPER and HIOTL), spending patterns (HSPER and HSOTL), spending on essentials and nonessentials (ESPER, ESOTL, NESPER and NESOTL [8]), employment likelihood (EMPER and EMOTL) and general price levels (GPPER and GPOTL) [9]. FSI negatively impacts the perception of and outlook on household income (Table A4 [1]). It also negatively impacts household perceptions of consumption, particularly for nonessential spending, as in studies showing that adverse economic shocks can reduce household spending (Ampudia *et al.*, 2016; Coibion *et al.*, 2024; Rooj *et al.*, 2023). A larger impact on the nonessentials compared to the essentials is also consistent with Hubrich and Tetlow (2015), who argue for a link between FS, availability of credit, and household spending – especially for those goods for which credit is a strong component, such as consumer durables. However, we find only a moderate effect of FSI on unemployment, consistent with Feldmann (2011). Overall, FSI has a broader impact on households' own economic perceptions and outlook.

### *3.4 Impact of individual components of FSI on household confidence*

FSI is an aggregate financial stability indicator comprising banking sector beta, equity market returns, volatility, sovereign debt spreads and the exchange market pressure index. These components have a heterogeneous impact on the economy (Cardarelli *et al.*, 2011; Wu *et al.*,



2023). Therefore, we also examine the implications of these individual components of FSI on GECPER and GECOTL (Table A5 [9]). All components (except banking beta on GECTOL) exert a negative and statistically significant impact on both households' present perception (GECPER) and future expectations (GECOTL). The impact's magnitude also shows that the exchange and debt markets have a higher impact than the other components.

Our findings provide interesting perspectives. Cardarelli *et al.* (2011) find that in major advanced economies, FS characterized by banking distress has a more pronounced effect on the economy than stress in securities or foreign exchange markets. Apostolakis and Papadopoulos (2015) argue that security markets are the primary transmitters of FS in G7 countries. Conversely, Tng *et al.* (2012) find that equity markets play the predominant role in transmitting stress within the Association of Southeast Asian Nations (ASEAN) region. However, foreign exchange and debt markets are predominant in depressing household confidence in the Indian context. This could be because the stress in the foreign market captures currency crises, such as substantial domestic currency devaluations, declines in foreign exchange reserves and defensive interest rate hikes (Park and Mercado, 2014). Pressure in the exchange market – especially the devaluation of local currency – can also impact personal income, equity returns and CC (Sun and Kim, 2018).

Furthermore, a steady devaluation might also trigger elevated inflation rates, making consumers illogical, emotional and impulsive in spending (Negm, 2023). Widening debt spreads indicate greater uncertainty and loss of confidence (Park and Mercado, 2014). It can also indicate the rising cost of credit, negatively impacting investment and the overall economy. The findings, therefore, indicate that Indian households may be more concerned about broader macroeconomic risks, such as currency depreciation and rising debt costs, than about fluctuations in stock prices.

### 3.5 Asymmetric impact of FSI

Macroeconomic and financial shocks can have asymmetric effects, with adverse shocks having a larger negative effect than the positive effects generated by a similar beneficial shock (Chen *et al.*, 2019; Evgenidis and Tsagkanos, 2017). Therefore, we also investigated the asymmetric effect of FSI on household confidence. Following Chen *et al.* (2019), we define

$$FSIH_m = \begin{cases} FSI_{m-1}, & \text{if } FSI_{m-1} > 0 \\ 0, & \text{if } FSI_{m-1} \leq 0 \end{cases}; FSIL_m = \begin{cases} FSI_{m-1}, & \text{if } FSI_{m-1} < 0 \\ 0, & \text{if } FSI_{m-1} \geq 0 \end{cases}$$

where  $FSIH_m$  denotes above-average shocks and  $FSIL_m$  denotes below-average shocks. We rewrite equation 1 as

$$HHCCS_{icmt} = \alpha + \beta_1 FSIH_{m-1} + \beta_2 FSIL_{m-1} + \gamma Z_{icmt} + \varnothing_c + \delta_m + \Theta_t + \epsilon_{icmt}$$

$\beta_1$  and  $\beta_2$  are our variables of interest. FSI shocks have an asymmetric impact if  $\widehat{\beta}_1 \neq \text{abs}(\widehat{\beta}_2)$ . We expect FSIH to have a higher impact than FSIL, with  $\text{abs}(\widehat{\beta}_1) > \text{abs}(\widehat{\beta}_2)$ . The findings (Table A6 [1]) provide some interesting observations. First, the estimated coefficient of FSIH is negative and statistically significant across both confidence indices. Further, the absolute value of FSIH is greater than that of FSIL with respect to GECPER. The findings are consistent with Evgenidis and Tsagkanos (2017) and Chen *et al.* (2019). They also echo Ghosh (2022) with respect to CC, with higher levels of FSI having a stronger impact on GECPER than lower levels of FSI. However, the impact of FSIH on GECOTL is negative and statistically significant, but that of FSIL on GECOTL is positive and statistically significant. While above-average FSI leads to pessimism among households, below-average FSI translates into optimism among households about the economy's future outlook. Thus, when households observe below-average FSI, they perceive it as positive news for the prospects of the economy. These findings align with the literature that explores households' asymmetric behavioral

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responses due to macroeconomic and financial shocks (Santoro *et al.*, 2014; Ciccarone *et al.*, 2019).

### 3.6 Robustness

We conducted several additional analyses to verify the robustness of our baseline model presented in section 3.1. First, in our baseline specification, we consider time-lagging FSI by one lag to mitigate the risk of reverse causality. We augment this analysis by considering an alternative lagging strategy, lagging the FSI by one-quarter (LFSIQ) to check the sensitivity of our baseline results. Next, instead of levels of FSI, we consider the changes in financial stress (FSIG). Figure A3 [1] shows the estimated coefficients of LFSI, LFSIQ and FSIG for both GECPER and GECOTL. In both cases, even though the magnitudes differ, the implications remain the same, with FSI negatively impacting CC. Next, we consider using alternative measures of consumer sentiment. Following Binder and Makridis (2020) and Rooj *et al.* (2024), we define HHEC as the aggregate of GECPER and GECOTL. The estimated coefficients of LFSI are negative and statistically significant for HHEC. Thus, the findings of our baseline models are also robust for alternative definitions of macroeconomic sentiments (Table A7 [1]).

### 3.7 Placebo analysis

In our baseline specification, we control for a set of household characteristics and include several fixed effects to control for unobserved heterogeneity. However, a possibility of bias still exists owing to omitted explanatory variables. For example, local economic conditions may influence FSI and CC. Therefore, we conducted a placebo test to remove any such concern related to the actual effect of LFSI on household confidence (Berger *et al.*, 2022; Drobetz *et al.*, 2018). We do this by randomly assigning LFSI to different time periods. If LFSI causes CC, we should not observe any significant relation between measures of household confidence and the randomly assigned LFSI, defined as  $\widehat{LFSI}$  (Acharya and Xu, 2017). Figures A4 [1] and A5 [1] plot the regression coefficients with 500 random samples of  $\widehat{LFSI}$ . The mean of  $\widehat{LFSI}$  for both GECPER and GECOTL is close to 0.001. The distributions of  $\widehat{LFSI}$  indicate that the estimated coefficients are neither statistically nor economically significant, which supports our main findings.

## 4. Conclusion

The 2008 financial crisis and subsequent global economic slowdown have shown the importance of financial market vulnerabilities on the real economy. While several studies focus on the impact of FS on economic indicators such as output and inflation, research on its effects on household confidence – particularly in emerging economies – is limited. We attempt to fill this gap by exploring how FS impacts household confidence about general economic activity, using India as a case study. Using unit-level survey data from the RBI's CCS and the ARIC's FSI, we find that increased FS significantly lowers household confidence in the economy. Our heterogeneity analysis highlights that higher-income groups are more pessimistic toward their present perceptions, with no impact on their future outlook. Respondents become more sensitive toward FS shocks about their future outlook with rising education levels, but this does not translate into pessimism for future outlook, except for those who are marginally educated or not graduates. Moreover, households tend to spend less – especially on nonessential goods – with increased FS. However, FS only has a moderate impact on their employment likelihood.

Furthermore, the disaggregated impact of FSI indicates that currency fluctuations have a greater degree of impact on Indian households' beliefs and expectations, followed by debt spread and stock market volatility. Moreover, the asymmetric impact of FSI indicates that



while above-average FSI leads to pessimism among households, below-average FSI translates into optimism about the economy's future outlook. Additionally, several robustness checks reinstated our baseline findings.

Our findings reveal the dampening impact of FS on household confidence. Furthermore, lower levels of FSI cause greater optimism among households about the economy's future state. Therefore, prudent policy measures aimed at enhancing financial stability can significantly improve household confidence, thereby stimulating economic activity. This heterogeneity in the impact of FS on household confidence emphasizes the need for targeted interventions based on socioeconomic demographics. For instance, wealthier households – more sensitive to fluctuations in the foreign exchange market and equity market volatility – may benefit from policies that address stability in sectors such as real estate, gold and financial services, where these households are heavily invested. Tailored instruments in these areas could provide a buffer against FS, preserving consumption patterns and boosting confidence across all income levels.

Furthermore, the disaggregated impact of FS reveals that Indian households are more vulnerable to foreign exchange risks and debt-related issues than to equity market volatility. The asymmetric analysis also highlights that households generally exhibit increased pessimism when they experience above-average levels of FSI. However, a below-average FSI has a positive effect, fostering optimism among households about the future economic environment. Thus, policy measures promoting macroeconomic stability, such as maintaining a stable currency and controlling inflation, are particularly important for managing household confidence. Targeted interventions in debt management, credit accessibility and foreign exchange regulation can offer critical support to households – especially those with higher debt or international exposure. The focused approach, therefore, can effectively mitigate the adverse effects of FS on households' economic behavior.

Given the lack of household consumption and income data, we cannot uncover the direct mechanism through which FSI can influence household confidence. Moreover, our work mainly focuses on analyzing the implications of FSI on CC using household survey data. Therefore, exploring such dynamics using household data for other emerging markets to gain further understating – especially on the comparative role of individual components of FSI on CC – would be an interesting approach.

## Notes

1. Please see it on the [Online Appendix](#)
2. Ahmedabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Chennai, Delhi, Guwahati, Hyderabad, Jaipur, Jammu, Kolkata, Lucknow, Mumbai, Nagpur, Patna, Raipur, Ranchi and Thiruvananthapuram.
3. CCS data are publicly available on [www.rbi.org.in](http://www.rbi.org.in)
4. The ARIC website provides no information on whether the index is based on variance-equal weights and principal component analysis.
5. <https://aric.adb.org/database/fsi>
6. We argue that a potential feedback loop exists between the FSI and CC. In other words, a lower level of CC in  $t-1$  can lead to a real recession in  $t-1$ , which can lead to high FSI in  $t-1$ , which can lead to low CC in  $t$  and so on. However, most of the literature argues that CC leads economic activity; thus, we can rule out contemporaneous feedback. As we only repeat cross-sectional data instead of panel data, we cannot account for this feedback. We conduct several robustness checks, including alternative lag length and a placebo analysis, to corroborate our baseline findings.
7. We use the `reghdfe` package from Stata for our estimation, and the city-level clustering produces standard errors that are robust to heteroskedasticity. Moreover, clustered standard errors account for the dependence in error terms within clusters. When clustered standard errors are much larger (3–5 times) than heteroskedasticity-robust ones, which suggests the presence of serial correlation

- (Petersen, 2008). We do this exercise by comparing the standard errors with clustering and standard errors with heteroskedasticity-robust but find no significant difference between them, ruling out the possibility of any serial correlation.
8. Essential items comprise food, housing, fuel and electricity, essential clothing, education, medical amenities, transportation, etc. Nonessential items comprise consumer durables, motor vehicles, gold and jewelry and expenses on hotel and restaurants.
  9. Detailed definitions are provided in [Table A1](#).

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#### **Supplementary material**

The supplementary material for this article can be found online.

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